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Graduate Program Descriptions for 2004-2005

Wright State University

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Accountancy

Admission

The M.Acc. program is primarily designed for students who possess an undergraduate degree in accounting or its equivalent. The minimum components of an equivalent undergraduate degree in accounting are outlined below. Applicants deficient in any of these areas are required to successfully remedy the deficiency by completing the appropriate undergraduate preparatory courses or the graduate equivalent. Individual courses may be waived for students who have successfully completed comparable courses at a regionally accredited institution. Waiver of prerequisite course work is a judgment made by the director of the M.Acc. program. It is based on the grade received, credit hours, when the course was completed, course content, focus, and other factors.

Applicants who do not possess an undergraduate degree in accounting may be admitted on a limited basis if space is available. Admission for these few slots is very competitive. To be considered, such applications must be received by April 1 for admission the following Fall Quarter.

Candidates should consult with the M.Acc. Program Director for further details concerning policies and procedures.

Degree Requirements

Prerequisites

The M.Acc. program is primarily designed for students who possess an undergraduate degree in accounting or its equivalent. The minimum components of an equivalent undergraduate degree in accounting are outlined below. Applicants deficient in any of these areas are required to successfully remedy the deficiency by completing the appropriate undergraduate preparatory courses or the graduate equivalent. Individual courses may be waived for students who have successfully completed comparable courses at a regionally accredited institution. Waiver of prerequisite course work is a judgment made by the director of the M.Acc. program. It is based on the grade received, credit hours, when the course was completed, course content, focus, and other factors.

Applicants who do not possess an undergraduate degree in accounting may be admitted on a limited basis if space is available. Admission for these few slots is very competitive. To be considered, such applications must be received by April 1 for admission the following Fall Quarter.

Candidates should consult with the M.Acc. Program Director for further details concerning policies and procedures.

Business Prerequisites: (waived for students with undergraduate degrees in business or a

Master in Business Administration degree from AACSB-accredited schools)

- Economics
- Finance
- Management Science
- Management
- Marketing
- Communications
- Business Writing

Accounting Prerequisites: (waived for students with undergraduate degrees in accounting from AACSB-accredited schools.)

- Accounting Principles
- Intermediate Financial Accounting
- Managerial (Cost) Accounting
- Taxation
- Accounting Systems
- Auditing and Assurance Services

Course of Study

M.Acc. Curriculum

I. Required	17
<hr/>	
ACC 741 Financial Accounting Topics and Research	4
ACC 744 Attestation Topics and Research	4
ACC 747 Professional Issues Seminar	1
ACC 750 Capstone Project	4
LAW 735 Law for Accountants	4
II. Select two	8
<hr/>	
ACC 742 Government and Not-for-Profit Accounting	4
ACC 743 Taxation Topics and Research	4
ACC 745 Accounting Information Technology	4
ACC 757 International Accounting (4)	4
ACC 780 Special Topics in Accounting	4
III. Select 5 other electives	20
<hr/>	
May include coursework listed in part II above in excess of 8 hours	
May include 4 hours internship	
May include graduate coursework at the 600 or 700 level taken to fulfill business or accounting prerequisites	
Total Required	45

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Aerospace Medicine

Introduction

The aerospace medicine Master of Science degree program is conducted by the School of Medicine's Department of Community Health, Division of Aerospace Medicine. The program provides fundamental information about aviation and spaceflight biomedical factors including physiological, psychological, bioengineering, and clinical factors. Selection and periodic examination requirements for aircrew are detailed, as are normal and pathological changes associated with aircrew and the flight environment.

Admission

The minimum requirement for admission to the M.S. degree program in aerospace medicine is the M.D. or equivalent medical degree, a clinical year of medical training, at least steps one and two of the USMLE, and the general requirements for admission into the School of Graduate Studies. Prospective students communicate with the Aerospace Medicine divisional office for acceptance (not with the Department of Community Health). It is possible that certain advanced students can take individual courses in the curriculum and apply these to other degree programs.

Degree Requirements

Students must complete the required courses and a project. A research option is also available.

Faculty

Professors

Stanley R. Mohler (Emeritus), aerospace medicine
Mary Anne Frey (Emerita), aerospace physiology
Associate Professor
Robin E. Dodge (director), aerospace medicine

Assistant Professor

Farhad Sahiar, aerospace medicine

Instructors

Morton Nelson, epidemiology
Adrienne Stolfi, biostatistics

Program Description

Required Core Courses

CMH 601, 602, 621, 622, 641, 642, 643, 651, 654, 655, 700, 701, 711, 721, 723, 731, 789, 899

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Applied Behavioral Science: Criminal Justice and Social Problems

Introduction

The Applied Behavioral Science Program offers Master of Arts Degree tracks in two fields: Criminal Justice and Social Problems, and International and Comparative Politics.

The Criminal Justice and Social Problems track emphasizes methodology and theoretical courses and topics-focused workshops aimed at improving the research and intellectual foundations for employment and professional advancement in the criminal justice fields. Students in the program typically work for, or plan to work for, the courts, probation offices, police agencies, prison administrations, or private and public programs for juvenile offenders.

The training received in basic social science skills and knowledge is also a useful foundation for those who wish to proceed to doctoral-level study in a number of fields. An optional practicum provides field experience for those without prior experience in a criminal justice field. The program culminates in an applied research effort that, at the student's option, takes the form of either a journal article project or a traditional thesis. Courses are offered primarily in the evenings and workshops primarily on the weekends to accommodate employed students.

The International and Comparative Politics track prepares students who intend to continue their education in a Ph.D. program in international relations, comparative politics, or a related field. The program also provides continuing international education opportunities for those working in the public or private sector. Graduate seminars, independent readings, and practicum opportunities enable students to explore the scholarship in their field and its applications. Students may select from among four specialized areas of study: Peace and Security Studies, International Organizations, Developed States, and Developing States Area Studies. Program students are required to complete or demonstrate a quantitative or foreign language research requirement. The degree culminates in either a traditional thesis or a project developed in consultation with a program advisor.

Admission

In addition to meeting the admission requirements of the School of Graduate Studies, students applying for admission into the Criminal Justice and Social Problems M.A. degree program are generally expected to have an undergraduate degree in criminal justice, social work, or a social science (such as sociology, psychology, or political science). Significant experience working in a criminal justice field can substitute for this expectation for students with degrees in other fields. Admission is generally for summer or fall quarters.

Applicants to the International and Comparative Politics M.A. degree program must meet the graduate school's admission criteria, and should additionally demonstrate in their letter

of application how their undergraduate and/or professional record will be enhanced by participation in the program.

Faculty

Professors

Jeanne Ballantine, applied research methods, sociology of education
Edward Fitzgerald, international law, natural resource law
Charles Funderburk, corruption
Donna M. Schlagheck, American foreign policy, terrorism, United Nations
James Walker (emeritus), peace studies

Associate Professors

Anna Bellisari, human evolution, human growth and development, cultural diversity, women's issues
Carl Brun, child welfare, qualitative methods, program evaluation, domestic violence
Anita Curry-Jackson, social work
Marlese Durr, organization, occupations and work, research methods
December Green, Africa, human rights, gender, violence
Laura Luehrmann, China, Chinese foreign policy, transitions
David Orenstein (director), theoretical foundations, qualitative methods
Mark Sirkin, Middle East, Israeli-Palestinian
Jim Steinberg, family dysfunctions, child welfare

Assistant Professors

Liam Anderson, Europe, Russia, Central Asian, weapons destruction
Tracy Snipe, Africa, France, radical black thought
Tracey Steele, crime and social control, gender, sexuality, medical sociology
Norma Wilcox, corrections, criminological theory, quantitative methodology

Instructor

Jackie Bergdahl, women and crime, methodology

Financial Assistance

The ABS program offers several graduate assistantships. Graduate fellowships for both part-time and full-time students may be available through the School of Graduate Studies. Awards of financial assistance are generally for the entire academic year, which begins with the fall quarter. Applications for assistantships are obtained from the ABS office and should be submitted to that office by March 15.

There are a limited number of graduate assistantships available in nonacademic university departments each year. The ABS director can provide more information about these.

Course of Study

Criminal Justice and Social Problems Track

Core Requirements	26
<hr/>	
ABS 700 Electronic Research	2
ABS 701 Methodology I	4
ABS 702 Methodology II	4
ABS 703 Applied Methodology	4
ABS 751 Theoretical Foundations	4
ABS 752 Explaining Crime	4
ABS 753 Criminal Justice	4
Additional Courses (four options)	22

Option 1 (for students with sufficient work experience in the field who select to complete a project)	
ABS 788 Graduate Seminar in Applied Behavioral Science	10
Elective Alternatives (to be selected with an advisor)	8
ABS 798 Graduate project	4
Option 2 (for students with sufficient work experience in the field who select to complete a traditional thesis)	
ABS 788 Graduate Seminar in Applied Behavioral Science	6
Elective Alternatives (to be selected with an advisor)	8
ABS 799 Thesis Research	8
Option 3 (for students without sufficient work experience in the field who select to complete a project)	
ABS 788 Graduate Seminar in Applied Behavioral Science	10
ABS 779 Practicum	8
ABS 798 Graduate Project	4
Option 4 (for students without sufficient work experience in the field who select to complete a traditional thesis)	
ABS 788 Graduate Seminar in Applied Behavioral Science	6
ABS 779 Practicum	8
ABS 799 Thesis Research	8
Total	48

International and Comparative Politics Track

Core Requirements	8
<hr/>	
ABS 730 Theories in International and Comparative Politics	4
ABS 731 Seminar in International and Comparative Politics	4
Research Methods	6
<hr/>	
ABS 700 Electronic Research	2
ABS 703 Applied Methodology	4
Language Skills/Alternative	0-8
<hr/>	
Students who do not have sufficient foreign language skills may substitute the following	
ABS 701 Methodology I	4
ABS 702 Methodology II	4
Specialized Track	24
<hr/>	
Select one in consultation with advisor.	
Courses related to Peace and Security Studies	
Courses related to International Organizations	
Courses related to Developed Nations	
Courses related to Developing Nations	
Thesis or Project	10
<hr/>	
Student selects either in consultation with advisor	
ABS 799 Thesis Research or	
ABS 798 Graduate Project	10
Total	48-56

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Biochemistry and Molecular Biology

Introduction

The Department of Biochemistry and Molecular Biology offers a program of study leading to the Master of Science degree in biochemistry and molecular biology. The major purpose of the M.S. program is to provide the student with a strong biochemical background that can serve as a basis for further graduate or professional study. Graduate study with faculty in the Department of Biochemistry and Molecular Biology leading to a Doctor of Philosophy degree is available through the Biomedical Sciences Ph.D. Program.

Major research interests of the department are grouped into three interrelated areas: molecular structure and function, molecular genetics, and the application of magnetic resonance (MR) to biomedical research. Specific research projects deal with the structure and function of membranes, proteins and enzymes, nucleic acids, chromatin structure and function, molecular genetics, nucleotide metabolism, and the use of MR to study biochemical phenomena.

Admission

Applicants must fulfill the requirements for admission established by the School of Graduate Studies. A bachelor's degree in the biochemical, biological, or chemical sciences, including course work in organic chemistry, physics, and calculus, is generally required. In addition, letters of recommendation are an important admission consideration.

Degree Requirements

Qualification for the Master of Science degree requires a candidate to fulfill the requirements of the School of Graduate Studies, to complete departmental course work, and to submit an acceptable research thesis.

Summary of Course and Thesis Requirements

1. Biochemistry lecture sequence (BMB 750 and 752). A grade of B must be obtained in each quarter of these courses. If a B is not obtained, the student may repeat the course (or courses) once. A repeat of BMB 750 and/or 752 must be completed within a year of the quarter in which the deficiency occurs.

2. Research Perspectives (BMB 702).

3. Research Ethics (BMB 703).

4. Graduate seminars: a total of 6 credit hours of graduate-level seminars in biochemistry or other departments.

5. Two additional 700-level courses: these may include 700-level courses from other departments.

6. The student and his or her thesis advisor will have the responsibility for selecting advanced courses and seminars suited to each student's program needs and interests.

7. The thesis must be based on hands-on research. BMB 899 (or BMB 699) must be taken each quarter the student performs laboratory research. The thesis advisory committee must be made up of at least three faculty from the Department of Biochemistry. The student will orally defend the completed thesis and present a departmental seminar on his or her research.

Faculty

Professors

Michael Leffak, DNA replication and cloning

Daniel T. Organisciak (chair), visual biochemistry, membrane function, neuronal lipid metabolism

Lawrence J. Prochaska, energy-transducing membranes, cytochrome oxidase

Robert A. Weisman, in vivo magnetic resonance, positron emission tomography

Associate Professors

Gerald M. Alter, enzyme structure, hemoglobin conformation, site directed mutagenesis

Steven J. Berberich, regulation of cell proliferation, oncogenes

John V. Paietta, gene expression, recombinant DNA

Nicholas V. Reo, carbohydrate metabolism, in vivo magnetic resonance

John J. Turchi, mechanisms of eukaryotic DNA replication and repair

Assistant Professors

Patrick B. Dennis, regulation of ribosomal biosynthesis and breakdown

Madhavi Kadakia, Characterization of p63 and p73 responsive gene expression using DNA microarray

Adjunct and Joint Faculty

Paul G. Seybold, professor (chemistry), chemical carcinogens, physical biochemistry

Voluntary Faculty

Darrell E. Fleischman, associate professor, cyclic nucleotides, biophysical aspects of photosynthesis

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Biological Sciences

Introduction

The program leading to the Master of Science provides students with the opportunity to gain a solid foundation in modern interdisciplinary biology in preparation for careers as professional biologists in industry, government, or education and research organizations or for further professional training.

Areas of specialization available through the Department of Biological Sciences are cellular/molecular biology including recombinant DNA, molecular genetics, cell models of carcinogenesis, differentiation and regulation, and organismic/environmental biology including aquatic biology, genetics, animal and plant physiology, parasitology, environmental microbiology, ecology, and toxicology.

Instructional areas within the department consist of formal course work, laboratory research, and special topic seminars. In order to provide flexibility and an interdisciplinary approach, specific prerequisites for many graduate courses are not listed. However, areas of prior training are recommended for students in order to obtain maximum benefits. In addition, the other life science departments (Biochemistry and Molecular Biology, Anatomy and Physiology, Pharmacology and Toxicology) as well as the Departments of Chemistry, Geological Sciences, Mathematics and Statistics, Physics, Psychology, and the College of Engineering and Computer Science, currently offer courses that support the biology program. A graduate in biology, therefore, may receive exposure to subjects in the field of specialization, in related biological fields, and in supporting disciplines outside the department.

Students may pursue an M.S. degree in biology through one of two options. Option One requires the submission and oral defense of a thesis based on original research performed while enrolled as a graduate student at the university. Although there is little specific course work required for this option, candidates will be advised to enroll in graduate-level courses deemed appropriate for successful understanding of the research to be undertaken. Option Two is a course work option that requires the successful completion of 45 quarter credits of graduate-level course work, including a critical literature review, a laboratory rotation, and a final oral examination. The desired option can be elected by students only after consultation with the chair of the graduate committee. Consideration for electing the appropriate option must be given to the availability of research topics and advisors and to the student's research and educational interests.

All candidates, regardless of the option chosen, are required to obtain a major advisor and an advisory committee. The advisory committee will help formulate a study program, provide counseling, and evaluate student progress. If a student is uncertain of a major field of interest or of an appropriate option, the department graduate committee will assign a

temporary advisor who will function in place of an advisory committee until the student selects an option and is accepted by an advisory professor. Enrollment in BIO 702, Introduction to Research, enables the student to choose an advisor.

All candidates must meet requirements for the Master of Science degree defined in the section Degree Requirements. They must, in addition, meet the specific requirements of the option chosen.

For additional information on the department and its programs, you might wish to consult our Web site at <http://biology.wright.edu>.

Environmental Sciences Core

The requirements for the Master of Science degree in biology are quite flexible, and include a thesis and nonthesis option. The department also permits a student to pursue an advanced course of study that ensures an interdisciplinary environmental perspective. Both the thesis and nonthesis M.S. degree options in biological sciences can be specialized to provide an interdisciplinary environmental perspective. For this option, a student's advisory committee must include a member from outside the department, e.g., a member of the geology or chemistry faculty. And, in addition to meeting the general requirements for the Master of Science degree in biology, course requirements for the environmental core include:

- Environmental chemistry
- Geologic and environmental applications of geographic information systems
- Environmental statistics
- Risk assessment
- Environmental sciences seminar
- Two environmental sciences electives outside the biology department

A student completing these requirements will receive an M.S. degree in environmental sciences.

Admission

To meet the minimum requirement for admission to the graduate program in biological sciences, applicants must fulfill the requirements for admission established by the School of Graduate Studies. In addition, a bachelor's degree in the biological or biochemical sciences including course work in organic chemistry, physics, and calculus is generally required. Admission preference is given to students with a grade point average of 3.0 or better on a 4.0 grading scale. Letters of recommendation are also used in evaluating students for admission. We do not require GRE scores.

Degree Requirements

Students who are candidates for the Master of Science degree in biology must meet the following requirements:

1. The candidate must complete a minimum of 45 quarter credits. A maximum of 12 credits of graduate courses may be transferred from other institutions. At least 30 quarter hours must be at the 600-800 level in biological sciences and related fields.
2. One course in scientific or technical writing (such as BIO 608 or ENG 533 and 544) is required.
3. Candidates must be registered in the quarter in which they defend their thesis.
4. The candidate must maintain a 3.0 cumulative average; no more than 9 credit hours of

“C” grades may be applied to the degree.

5. The degree options have the following requirements:

Option 1:

a. Candidates must complete at least four graduate seminars. Three of the four graduate seminars must be offered by the Department of Biological Sciences faculty as BIO 800.

b. The College of Science and Mathematics requires a Program of Study to be filed with the School of Graduate Studies by the start of the third quarter of enrollment for full-time students, and by the time 18 hours have been taken for part-time students.

c. Candidates must submit an approved thesis proposal with the Graduate Committee by the end of the second quarter. This proposal should be prepared in consultation with the student's advisory committee. Students who have not done so will not be permitted to continue enrollment in BIO 899 (Graduate Research). Upon acceptance of the thesis proposal by the advisory committee, one copy is filed in the graduate student's file. Research may deviate from the original proposal; however, suitable supplementary information must be submitted to the advisory committee.

d. Candidates must submit and orally defend a thesis based on original research performed while enrolled as a graduate student at the university.

Option 2:

a. Candidates must complete 45 credit hours of graduate course work. For all Option 2 students, except those in the Environmental Sciences program, a maximum of 12 credits can be earned in departments other than life science departments.

b. Four graduate seminars are required, two of which must be taken in the Department of Biological Sciences.

c. Candidates must form an advisory committee and file a Program of Study before the end of their third quarter (or 25 credit hours).

d. Candidates must complete 4–6 credit hours of BIO 699 (Special Problems in Biology). A copy of their written report must be put in the student's department file. A maximum of 6 credit hours of BIO 699 and BIO 899 together can apply to degree requirements.

e. Candidates must write a critical review (BIO 799) and pass an oral exam administered by the advisory committee upon completion of course work. A maximum of 6 credit hours of BIO 799 can apply to degree requirements.

Related Graduate Programs

In addition to the Master of Science degree in Biological Sciences, faculty in the Department of Biological Sciences participate in several other graduate programs. The department supports The Interdisciplinary Master of Science in Teaching (M.S.T.) program offered by the College of Science and Mathematics. Several faculty in the Department are affiliated with the Master of Science degree in Microbiology and Immunology. Faculty also supervise graduate students in two doctoral programs leading to the Ph.D. degree: one program is in Environmental Sciences; the other is in Biomedical Sciences. See elsewhere in the graduate catalog for descriptions of these four programs.

Facilities

The Department of Biological Sciences is housed in a modern, air-conditioned building, well equipped with the newest research instruments. The department maintains classrooms and research laboratories for over 150 upper-division and graduate students. Excellent ancillary facilities include specialized instrument rooms, cold rooms, constant temperature rooms, animal rooms, a greenhouse, radioisotope laboratories, and an electron microscopy center, including complete darkroom capability. The Biological Sciences Building, completed in 1975, contains approximately 100,000 square feet and houses facilities of the biological and health sciences departments.

Major items of available research equipment include liquid scintillation counters; amino acid analyzer; infrared, visible, and ultraviolet spectrophotometers; spectrofluorometer; DNA and protein chip technology; flow cytometer; confocal microscope; greenhouse and experimental garden; field and aquatic sampling gear; preparative ultracentrifuges; nuclear magnetic resonance spectrometer; mass spectrometer; a wide range of instruments for light microscopy; transmission and scanning electron microscopes; preparative and analytical chromatography instruments; specialized cell and tissue culture facilities, and facilities for recombinant DNA research; and computer services (both PCs and mainframe).

A biological preserve plus additional wooded areas on campus totaling about 200 acres provide opportunities for field-oriented research and teaching experiences. Nearby natural areas include an extensive wetlands and a wide variety of aquatic habitats.

The department has excellent working relationships with other departments on campus, with the scientific complex of Wright-Patterson Air Force Base, and with several facilities that are affiliated with the Wright State University School of Medicine.

Faculty

Professors

Larry G. Arlian, medical entomology, immunoparasitology, physiology

G. Allen Burton, ecotoxicology

Wayne W. Carmichael, aquatic biology/toxicology, isolation, culture, toxicology of toxic algae, biotechnology

David L. Goldstein (chair), comparative physiology of osmoregulation, physiological ecology, ornithology

Barbara E. Hull, cell biology, histology, electron microscopy, reconstruction of skin in vitro

Larry D. Isaacs, human lifespan motor development

James R. Runkle, plant ecology, general ecology

Michele G. Wheatly (dean), crustacean physiology, calcium transport

Timothy S. Wood, invertebrate ecology, biology of freshwater bryozoans

Associate Professors

James P. Amon, microbial ecology, including molecular biology, cell biology, and electron microscopy

Scott E. Baird, developmental genetics

Donald Cipollini, Jr., plant physiological ecology

Keith A. Grasman, wildlife toxicology and immunotoxicology

Dan E. Krane, molecular and genome evolution, human population substructuring

Mark D. Mamrack, cellular biochemistry, signal transduction, carcinogenesis

Mill W. Miller, cellular and developmental biology/nuclear transport

Roberta L. Pohlman, exercise physiology

James H. Tomlin, science education, learning theory

Assistant Professors

Yvonne Vadeboncoeur, aquatic ecology

Thomas Van't Hof, physiology, endocrinology, biological rhythms

Lecturer

Hunting W. Brown, Institute for Environmental Quality

Financial Assistance

Graduate teaching assistantships (GTA) and tuition scholarships are available on a competitive basis, and graduate research assistantships (GRA) may be available by arrangement with individual faculty. These appointments carry a waiver of most tuition and instructional fees for both residents and nonresidents, and GTA and GRA appointments also include a stipend. Appointments are made for the academic year and may be renewed for a second year. Additional assistantship support may be available for the summer quarter. See the "Financial Assistance, Fees, and Tuition" section of the graduate catalog for details.

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Biomedical Engineering

Introduction

The Department of Biomedical, Industrial, and Human Factors Engineering offers a program of graduate study leading to a Master of Science in Engineering (M.S.E.) degree with a major in biomedical engineering. The M.S.E. program is broad in scope and emphasizes portable concepts in the design and analysis of complex physical systems using modeling, synthesis, and optimization techniques, and bridges interdisciplinary engineering areas such as controls, robotics, electronics, and communications.

A Ph.D. in engineering with a major in biomedical engineering is also available. For details, see Engineering Ph.D. Program.

Admission

To be considered for admission to the M.S.E.-Biomedical Engineering program, students must first satisfy basic requirements of the School of Graduate Studies. This includes having a bachelor's degree in engineering or a related area with an overall undergraduate grade point average of at least 2.7 (on a 4.0 scale) or an overall undergraduate grade point average of at least 2.5 with an average of 3.0 or better for the last 90 quarter hours (60 semester hours) earned toward the undergraduate degree. International students must have a TOEFL score of at least 550/213 or an IELTS score of at least six. In addition, the program requires students from non-ABET accredited undergraduate programs to submit general GRE test scores. Program admission decisions are based on complete application information including overall academic performance and standardized test scores where applicable.

Collaboration

The Dayton Area Graduate Studies Institute provides collaboration opportunities through the graduate engineering courses, faculty, and research resources of the Air Force Institute of Technology, the University of Dayton, The Ohio State University, and the University of Cincinnati.

Degree Requirements

Students should plan a program of study in consultation with a faculty advisor. The program of study should be finalized by the time the student completes 12 credit hours of graduate study.

The following requirements must be met for the Master of Science in Engineering degree:

1. Completion of 45 graduate credit hours in courses that have prior approval by a BIE graduate advisor.
2. At least 36 of the total 45 graduate credit hours must be engineering or computer engineering courses. At least 24 of these must be biomedical engineering courses.
3. At least 24 of the 45 graduate credit hours must be courses numbered 700 or above.
4. At least 6 of the total 45 graduate credit hours must be courses in mathematics, statistics, or computer science.
5. Students may choose either a thesis option or a 45 credit hours graduate advanced course work option. The thesis option consists of a research project satisfying all requirements of the School of Graduate Studies. The final report (thesis) must be completed and successfully defended in an oral examination before the major committee. Up to 12 credit hours of 899, Thesis, may count toward degree requirement of 45 graduate credit hours.

Facilities

Graduate students have access to a wide range of computer systems interconnected by local and wide-area networks. Access is available to three DEC Alpha AXP 4000/610's; numerous Sun, DEC, and Silicon Graphics file servers and workstations; X-windowing terminals; and personal computers. Access is also available to the Ohio Supercomputer via the Ohio Academic and Research Network (OARNET). In addition, each graduate faculty member has a well equipped research laboratory with a network of heterogeneous computers and peripherals. Please visit <http://www.cs.wright.edu/bie/> for details. Also see section on Computing and Telecommunications Services (CaTS).

Faculty

Professors

Thomas N. Hangartner, biomedical engineering, medical imaging, CT scanning, instrumentation, computers

Ping He, biomedical engineering, medical imaging, ultrasonics, instrumentation, biomedical signal processing

S. Narayanan (chair), modeling, interactive systems, simulation, decision aiding

Chandler A. Phillips, human control systems, biomechanical modeling, orthotic and ergonomic engineering

Blair A. Rowley, biomedical engineering, rehabilitation engineering, computer applications to augmentative communication, instrumentation, bioelectric effects of low-level electrical currents on tissue growth and healing, engineering education methodologies

Affiliated Professor

Marvin Miller, bone strength and density in infants and children, radiological imaging, biomechanical bone mechanisms, medical genetics

Associate Professor

David B. Reynolds, prosthetics/orthotics engineering, biomechanics, biomimetics, pneumatic muscle, biofluid mechanics

Assistant Professors

Samuel A. Lippert, orthopedic biomechanics, soft tissue biomechanics, cellular biomechanics, molecular biomechanics and biomedical device design

Julie A. Skipper, biomedical engineering, medical imaging, CT scanning, instrumentation, computers

Lecturer

David M. Kender, biomedical electronics, human factors engineering

Graduate Assistantship

Assistantships are available to students on a competitive basis. Students awarded assistantship support are eligible for stipends and remission of tuition fees. Interest in financial support should be indicated at the time of application.

Research

Research in biomedical engineering currently encompasses two main areas: medical imaging and ergonomic/biomechanical engineering. Included are orthotic/prosthetic engineering, orthopedic engineering, soft-tissue biomechanics, medical ultrasound with emphasis on soft tissue characterization, specialized CT scanners with emphasis on sensitivity and imaging of bone, computerized augmentative communications for the disabled and applied biomaterials. Facilities include laboratories at the university and at area hospitals. The Biomedical Imaging Laboratory and the Air Force Research Laboratory offer unique opportunities for research projects involving instrumentation, mechanics, and computers applied to medical and industrial-government problems. Graduate students in biomedical engineering work on real-life problems.

Research at Wright State is not limited to academic laboratory facilities. Several industrial companies, laboratories, and Wright-Patterson Air Force Base are involved in joint research efforts with the university and have unique facilities that are available for faculty and graduate research.

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Biomedical Sciences Ph.D. Program

Introduction

This interdisciplinary program leads to the Doctor of Philosophy degree in biomedical sciences. It recognizes the interrelatedness of the various traditional disciplines and seeks to educate scientists who are qualified to develop this potential. Classroom and laboratory instruction stresses experiences that span a broad spectrum of knowledge.

The program provides an integrated background in biological, physical, chemical, and computational disciplines in addition to an in-depth experience in research. Graduates are expected to be sufficiently flexible to participate in solving a broad range of complex biomedical problems.

The primary aim of the program is to prepare students for a research career. In-depth study is possible in a number of areas.

Admission

Entrance Requirements

Applicants for all but the Chemical and Structural Biomedical Sciences and the Applied Biomedical Computation concentrations should have:

1. A baccalaureate degree from an accredited institution
2. An undergraduate grade point average of at least 3.0 on a 4.0 scale
3. One year of mathematics, including introductory calculus
4. One year of physics
5. One year of biology
6. Two years of chemistry, including an organic chemistry sequence
7. A minimum TOEFL score of 600/250 (international students)
8. Acceptable scores on the general GRE test

Applicants for the Chemical and Structural Biomedical Sciences concentration should have:

1. A baccalaureate degree from an accredited institution

2. An undergraduate grade point average of at least 3.0 on a 4.0 scale
3. One year of mathematics, including introductory calculus
4. One year of physics
5. One year of biology OR a two-quarter survey course in biochemistry
6. One year of organic and one year of physical chemistry
7. A minimum TOEFL score of 600/250 (international students)
8. Acceptable scores on the general GRE test

Applicants for the Applied Biomedical Computation concentration should have:

1. A baccalaureate degree from an accredited institution
2. An undergraduate grade point average of at least 3.0 on a 4.0 scale
3. One year of calculus
4. One year of physics
5. Two years of chemistry, including an organic chemistry sequence
6. A computer language course or demonstrated programming expertise, preferably in C++
7. A minimum TOEFL score of 600/250 (international students)
8. Acceptable scores on the general GRE test

Prospective students must submit one official transcript from each institution attended. Under special circumstances, deficiencies in prerequisites may be waived or corrective measures arranged by action of the Admissions Committee.

All application material should be submitted by March 1.

Degree Requirements

Students will master a series of core and advanced content courses, and complete at least two laboratory rotations. These serve as an interdisciplinary base for the development of dissertation research. The institution awards the degree when the student satisfactorily completes the required work.

The program first develops a reservoir of basic knowledge through an interdisciplinary core, consisting of a combination of biochemistry and molecular biology, cell biology, chemistry, human physiology, and intercellular communication. The advanced curriculum is organized into interdisciplinary areas of concentration.

The program requires students to take 18 credit hours of advanced courses and six seminars, pass a preliminary examination, and produce an acceptable dissertation based on original research.

Waiver of Program Requirements

Students may petition for exemption from all or part of the core curriculum. Petitions may also be submitted for waiver of credit for previous graduate courses taken in another

accredited program. Course credit of up to 12 credit hours may be waived providing (a) the grade attained in each course is a B or above, (b) the course was taken within five years of the actual waiver, and (c) the course relates to the area of concentration chosen in this program. Petitions for obtaining credit for laboratory experiences may be made, subject to the same credit hour limitations and time constraints as for courses.

The program does not have a fixed time for the awarding of the Ph.D. degree. This depends on the rate of progress of the individual student, but averages five years. Graduate credit applied toward the doctoral degree is valid for only nine years from the date the student enters the program. Extenuating circumstances must be acceptable to the Academic Policies Committee of the Biomedical Sciences faculty, the program director, and the dean of the School of Graduate Studies.

A minimum of 76 credit hours toward the doctoral degree must be completed at Wright State University.

Dissertation

Each student chooses a faculty member who will guide and direct the dissertation research on a daily basis. In addition, a supervisory committee is formed to periodically review the student's progress. The relationship between the student, the faculty advisor, and the committee is central to the program. The committee determines when the research may be considered complete and must approve the written dissertation, as well as the student's public defense of it. The committee certifies to the program director the competency and achievement of the dissertation.

Grade Standards

Graduate students working toward the Doctor of Philosophy degree must maintain at least a 3.0 grade point average in all graduate courses and in all other graduate work that is assigned letter grades. Dissertation research will receive grades of progress made (M) or unsatisfactory (U) until the dissertation is accepted; these will then be converted to a pass/fail grade (P/U). A 3.0 GPA and the recommendation of the student's supervisory committee and the program director are required for graduation.

Probation

Any student whose cumulative grade point average falls below 3.0 will be placed on probation. For students beyond Year I, failure to re-attain a cumulative GPA of 3.0 within the next 12 credit hours of course work will result in a recommendation for dismissal from the program.

A first-year student enrolled in the core curriculum must achieve an overall grade point average of at least 3.0 after completing Year I. A student who completes Year I with a GPA of less than 2.7 will be recommended to the dean of the School of Graduate Studies for dismissal from the program. Students with a GPA above 2.7 but below 3.0 must re-attain a 3.0 by the end of the next quarter (fall). Students who fail to attain a GPA of 3.0 by the end of fall quarter following Year I will be recommended for dismissal from the program. Students who receive a C in a core course during Year I may repeat the course while continuing advanced courses as determined by the program director. If a student repeats a core course, the grade received the second time will be used in calculating the student's GPA.

Students who fail the preliminary examination at the end of the second year will either be dropped from the program or be allowed one reexamination, depending on the recommendation of the Examination Committee.

Matters pertaining to dismissal for non-academic matters are handled by the Office of Student Affairs.

Summary of Requirements

Listed below is a summary of the requirements for the Doctor of Philosophy degree in biomedical sciences at Wright State University. Students must:

1. Complete core and advanced courses with a minimum grade point average of 3.0 (B)
2. Choose a dissertation director and a supervisory committee with the approval of the program director
3. Pass a preliminary examination
4. Prepare a written dissertation proposal
5. Accumulate a minimum of 150 didactic, laboratory, and research quarter hours
6. Conduct an acceptable original research problem, submit an approved written dissertation, and make a successful public defense
7. Be certified by the program director as having completed all requirements for the Ph.D. degree
8. Meet residency requirements
9. Be registered in the quarter in which the degree is conferred
10. Present one copy of the approved dissertation to the School of Graduate Studies and one copy to the BMS program office
11. Fulfill all requirements within nine years of entrance into the program

Students who have an M.D. degree or are in good standing in the preclinical curriculum of an accredited medical school may be exempted from the BMS core curriculum. Depending on the area of concentration and the recommendation of the dissertation director, a student may be exempted from 12 hours of advanced courses based on medical credit. Similarly, one of the two lab rotations may be exempted if a student has previously participated in a research project. Topics for the preliminary exam shall be specified by the supervisory committee. Students must accumulate a minimum of 100 quarter hours in the biomedical sciences. All other requirements for the Ph.D. in biomedical sciences are the same as listed previously.

Faculty

The program is a cooperative effort between the College of Science and Mathematics and the School of Medicine.

The program faculty at Wright State reside in a number of departments including anatomy and physiology; biochemistry and molecular biology; biological sciences; chemistry; community medicine; computer science and engineering; biomedical, industrial, and human factors engineering; family medicine; mathematics and statistics; medicine; pathology; pediatrics; pharmacology and toxicology; psychiatry; psychology; and surgery. In addition, the 67 faculty members who participate in the program include scientists from affiliated institutions including the Tri-Service Toxicology Laboratory at Wright-Patterson Air Force Base, the Kettering/Scott Magnetic Resonance Laboratory, and the Veterans Affairs Medical Center in Dayton.

Financial Assistance

Predoctoral assistantships are available to students on a competitive basis. Students awarded assistantship support are eligible for stipends and remission of tuition fees. There are no special forms to submit for financial assistance. Students interested in financial support should indicate their interest at the time of application.

Program Description

Areas of Concentration

Faculty research interests represent a broad spectrum of the biomedical sciences and are concentrated in the areas of specialization described in subsequent sections. Within each area of specialization, and across areas, there are extensive interactions and collaborations that enhance the interdisciplinary approaches and training opportunities available to students in the advanced curriculum and dissertation phases of the program. In the advanced curriculum, course requirements will be tailored to fit the needs of individual students according to their area of specialization. Through this series of lecture, laboratory, seminar, and independent study experiences, students will be trained to draw on a multidisciplinary background to attack current problems in the biomedical sciences.

Some of the most important aspects of biomedical research today concern the elucidation of the regulatory mechanisms of cellular and molecular processes and the genetic factors that determine the structural and functional differences between cells. These important areas are central to the teaching and research activities of faculty and students in the areas of molecular biology/biochemistry, cell biology and physiology, immunology, neuroscience, and chemical and structural biomedical sciences.

Molecular Biology/Biochemistry

This concentration is the forefront of our understanding of the basic mechanisms that govern living systems. In the molecular biology and biochemistry concentration, you will have access to the latest (molecular) techniques, equipment, and expertise to aid in your training as a research scientist. You will have the opportunity to contribute to advancing our understanding of DNA replication, repair and transcription, human molecular genetics, protein/enzyme and polynucleotide structure and function, molecular evolution, mechanisms of oncogenesis, retroviral recombination, and signal transduction mechanisms. You will train in a collaborative, collegial research environment. By aligning yourself with this area of concentration, you will maximize your exposure to the variety of molecular biological and biochemical approaches currently available. You will participate in departmental student research seminars, hear the most recent research from nationally acclaimed laboratories through departmental seminar programs, and participate in annual molecular biology retreats. Current and recent Ph.D. students in this track have published 36 papers and presented their work at over 40 international, national, and local meetings over the past five years.

Cell Biology and Physiology

Investigate intra- and inter-cellular processes for insights into critical processes of organs and organ systems. As a student in the cell biology and physiology concentration, you will be using state-of-the-art techniques to study both normal and abnormal cellular processes at the molecular, cellular, organ, and whole organism level. You can choose from research studying processes that are fundamental to our understanding, prevention, and eventual treatment of diseases of the cardiovascular system, skin, blood, kidneys, lungs, gastrointestinal tract, and brain.

Specific research projects that you can become involved in and make major contributions to include membrane transport related to cell volume and ion regulation, cell differentiation, intracellular sorting and secretion of hormones, comparative aspects of kidney function, cellular growth control, intracellular signaling pathways, membrane channels, transporters

and receptors: structure and function, neural control of respiration, effects of hyperoxia and hyperbaria on neural cell function, mitochondrial energy production, nuclear transport, brain edema, immunity, and wound healing.

Several interesting model systems are employed including hematopoietic progenitor cells, sheep red blood cells, bird kidney cells, crayfish gill cells, mammalian brain slices, and a variety of mammalian cells in culture. Many of the projects involve collaborations with faculty from other areas of concentration, including neuroscience, molecular biology/biochemistry and toxicology, creating a highly cooperative environment for your research.

In addition to your research, you will be involved in departmental seminars, journal clubs, and laboratory meetings. Students in this concentration will likely attend several national meetings to present their work. Students in this concentration have published over 30 papers and presented at numerous national and international meetings.

Immunology

Under the mentoring of faculty who are leaders in their field, graduate students in the immunology area of concentration have a large array of opportunities to conduct cutting-edge research relating to immunology and infection.

Many of the faculty have, or have had, federal (including NIH, NSF, EPA) and corporate grants to support their research. They regularly publish the results of their work in high quality journals.

The faculty presently have research interests in indoor allergies, basic and clinical immunology, retrovirology, immunotoxicology, viral pathogenicity, vaccine development, immunoparasitology of ectoparasites, microbial ecology, immune modulation, algal toxins, inflammatory and immune effector cell function, and cytokine signaling and apoptosis.

Neuroscience

Neuroscience is by definition an interdisciplinary enterprise, with research interests ranging from the genetic to the behavioral levels. The breadth of approaches that must be employed to understand brain function in health and disease encompasses electrophysiological, computational and biophysical methods, molecular biology and genomic technology, immunohistochemistry, and light and electron microscopic imaging techniques. The neuroscience laboratories associated with the BMS Ph.D. Program use these techniques in in vivo and in vitro studies at the molecular, cellular and systems levels.

The faculty groups involved in neuroscience research are highly interactive, as are their research students. Individual laboratories are well equipped with state-of-the-art instrumentation, and the Center for Brain Research provides access to additional resources for student and faculty research, including imaging workstations and confocal and electron microscopy expertise. A unique facility for hyperbaric studies is also the focus of much research in this track.

Faculty from the participating departments and the Center for Brain Research sponsor exciting seminar series and regular national and international symposia that expose students to diverse research areas and facilitate the networking that is so valuable as students prepare for their postdoctoral careers. In addition, students in the neuroscience track are encouraged to attend and present at national meetings and in recent years have garnered several awards for the quality of their presentations at these meetings.

Research opportunities are available in several areas of interest including ion channel, ion transporter and neurotransmitter receptor expression and localization; development of synaptic connections; hyperbaric physiology, cardiovascular and respiratory control; behavioral and physiological manifestations of neuroendocrines; regulation of ion channel

and receptor function; and pathophysiology of brain injury and toxicity.

Chemical and Structural Biomedical Sciences

Chemistry plays a pivotal role in the biomedical sciences, especially as the functional properties of biologically relevant molecules are encoded in their covalent and non-covalent structures. To understand such structure/function, as well as the molecular basis of drug action, scientists in this multidisciplinary area of concentration routinely employ cutting-edge techniques spanning the entire breadth of the chemical/biological interface. The complementary subspecialties of this area include: computational methods for molecular modeling and design, as well as establishing quantitative structure-activity relationships (QSAR); transient and steady state spectroscopic methods relevant to macromolecules; biological magnetic resonance; novel technologies for the rapid-synthesis, chromatographic purification and spectroscopic analysis of organic molecules of pharmaceutical interest and biological macromolecules, and a molecular understanding of diverse metabolic processes.

Research opportunities are available in several areas of interest including ion channel, ion transporter, and neurotransmitter receptor expression and localization; development of synaptic connections; hyperbaric physiology, cardiovascular and respiratory control; neuroendocrinology; regulation of ion channel and receptor function; and cell volume.

The basic and clinical aspects of biomedical science described above have many points of overlap and convergence. Likewise, the fields of biomedical engineering, biomedical computation and toxicology, which are multidisciplinary in themselves, impact on and interact with the research objectives, techniques, and conceptual advances made in the foregoing areas. The interdisciplinary training obtained in the core curriculum and advanced course work prepares students well to contribute in these areas of specialization.

Medical Physics and Engineering

Confronting the increasing dependence of health care on sophisticated technology used in research, diagnostic and therapeutic procedures, and prosthetic and other medical devices, biomedical engineering is the application of engineering principles and methods to the solution of problems in medical and biological areas. Current efforts in biomedical engineering include the development of medical and surgical instrumentation systems, the design of rehabilitative devices, the interfacing of complex systems in data collection and analysis, and the adaptation of computer technology to assist the health care industry.

Primary faculty interests include medical imaging, human factors engineering, rehabilitation engineering, biomechanics, biomaterials, medical instrumentation, mathematical modeling, and computer simulation.

Exercise and rehabilitation physiology involves interdepartmental cooperation. It has direct relevance to the patient populations who participate in development of instrumentation, visual performance, and aerospace systems applications.

Applied and Predictive Toxicology

Environmental toxicology works on resolving problems of compatibility between chemicals and life processes. Each and every day, we breathe, ingest, apply, and dispose of chemicals. The effects of these chemicals on our health and well-being, and on our environment, range from miraculous to disastrous. As our technology-driven culture continues to develop new chemicals for agricultural, medicinal, military, and industrial uses, we need to understand what the ecological, societal, and health risks/effects of these chemicals will be.

If these kinds of problems/issues interest you, then you should consider training in the area of environmental toxicology. You will find many opportunities to expand your knowledge and contribute to the advancement of this field among the faculty from three departments

(Biology, Biochemistry and Molecular Biology, and Pharmacology and Toxicology) that are actively engaged in research addressing toxicological problems. The inherently interdisciplinary nature of this area utilizes the latest molecular, biological, chemical detection, and immunocytochemical techniques and applies them to a broad range of problems of immediate and long-term relevance.

Areas of faculty expertise include aquatic toxicology, dermal toxicology, ecotoxicology, environmental toxicology, immunotoxicology, risk assessment toxicogenomics, and stress/toxicant interactions.

State-of-the-art approaches currently employed include DNA and protein chip array analysis, laser scanning confocal microscopy, in vitro and in vivo monitoring of toxicant effects, HPLC and LC/MS based detection, and quantification of chemicals.

Epidemiology

Research related to changes in human growth and body composition with respect to risk factors for cardiovascular and other diseases are the focus of the human risk factors concentration. Data used in the human risk factors is part of the ongoing Fels Longitudinal Study. Decades before the university was founded, the Fels Foundation instituted a program tracking health and wellness of a large number of individuals over their lifetimes. The statistics are now maintained in the Department of Community Health of the Wright State University School of Medicine.

Research projects include genetic epidemiology; the development, implementation and validation of new methods for the study of body composition; new statistical methods and models; determination of causal relationships involving body composition, adipose tissue distribution, lifestyle, and risk factors for cardiovascular disease.

Applied Biomedical Computation

Recent advances in structural biology, cell biology, molecular genetics, and computer sciences have transformed biological sciences into a discipline in which computation is an essential component. Computational methods allow researchers to rationally propose structures of complex molecules and systems, to quantitatively test hypotheses regarding multifaceted molecular, cellular, organismic, and population processes, and to organize, as well as test, relationships in vast and complex data sets. In this concentration, you will train with faculty from biologically-based and computationally-based departments whose research emphases range from refinement of computation methods to describing particular biological processes or structures. Modeling of macromolecular structures, biological processes and construction, as well as mining of large databases, are areas of emphasis within this concentration. In addition to BMS seminars and curriculum, students within this area of concentration will participate in a biological computation seminar program, in departmental seminar programs and in biological/biomedical research forums. Industry demand for professionals trained in biology and computation continues to increase as this exciting field revolutionizes the way in which biological macromolecules are studied. Graduates from the Applied Biomedical Computation concentration will be uniquely prepared for research careers at the dynamic interface between the biomedical and computational sciences.

Course of Study

Interdisciplinary Core: All except Chemical and Structural Biomedical Sciences and Applied Biomedical Computation (total number of credit hours)

Biochemistry and Molecular Biology	8
Mammalian Cell Biology	4
Human Physiology	5

Intercellular Communication	4
Research Ethics	1
Introduction to Research	5
Laboratory Rotations (a minimum of two)	6-12
BMS Seminar	3
Core Seminar	2

Interdisciplinary Core: Chemical and Structural Biomedical Sciences Concentration Only (total number of credit hours)

Biochemistry and Molecular Biology	8
Mammalian Cell Biology	4
Structural Organic	3
Instrumentation	3
Thermodynamics	3
Research Ethics	1
Introduction to Research	5
Laboratory Rotations (a minimum of two)	6-12
BMS Seminar	3
Core Seminar	2

Interdisciplinary Core: Concentration in Applied Biomedical Computation Only (total number of credit hours)

Biochemistry and Molecular Biology	8
Mammalian Cell Biology	4
Fundamentals of Biological Computing and Modeling	5
Computational Tools and Strategies	4
Research Ethics	1
Introduction to Research	5
Laboratory Rotations (a minimum of two)	6-12
BMS Seminar	3
Core Seminar	2
Advanced Courses	18

Advanced Seminars (a minimum of two) 2-4

Dissertation Research-Credit hours arranged

Total (minimum requirement) 150

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Business

Introduction

The Raj Soin College of Business is committed to providing quality education that is both broad based and professionally relevant; to creating an environment that fosters faculty development and strengthens the college's links with the external community; and to exceeding the high standards of personal and professional conduct advanced by AACSB International, which accredited the college's M.B.A. program in 1979. As a result of this commitment to teaching, research, service, and outreach, the university's mission extends to the growth and development of the metropolitan Dayton area and Miami Valley, and explores problems that have local, state, regional, national, and international applications.

The Raj Soin College of Business offers degree programs leading to the Master of Business Administration (M.B.A.) degree, the Master of Science (M.S.) degree in Social and Applied Economics, the Master of Science (M.S.) degree in Logistics Management, and the Master of Accountancy (M.Acc.) degree. Each student's program is planned on an individual basis, taking into consideration the student's background, needs, and objectives. This allows any program to be built on the student's undergraduate work in business, the arts, sciences, engineering, or other fields of study.

A chapter of Beta Gamma Sigma, the national scholastic honor society in the field of business and administration, was established by the College of Business and Administration in 1976.

The M.B.A. Degree

The mission of the Wright State M.B.A. degree program is to develop managers and leaders whose understanding and vision encompass the total organization. Graduates will work effectively within and across functional areas and understand the entire organization and its environment. Consistent with this mission, the primary learning objectives of the program are to develop in our students a cross-functional understanding of organizational operations; further develop students' critical and analytical thinking skills; enhance students' communication skills—oral, written, and interpersonal; and develop the ability to work collaboratively.

The M.S. Degree in Social and Applied Economics

For more information about the Master of Science Degree in Social and Applied Economics program, see Economics section.

The M.S. Degree in Logistics Management

This program combines the study of business administration with advanced logistics courses. In an era of shrinking product life cycles, proliferating product lines, shifting distribution chains, and changing technology, mastery of logistics has become an essential ingredient of competitive success. The M.S. program in Logistics Management provides an

excellent background for this purpose. For more information on this program, see M.S. in Logistics Management section.

The M.Acc. Degree

The aim of the Master of Accountancy (M.Acc.) program is to provide students with a broad set of competencies designed to facilitate success in professional accounting careers and to qualify graduates to sit for the uniform CPA examination in the state of Ohio. See M.Acc. degree requirements.

Admission

Admission to the M.B.A. or Master of Accountancy program requires submission of the form "Application for Admission to a Graduate Status" to the School of Graduate Studies. All applicants for admission to a degree program must pay the application fee, submit official transcripts from all colleges/universities attended, submit a current resumé, and direct Educational Testing Service to forward an official score report to Wright State for the Graduate Management Admission Test (GMAT). International applicants must submit an official score report for the Test of English as a Foreign Language (TOEFL) with a score of at least 550/213 or a band of 6.0 on the International English Language Testing System test. Applicants must have an earned baccalaureate degree (or the equivalent) from a regionally accredited institution.

Applicants for the M.Acc. degree program should have an undergraduate degree with a major or concentration in accounting in addition to the above requirements. Those with deficiencies may be required to successfully complete selected preparatory courses. Students without the undergraduate accounting major will be required to take undergraduate preparatory courses before beginning the M.Acc.; all such students should contact the Department of Accountancy before enrolling.

The Raj Soin College of Business admits only those individuals who show high promise for successful completion of the program. Admission to the program is based on a variety of criteria including past academic performance, standardized test score(s), intellectual capacity (including analytical and quantitative skills), preparedness for graduate study, and other factors.

Regular Admission in Business

Applicants who have submitted all materials for admission to the program will be considered by the college's graduate admission committee for regular admission. An admission index (AI), overall or last half, is computed for each applicant. The AI is computed by multiplying the overall undergraduate GPA by 200 and adding the total GMAT score. The college's graduate admission committee looks for an AI of 1100 or greater for regular admission. Applicants who have completed any graduate course work must have a minimum graduate GPA of 3.0. International applicants must have a score of at least 550/213 on the TOEFL.

Conditional Admission in Business

Applicants who have been denied admission, but who believe they are qualified for graduate work, may petition for conditional admission status. Applicants seeking such status must petition the School of Graduate Studies and the Raj Soin College of Business. Graduate credit earned while in this status can be applied toward degree requirements. Regular admission status will be granted once all admission requirements are satisfied and the student completes 12 hours of graduate credit with a cumulative GPA of 3.0. A student who does not meet these conditions will be dismissed.

Provisional Admission in Business

Under certain conditions, an applicant may be admitted provisionally (for one quarter) pending receipt of the official credentials. Provisional admission is granted for one quarter to allow the applicant the time necessary for Wright State to receive the official documents. Provisional admission is not a final admission category. Once all official documents are received, the college will make a final decision to admit or not.

If admission requirements are not met during the quarter in which a student was admitted provisionally, registration for future quarters will be denied and the student will lose graduate credit for any graduate courses completed during the quarter.

Provisional Admission in Accountancy

Students without the undergraduate accounting major (or business degree) will be required to complete preparatory courses with a minimum GPA of 3.0 before they can attain regular admission status.

Nondegree or Transient Admission in Business

Applicants who meet all School of Graduate Studies requirements for nondegree admission or transient admission will be admitted into these categories. Students wanting to switch to degree status must reapply to the School of Graduate Studies for such status and may apply only 12 credit hours of Stage II requirements toward the degree.

Degree Requirements

Foundation Course Work

The following outlines the preparatory foundation course requirements for the M.B.A. degree program. Candidates should consult with a graduate advisor in the Raj Soin College of Business for information on the policies and procedures to waive the foundation courses.

All candidates must demonstrate an understanding of accountancy, finance, economics and statistics. Students deficient in any of these areas are required to successfully remedy the deficiency by completing the appropriate foundation course(s). Foundation courses may be waived for individuals who have completed comparable courses at regionally accredited institutions. Waiver of foundation course work is based on the grade received, credit hours, course content, age of course, focus, and other factors. Additionally, students may demonstrate competency by successfully passing a proficiency test.

All foundation courses should be taken before starting 700-level MBA courses unless permission is granted by the director of the MBA Program.

Foundation Courses

MBA 510 (4) Survey of Accounting

MBA 520 (4) Survey of Economics

MBA 530 (4) Survey of Finance

MBA 580 (4) Survey of Quantitative Business Analysis

MBA CORE and Concentrations

After completing (or being waived from) the prerequisite foundation courses, students begin the MBA program with the MBA Core, 36 credit hours of course work that are common to all MBA students. Students should enroll in MBA 750 – Leading Teams and Organizations, as the first core course. Students cannot enroll in the capstone course, MBA 755, until they have completed all core MBA courses and obtain permission from Director of the MBA program. Students also complete a twelve credit-hour concentration chosen from the list shown below.

Students have the flexibility to choose and structure concentration(s) to meet their career objectives. Foundation courses cannot be used as electives within the concentration area(s). Students taking graduate business courses are expected to follow course prerequisite requirements.

MBA CONCENTRATIONS

Economics

Required:

EC 709 Applied Econometrics

EC 715 Applied Microeconomics

EC 717 Applied Macroeconomics

Finance

Required:

FIN 710 Investment Management

FIN 742 Seminar in Financial Management

FIN 790 Seminar in International Financial Management

Flexible Business

12 hours of 700 level courses from RSCOB.

International Business

Choose 3:

FIN 790 Seminar in International Financial Management

MS 700 Global Supply Chain Management

MKT 716 International Marketing

EC 719 International Economics

ACC 757 International Accounting

Management, Innovation and Change

Required:

MGT 706 Organizational Development & Change

Choose 2:

LAW 620 Legal Aspects of Managing a Diverse Workforce

MGT 766 Managing for Creativity & Innovation

MKT 775 Entrepreneurship

Management of Information Technology

Required:

MIS 700 Information Systems Development

Choose 2:

MIS 705 Electronic Commerce

MIS 710 Managing Business Data

MIS 720 Telecommunications Management

MKT 740 E-Commerce

Marketing

Required:

MKT 700 Product & Price Management

MKT 705 Advertising & Sales Promotion

Choose 1:

MKT 775 Entrepreneurship

MKT 740 E-Commerce
MKT 716 International Marketing

Project Management

Required:
MGT 770 Fundamentals of Project
Management
MGT 773 Project Management & Control
Techniques
Choose 1:
MGT 772 Project Contract Management
EC 740 Cost Benefit Analysis & Social
Project Evaluations
MKT 775 Entrepreneurship

Supply Chain Management

Choose 3:
MS 700 Global Supply Chain Management
MS 732 Demand Mgt. in Supply Chain
MS 755 Advanced Quality Management
MS 771 World Class Strategies
MS 786 Advanced Supply Chain
Management

Dual Degree with Economics

Students may obtain both the M.B.A. degree and the M.S. degree in Social and Applied Economics under the dual-degree program, which permits common course work to apply to both programs as long as the courses are completed within the time limit set for completion of graduate degree programs. This policy does not apply to students who received a M.B.A. degree or M.S. degree in economics from schools other than Wright State. Contact the director of M.B.A. programs and the director of M.S. in Social and Applied Economics Program for further details.

Dual Degree with Nursing

Students may obtain both the M.B.A. degree and the M.S. degree in administration of nursing and health care systems under the dual-degree program, which permits common course work to apply to both programs. Students who receive a M.B.A. degree or M.S. degree in nursing from schools other than Wright State cannot enter this dual degree program. For further information, contact the director of graduate programs in business and logistics management and director of M.S. in nursing program.

Faculty

Accountancy

Professors

James Greenspan (chair), financial accounting
Susan Lightle, auditing, financial accounting
Hans Dieter Sprohge, managerial and financial accounting
John C. Talbott Jr., taxation and managerial accounting

Associate Professors

David M. Bukovinsky, managerial and governmental accounting
Russell H. Hereth, taxation

Assistant Professors

Carolyn Hartwell, financial accounting
Paul Lin, accounting systems

Economics

For list of Department of Economics graduate faculty, see Economics

Finance, Insurance, and Real Estate

Professors

M. Fall Ainina, financial management, investments
Peter W. Bacon (chair), financial management
Nicolas Gressis, financial management, investments
James E. Larsen, real estate, financial institutions
Robert J. Sweeney, financial management

Associate Professors

Khurshid Ahmad, insurance, real estate, personal finance
Richard E. Williams, financial management, investments, estate planning

Assistant Professor

Marlena Akhbari, financial management

Management

Professors

Francis J. (Bud) Baker, project management, leadership, strategic management
Jeanette Davy, organizational behavior, organizational development, human resource strategy, compensation
Charles J. Hartmann (chair), legal environment of business, government regulation
Joseph A. Petrick, international management, management ethics, quality management, leadership studies, environmental management
Ann C. Wendt, labor relations, human resource management, public policy

Associate Professor

William M. Slonaker, legal environment of business, legal aspects of business organizations, legal aspects of commercial transactions, labor law, real estate law

Assistant Professors

Todd Dewett, organizational behavior, leadership
Scott Williams, organizational behavior, strategic management

Information Systems and Operations Management

Professors

Nadia R. Sanders, forecasting, decision theory, materials management, expert systems
Vikram Sethi (chair), cultural and organizational issues of information systems, organizational transformation, transnational information systems, process refinement
Vincent Yen, operations research, statistics, management information systems, systems development, decision support systems

Associate Professors

Joseph W. Coleman, statistical analysis, simulation, management information systems
George G. Polak, network optimization, supply chain modeling, discrete and combinatorial optimization
Larry B. Weinstein, integration of production and maintenance planning, TQM in manufacturing, ISO/QSS 9000 certification

Assistant Professors

Jung Choi, software metrics, IS development methodologies and software productivity and quality

Barbara B. Denison, small business applications, systems analysis and design

Gregory A. Graman, supply chain management, delayed product differentiation, logistics and distribution systems

Hong Wang, AI search techniques and optimization, decision support systems and models, telecommunications, behavioral and strategic MIS/DSS

Frederick R. Watson, linear and integer programming, network modeling and optimization

Marketing

Professors

Inder P. Khera, marketing strategy, consumer behavior, international marketing, marketing of services

Paula M. Saunders (chair), marketing strategy, service marketing, direct marketing

Associate Professors

Charles S. Gulas, advertising, consumer behavior, marketing management, entrepreneurship

Pola Gupta, consumer behavior, marketing strategy, marketing research, Internet marketing.

Robert A. Ping Jr., marketing management, marketing research

Assistant Professors

Wakiuru Wamwara-Mbugua, marketing management, consumer behavior

Course of Study

MBA Program

MBA 710 Strategic Cost Management	4
MBA 720 Analysis of Global Economic Conditions	4
MBA 730 Financial Analysis and Decision Making	4
MBA 740 Legal and Ethical Decision Making	4
MBA 750 Leading Teams and Organizations	4
MBA 760 Marketing Strategy	4
MBA 770 Information Technology and Business Transformation	4
MBA 780 Supply Chain Management	4
MBA 755 Developing and Implementing Competitive Strategies (Prerequisite: All core MBA courses)	4
CONCENTRATION (Three courses)	12
TOTAL MINIMUM CREDIT HOURS REQUIRED	48

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Chemistry

Introduction

The Department of Chemistry offers a graduate program leading to the Master of Science degree in chemistry. Balanced programs of course work and research are individually designed to prepare students for careers as professional chemists or for advanced degree study. Joint programs with other departments are encouraged for students interested in pursuing interdisciplinary research with emphasis in chemistry.

The department also supports the Interdisciplinary Science and Mathematics Master of Science in Teaching (M.S.T.) program offered by the College of Science and Mathematics.

Admission

In order to meet the minimum requirements for admission to the graduate program in chemistry, applicants must fulfill the requirements for admission established by the School of Graduate Studies. In addition, applicants must have completed basic calculus, one year of physics, and approximately 50 quarter hours (33 semester hours) of chemistry, including lecture and laboratory courses in general chemistry, quantitative analysis, and introductory courses in organic, inorganic, and physical chemistry. Students who do not meet these requirements will be asked to do some remedial work in addition to fulfilling the usual graduate degree requirements.

Degree Requirements

In order to qualify for the Master of Science degree, candidates must fulfill the requirements of the School of Graduate Studies, complete 30 credit hours of course work and a minimum of 15 credit hours of thesis research, submit an acceptable thesis, and pass a written or an oral examination. Students will normally concentrate in one of the following areas: analytical, environmental, inorganic, organic, physical or polymer chemistry, or chemical education.

Courses

Candidates for the Master of Science degree must complete 30 credit hours of course work in chemistry and related fields, including designated chemistry core courses (as outlined below). The chemistry courses must be numbered 600 or above and comprise a program acceptable to the advisory committee. The related courses must be numbered 500 or above and be acceptable to the advisory committee. In addition to courses in the traditional areas of analytical, inorganic, organic, and physical chemistry, courses are also offered in applied areas such as environmental, medicinal, and polymer chemistry.

Core Course Requirements

Five core areas have been designated from which each M.S. chemistry candidate must

take at least one course. Acceptable core courses are listed below. No substitution will be allowed.

Physical Chemistry

CHM 750, 751, 752

Inorganic Chemistry

CHM 720, 721, 722

Organic Chemistry

CHM 744, 746, 748

Analytical Chemistry

CHM 637, 762, 763

Applied Chemistry which includes:

Environmental Chemistry: CHM 610, 611, 612

Polymer Chemistry: CHM 661

Medicinal Chemistry: CHM 640, 641

Toxicological Chemistry: CHM 643, 644

Language Requirement

A reading knowledge of a foreign language is not required for the Master of Science degree in chemistry. However, certain students, because of the nature of their specific area of interest in chemistry, may be required to demonstrate an ability to read chemical literature in a foreign language.

Residency Requirement

Full-time residency is not required to qualify for the Master of Science degree. However, students must be registered for three consecutive quarters of full- or part-time study.

Thesis

The candidate must enroll in CHM 899 (thesis research) under the supervision of an advisor approved by the chemistry graduate studies committee. An acceptable thesis based on a minimum of 15 credit hours of laboratory or theoretical research (CHM 899) must be submitted to the thesis advisory committee (chaired by the candidate's advisor and selected by the advisor, student, and the department chair). After the presentation of the thesis and at least two weeks prior to the date proposed for conferring the degree, the candidate must pass a written or an oral examination. If the student's record is satisfactory, the scope of the examination will generally be confined to the candidate's field of specialization.

Four copies of the final draft of the thesis must be submitted to the thesis advisory committee and the department chair for approval prior to binding. After approval by the School of Graduate Studies, one copy will be deposited in the library. One copy each is kept by the advisor, the graduate, and the department chair.

Environmental Sciences

The environmental sciences concentration was developed by the College of Science and Mathematics to promote interdisciplinary research. Accordingly, for a student with a strong interest in chemistry and in the environment, a Master of Science degree in chemistry with a concentration in environmental sciences has been designed. This program entails approximately two more courses than the regular chemistry major, but provides much greater breadth and depth in environmental sciences than the traditional chemistry major would obtain.

The advisory committee of the student selecting this option will differ from the usual committee in that at least one individual will be a faculty member from outside the

chemistry department, e.g., a member of the biology or geology faculty. In addition to meeting the general requirements for the Master of Science degree in chemistry, including the preparation and defense of a research-based thesis, course requirements for the environmental track include:

- geologic and environmental applications of geographic information systems or hydrogeology or hydrogeochemistry;
- environmental statistics;
- risk assessment;
- environmental sciences seminar (1 hour); and
- two environmental sciences electives outside the chemistry department.

A student completing these requirements will receive an M.S. degree in chemistry with an emphasis in environmental science.

Environmental Sciences Ph.D. Program

In addition, students in chemistry can pursue an interdisciplinary Ph.D. in Environmental Sciences. See the separate listing for that program.

Faculty

Professors

Rubin Battino (Emeritus), physical chemistry
Sue C. Cummings (Emerita), inorganic and bioinorganic chemistry
William A. Feld, organic and polymer chemistry
John J. Fortman (Emeritus), inorganic chemistry and chemical education
Roger K. Gilpin (Mead Professor of Environmental Sciences), analytical and environmental chemistry
Ivan J. Goldfarb (Emeritus), polymer chemistry
Vladimir Katovic, analytical, inorganic, and environmental chemistry
M. Paul Servé (Emeritus), organic and medicinal chemistry
Paul G. Seybold (chair), physical and biophysical chemistry
Thomas O. Tiernan (Emeritus), physical, analytical, and environmental chemistry

Associate Professors

Daniel D. Bombick, analytical chemistry and mass spectrometry
David A. Dolson, physical chemistry and laser spectroscopy
David A. Grossie, inorganic chemistry and X-ray crystallography
George G. Hess (Emeritus), organic, analytical, and environmental chemistry
Daniel M. Ketcha, organic and natural products chemistry
Audrey E. McGowin, analytical and environmental chemistry
Kenneth Turnbull, organic chemistry

Assistant Professors

Eric A. Fossum, organic and polymer chemistry
Suzanne Lunsford, chemical education

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Computer Engineering

Introduction

The Department of Computer Science and Engineering offers a program of graduate study leading to the Master of Science in Computer Engineering degree. The program balances theory, software, hardware, and practice with degree requirements concentrated in the areas of computer design and analysis. Most courses are offered in the late afternoon to allow practicing computer professionals to begin the program on a part-time basis. The department also offers the Master of Science in Computer Science degree and the Ph.D. in computer science and engineering, as well as graduate certificates in Database Management and Design, Software Engineering, and Software Management.

Admission

Students may be admitted to the graduate program in computer engineering with a baccalaureate degree in computer science, computer engineering, or a related area and appropriate experience; satisfaction of the admission requirements as set forth by the School of Graduate Studies; and a record that indicates potential for a professional career in computer science and/or computer engineering as evaluated by the department's admission committee.

Students should come to the program with a knowledge of higher-level languages, data structures, concurrent programming, computer organization, operating systems, digital hardware design, electronic circuits, linear systems, and electronic devices. It may be possible to make up minor background deficiencies after admission to the program by taking appropriate courses.

Degree Requirements

Requirements for the Master of Science in Computer Engineering degree are a department-approved program that must include the following:

Thesis Option

1. Completion of 48 graduate credit hours in an approved program of study, including 20 hours of formal coursework at the 700/800 level (CEG 795, Independent Study, cannot be used to meet this requirement), of which at least 12 credit hours of formal coursework at the 700/800 level must be taken in the computer engineering specialty (courses with a CEG prefix).

2. Completion of at least one course at Wright State University in each of the following areas, selected from the courses listed for each area:

CEG Systems CEG 602, CS 607, CS 609, CEG 634, CS 714, CEG 730, CEG 830, EE 701, EE 710, EE 761

Software CEG 660, CEG 760, CEG 763, CEG 860, CS 605, CS 701, CS 801
Hardware CEG 653, CEG 658, CEG 659, CEG 720, CEG 750, CEG 751, CEG 752, CEG 753, CEG 754, CEG 758, CEG 820, EE 649
Engineering Applications CEG 619, CEG 628, CEG 656, CEG 676, CEG 677, CEG 724, CEG 728, CEG 756, CEG 759, CS 765

3. All CS and CEG graduate courses listed in the catalog, or approved to be listed in the next catalog (except CS 600, CEG 633, CS 700 and CEG 700), may be used to complete the credit hour requirements beyond those course requirements specified above. Other courses may be used to satisfy the requirements only if they are listed in the topic areas above or in a program of study that has been approved by the department prior to enrollment in the course.

4. Satisfactory completion of a master's thesis. A maximum of 12 hours of independent study (CEG 795) and thesis (CEG 799) may be included in the program of study.

Non-thesis Option

1. Completion of 48 graduate credit hours in an approved program of study, including 32 hours of formal coursework at the 700/800 level (CEG 795, Independent Study, cannot be used to meet this requirement), of which at least 12 credit hours of formal coursework at the 700/800 level must be taken in the computer engineering specialty (courses with a CEG prefix).

2. Completion of at least one course at Wright State University in each of the following areas, selected from the courses listed for each area:

CEG Systems CEG 602, CS 607, CS 609, CEG 634, CS 714, CEG 730, CEG 830, EE 701, EE 710, EE 761

Software CEG 660, CEG 760, CEG 763, CEG 860, CS 605, CS 701, CS 702

Hardware CEG 653, CEG 658, CEG 659, CEG 720, CEG 750, CEG 751, CEG 752, CEG 753, CEG 754, CEG 758, CEG 820, EE 649

Engineering Applications CEG 619, CEG 628, CEG 656, CEG 676, CEG 677, CEG 724, CEG 728, CEG 756, CEG 759, CS 765

3. All CS and CEG graduate courses listed in the catalog, or approved to be listed in the next catalog (except CS 600, CEG 633, CS 700 and CEG 700), may be used to complete the credit hour requirements beyond those course requirements specified above. Other courses may be used to satisfy the requirements only if they are listed in the topic areas above or in a program of study that has been approved by the department prior to enrollment in the course.

4. A maximum of 4 quarter hours of independent study (CEG 795) may be included in a program of study.

The Department of Computer Science and Engineering maintains a "three C policy" for graduate students. A graduate student who receives 9 or more credit hours of grades C, D, F, or U in computer science and computer engineering graduate courses will be recommended for dismissal from the degree program. Dismissal action will be taken by the School of Graduate Studies. The rule includes prerequisite courses taken for graduate credit (500/600 level), independent study, and thesis research. Note that repeating a course replaces the grade in the calculation of the GPA but does not remove it from consideration of this rule.

A maximum of 12 graduate credit hours may be transferred after admission to the computer engineering degree program by petitioning the Graduate Study Committee.

Students who have been employed as teaching or research assistants through the School of Graduate Studies are required to complete the thesis option.

Facilities

A wide range of computing systems interconnected via the campus-wide network support all the degree programs in the department. Full Internet connectivity is provided from campus labs and from residence halls. A variety of high-end and special-purpose systems are available for research efforts through the Ohio Supercomputer Center. Wright State University is also an Internet 2 member. University and college systems include a variety of servers and workstations running current popular operating systems, including UNIX systems from SGI and Sun, and a variety of personal computer labs featuring current versions of Windows and Mac OS. Department facilities provide specialized systems and support equipment tailored to specific curriculum and research areas. These include an SGI Origin 2000 system with 32 parallel processors, an NCR Teradata 4850, an 8-processor SGI Onyx 2 system, a Linux-based Operating Systems and Internet Security lab, and a variety of workstations and personal computers providing software tools for project design and development. The program has laboratories dedicated to student and faculty study and research in the areas of assistive technology, vision interfaces and systems, medical image analysis, parallel and distributed computing, evolvable hardware, database systems, data mining, mobile information and communications, software engineering, artificial intelligence, adaptive vision, advanced computer networking, and bioinformatics.

Faculty

Professors

Nikolaos G. Bourbakis, (director, Information Technology Research Institute), information security (encryption, information hiding, compression), computer systems (distributed, formal languages, processors, modeling), applied artificial intelligence (knowledge representation, planning, learning, autonomous agents, natural language processing), machine vision and image processing (architectures, languages, algorithms), Robotics (navigation, grasping, 3-D space maps, walking)

James E. Brandeberry, P.E. (dean), digital electronics, microprocessors, system theory
Chien-In Henry Chen (Department of Electrical Engineering), computer aided design, simulation and testing of VLSI circuits and systems, specifically digital, analog, and mixed-signal design synthesis and testability, timing analysis and optimization for very-deep sub-micron ICs, and chip design for signal processing, communication, and networking
Soon M. Chung, database, data mining, xml, parallel and distributed processing, multimedia, computer architecture

Forouzan Golshani, (chair) digital video processing, image analysis, indexing and classification, correlated media synthesis, multimedia information systems, information security

A. Ardeshir Goshtasby, image and video understanding, medical image analysis, geometric modeling, curves and surfaces, multimodal image capture and fusion

Jack Jean, high-performance computer architectures, machine intelligence

Terry A. McKee (Department of Mathematics and Statistics), graph theory

Kuldip S. Rattan (Department of Electrical Engineering), fuzzy control, robotics, digital control systems, prosthetic/orthotics and microprocessor applications

Mateen M. Rizki, evolutionary computation, pattern recognition, image processing, machine intelligence

Thomas A. Sudkamp, fuzzy set theory, soft computing, approximate reasoning

Associate Professors

Guozhu Dong, database systems, data mining and knowledge discovery, data warehousing and integration, data cubes and OLAP, bioinformatics, knowledge management, information and internet security

Travis E. Doom, bioinformatics, digital design automation, computer architecture and operating systems, optimization theory, and engineering education

Daniel Lee, computer/communication networks, wireless communications, multimedia

transport

Prabhaker Mateti, distributed computing, Internet security, formal methods in software design

Krishnaprasad Thirunarayan, semantic web: knowledge representation and reasoning, programming languages: specification, design and implementation

Assistant Professors

Natsuhiko Futamura, algorithms for high performance computing, parallel algorithms, computational biology, search algorithms, distribution independent spatial data structure and algorithms

John C. Gallagher, neural networks, computational neuroscience, machine intelligence, genetic algorithms, evolvable hardware, autonomous robotics

Yong Pei, information theory, communication systems and networks, image/video compression and communications, and distributed signal processing

Michael L. Raymer, evolutionary computation, machine learning, pattern recognition, computational biology, protein structure and function, protein-water interactions, bioinformatics

Bin Wang, computer communication and networks, providing quality of service assurance, quality of service routing, service provisioning in dense wavelength division multiplexing (DWDM) optical networks, wireless and mobile networks, network security (including countering denial of service attacks), stochastic modeling, queuing analysis of systems, network simulation, protocol design and development

Graduate Assistantship

Teaching assistantships are available on a competitive basis for students who have established strong academic credentials and can demonstrate good communication and teaching skills. A number of departmental research assistantships are awarded annually based on exceptional performance or potential. Additional graduate support is available in the form of assistantships associated with research projects of the faculty. Scholarships are also available from the Dayton Area Graduate Studies Institute (DAGSI). Application forms for these assistantships and scholarships are available from the department for students admitted to the graduate program.

Research

A steadily increasing number of funded research projects support modern graduate research in such areas as database systems, knowledge-based systems, knowledge discovery from databases, parallel and distributed computing, machine intelligence, hardware systems and communications, neural networks, software systems and engineering, computer graphics and visualization, human-computer interaction, optical computing, and robotics. A strong research faculty in the Department of Computer Science and Engineering is assisted by qualified research faculty in mathematics, statistics, and electrical engineering.

Recent and current sources of research support include federal agencies, military agencies, and local industries. Research at Wright State University is not limited to on-campus laboratory facilities. Several industrial laboratories, Wright-Patterson Air Force Base laboratories, and the Major Shared Resource Center at Wright-Patterson Air Force Base are involved in joint research efforts with the university. The Information Technology Research Institute (ITRI) is closely associated with the Department of Computer Science and Engineering in seeking and pursuing research and development opportunities with state and federal agencies and local information-intensive industries. In addition, the university's Wright Center of Innovation for Advanced Data Management and Analysis is a focal point for new technologies that advance data management solutions and data management innovation.

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Introduction

The Department of Computer Science and Engineering offers a program of graduate study leading to the Master of Science degree in Computer Science.

The program balances theory, software, hardware, and practice with degree requirements concentrated in the areas of theory and software. Most courses are offered in the late afternoon to allow practicing computer professionals to begin the program on a part-time basis.

The department also offers the Master of Science in Computer Engineering degree and the Ph.D. in computer science and engineering, as well as graduate certificates in Database Management and Design, Software Engineering, and Software Management.

Admission

Students may be admitted to the graduate program in computer science with a baccalaureate degree in computer science, computer engineering, or a related area and appropriate experience; satisfaction of the admission requirements as set forth by the School of Graduate Studies; and a record that indicates potential for a professional career in computer science and/or computer engineering as evaluated by the department's admission committee.

Students should come to the program with a knowledge of higher-level programming languages, data structures, concurrent programming, computer organization, operating systems, and digital hardware design. It may be possible to make up minor background deficiencies after admission to the program by taking appropriate courses.

Degree Requirements

Master of Science Degree in Computer Science

Requirements for the Master of Science in Computer Science degree are a department-approved program that must include the following:

Thesis Option

1. Completion of 48 graduate credit hours in an approved program of study, including 20 hours of formal coursework at the 700/800 level (CS 795, Independent Study, cannot be used to meet this requirement), of which at least 12 credit hours of formal coursework at the 700/800 level must be taken in the Computer Science specialty (courses with a CS prefix).

2. Completion of at least one course at Wright State University in each of the following areas, selected from the courses listed for each area:
CS Systems CEG 602, CS 607, CS 609, CEG 634, CS 714, CEG 720, CEG 730, CEG 830
Software CEG 660, CEG 760, CEG 763, CEG 860, CS 605, CS 701, CS 801
Language CS 680, CS 774, CS 776, CS 780, CS 781, CS 784, CS 884
Computer Science Theory CS 610, CS 658, CS 666, CS 740, CS 840

3. All CS and CEG graduate courses listed in the catalog, or approved to be listed in the next catalog (except CS 600, CEG 633, CS 700 and CEG 700), may be used to complete the credit hour requirements beyond those course requirements specified above. Other courses may be used to satisfy the requirements only if they are listed in the topic areas above or in a program of study that has been approved by the department prior to enrollment in the course.

4. Satisfactory completion of a master's thesis with maximum of 12 hours of independent study (CS 795) and thesis (CS 799) included in the program of study.

Non-thesis Option

1. Completion of 48 graduate credit hours in an approved program of study, including 32 hours of formal coursework at the 700/800 level (CS 795, Independent Study, cannot be used to meet this requirement), of which at least 12 hours of formal coursework at the 700/800 level must be taken in the Computer Science specialty (courses with a CS prefix).

2. Completion of at least one course at Wright State University in each of the following areas, selected from the courses listed for each area:
CS Systems CEG 602, CS 607, CS 609, CEG 634, CS 714, CEG 720, CEG 730, CEG 830
Software CEG 660, CEG 760, CEG 763, CEG 860, CS 605, CS 701, CS 702
Language CS 680, CS 774, CS 776, CS 780, CS 781, CS 784, CS 884
Computer Science Theory CS 610, CS 658, CS 666, CS 740, CS 840

3. All CS and CEG graduate courses listed in the catalog, or approved to be listed in the next catalog (except CS 600, CEG 633, CS 700 and CEG 700), may be used to complete the credit hour requirements beyond those course requirements specified above. Other courses may be used to satisfy the requirements only if they are listed in the topic areas above or in a program of study that has been approved by the department prior to enrollment in the course.

4. A maximum of 4 quarter hours of independent study (CS 795) may be included in the program of study.

The Department of Computer Science and Engineering maintains a "three C policy" for graduate students: a graduate student who receives 9 or more credit hours of grades C, D, F, or U in computer science and computer engineering graduate courses will be recommended for dismissal from the degree program. Dismissal action will be taken by the School of Graduate Studies. The rule includes prerequisite courses taken for graduate credit (500/600 level), independent study, and thesis research. Note that repeating a course replaces the grade in the calculation of the GPA, but does not remove it from consideration of this rule.

A maximum of 12 graduate credit hours may be transferred after admission to the computer science degree program by petitioning the Graduate Study Committee. Students who have been employed as teaching or research assistants through the School of Graduate Studies are required to complete the thesis option.

Facilities

A wide range of computing systems interconnected via the campus-wide network support

all the degree programs in the department. Full Internet connectivity is provided from campus labs and from residence halls. A variety of high-end and special-purpose systems is available for research efforts through the Ohio Supercomputer Center. Wright State University is also an Internet 2 member. University and college systems include a variety of servers and workstations running current popular operating systems, including UNIX systems from SGI and Sun, and a variety of personal computer labs featuring current versions of Windows and Mac OS. Department facilities provide specialized systems and support equipment tailored to specific curriculum and research areas. These include an SGI Origin 2000 system with 32 parallel processors, an NCR Teradata 4850, an 8-processor SGI Onyx 2 system, a Linux-based Operating Systems and Internet Security lab, and a variety of workstations and personal computers providing software tools for project design and development. The program has laboratories dedicated to student and faculty study and research in the areas of assistive technology, vision interfaces and systems, medical image analysis, parallel and distributed computing, evolvable hardware, database systems, data mining, mobile information and communications, software engineering, artificial intelligence, adaptive vision, advanced computer networking, and bioinformatics.

Faculty

Professors

Nikolaos G. Bourbakis, (director, Information Technology Research Institute), information security (encryption, information hiding, compression), computer systems (distributed, formal languages, processors, modeling), applied artificial intelligence (knowledge representation, planning, learning, autonomous agents, natural language processing), machine vision and image processing (architectures, languages, algorithms), Robotics (navigation, grasping, 3-D space maps, walking)

James E. Brandeberry, P.E. (dean), digital electronics, microprocessors, system theory
Chien-In Henry Chen (Department of Electrical Engineering), computer aided design, simulation and testing of VLSI circuits and systems, specifically digital, analog, and mixed-signal design synthesis and testability, timing analysis and optimization for very-deep sub-micron ICs, and chip design for signal processing, communication, and networking
Soon M. Chung, database, data mining, xml, parallel and distributed processing, multimedia, computer architecture

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Kuldip S. Rattan (Department of Electrical Engineering), fuzzy control, robotics, digital control systems, prosthetic/orthotics and microprocessor applications

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Associate Professors

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Travis E. Doom, bioinformatics, digital design automation, computer architecture and operating systems, optimization theory, and engineering education

Daniel Lee, Computer/communication networks, wireless communications, multimedia transport

Prabhaker Mateti, distributed computing, Internet security, formal methods in software design

Krishnaprasad Thirunarayan, semantic web: knowledge representation and reasoning, programming languages: specification, design and implementation

Assistant Professors

Natsuhiko Futamura, algorithms for high performance computing, parallel algorithms, computational biology, search algorithms, distribution independent spatial data structure and algorithms

John C. Gallagher, neural networks, computational neuroscience, machine intelligence, genetic algorithms, evolvable hardware, autonomous robotics

Yong Pei, information theory, communication systems and networks, image/video compression and communications, and distributed signal processing

Michael L. Raymer, evolutionary computation, machine learning, pattern recognition, computational biology, protein structure and function, protein-water interactions, bioinformatics

Bin Wang, computer communication and networks, providing quality of service assurance, quality of service routing, service provisioning in dense wavelength division multiplexing (DWDM) optical networks, wireless and mobile networks, network security (including countering denial of service attacks), stochastic modeling, queuing analysis of systems, network simulation, protocol design and development

Graduate Assistantship

Teaching assistantships are available on a competitive basis for students who have established strong academic credentials and can demonstrate good communication and teaching skills. A number of departmental research assistantships are awarded annually based on exceptional performance or potential. Additional graduate support is available in the form of assistantships associated with research projects of the faculty. Scholarships are also available from the Dayton Area Graduate Studies Institute (DAGSI). Application forms for these assistantships and scholarships are available from the department for students admitted to the graduate program.

Research

A steadily increasing number of funded research projects support modern graduate research in such areas as database systems, knowledge-based systems, knowledge discovery from databases, parallel and distributed computing, machine intelligence, hardware systems and communications, neural networks, software systems and engineering, computer graphics and visualization, human-computer interaction, optical computing, and robotics. A strong research faculty in the Department of Computer Science and Engineering is assisted by qualified research faculty in mathematics, statistics, and electrical engineering.

Recent and current sources of research support include federal agencies, military agencies, and local industries. Research at Wright State University is not limited to on-campus laboratory facilities. Several industrial laboratories, Wright-Patterson Air Force Base laboratories, and the Major Shared Resource Center at Wright-Patterson Air Force Base are involved in joint research efforts with the university. The Information Technology Research Institute (ITRI) is closely associated with the Department of Computer Science and Engineering in seeking and pursuing research and development opportunities with state and federal agencies and local information-intensive industries. In addition, the university's Wright Center of Innovation for Advanced Data Management and Analysis is a focal point for new technologies that advance data management solutions and data management innovation.

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Computer Science and Engineering Ph.D. Program

Introduction

The Department of Computer Science and Engineering offers a program of graduate study leading to the Doctor of Philosophy degree in computer science and engineering. The Ph.D. degree is awarded for demonstrated, scholarly excellence in study and research that provides a significant contribution to the fields of computer science or computer engineering. The program requires a concentration of study and research in specific areas of computer science and engineering. Programmatic strength lies in the unique blend of faculty expertise, in the combination of theory with software and hardware design, and in the laboratory facilities available to the program.

Most courses are offered in the late afternoon to allow practicing computer professionals to begin the program on a part-time basis.

The department also offers Master of Science in Computer Science and Master of Science in Computer Engineering degrees, as well as graduate certificates in Database Management and Design, Software Engineering, and Software Management.

Admission

Students may be admitted to the Ph.D. program in Computer Science and Engineering with a baccalaureate degree or a master's degree in computer science, computer engineering, or a related area and appropriate experience; satisfaction of the admission requirements as set forth by the School of Graduate Studies; and a record that indicates potential for a career in computer science and engineering research, as evaluated by the department's admission committee.

Students should come to the program with a knowledge of higher-level programming languages, data structures, real time programming, computer organization, formal languages, operating systems, and computer systems design. It may be possible to make up minor background deficiencies after admission to the program by taking appropriate courses.

In addition, minimum expectations are a baccalaureate or master's degree from an accredited institution in computer science, computer engineering, or related discipline with a grade point average of at least 3.3 and a score on the Graduate Record Examination (GRE) of at least 1700. The Graduate Record Examination is not required of students with a master's degree from the Wright State University College of Engineering and Computer Science, provided that a grade point average of 3.6 or better was achieved.

There are approximately 30 active Ph.D. students currently in the department and those who were required to present GRE scores have an average value of 1923.

Degree Requirements

Doctor of Philosophy Degree in Computer Science and Engineering

A student entering the program with a Bachelor of Science or Bachelor of Arts degree must complete a minimum of 136 credit hours. A student entering the program with a master's degree in computer science, computer engineering, or a related field from a regionally accredited university must complete a minimum of 91 credit hours. The program must be completed with a minimum grade point average of 3.0.

The following course requirements must be satisfied in completing the necessary number of credit hours.

1. Course Requirements:

A student must complete a minimum of 76 hours of course work at the graduate level. CS 600/CEG 633 will not be counted toward meeting this requirement.

The 76 credit hours in courses must include:

At least 40 hours of formal computer science and computer engineering courses available to graduate students only (CS/CEG 700/800 level), including at least eight quarter hours of formal 800 level courses. A course other than those listed may be used to satisfy the graduate only course requirement if it is part of a coherent program and has received approval from the Graduate Studies Committee prior to enrollment in the course.

At least 24 hours of graduate level CSE technical electives including at least 8 hours of formal course work.

At least 12 credit hours of graduate courses outside of the CSE Department, e.g. mathematics or statistics, electrical engineering, psychology, biology, etc.

Courses that are co-listed as CS or CEG cannot be used toward this requirement except MTH 607, MTH 619, MTH 656, MTH 658, EE 619, EE 654, EE 656, EE 662 (formerly EE 658), EE 659, and HFE 665.

Formal Courses:

For the purposes of the course requirements given above, a formal course is defined as follows:

A formal course meets on a regularly scheduled basis throughout the quarter as specified in the quarterly university bulletin. In a formal course, a faculty member delivers a series of lectures and students are evaluated using a combination of projects, presentations, and examinations. Consequently, this excludes seminars, independent study, thesis research, dissertation research, principles of instruction, or other directed research hours. However, the 24 hours of graduate level CSE technical electives allows for 16 hours of independent study type courses, but not thesis or dissertation research.

2. Additional Requirements:

The students program of study must include:

A minimum of 2 credit hours in a Ph.D. Seminar (CS 891 or CEG 891)

Registration for the Ph.D. Qualifying Examination (CS 892 or CEG 892)

Registration for the Candidacy Examination (CS 894 or CEG 894)

Registration for the Dissertation Defense (CS 896 or CEG 896)

Registration for the 36 hours of Residency Research (CS 897 or CEG 897)

3. Qualifying Examination:

Students entering the Ph.D. program with a master's degree must demonstrate proficiency in computer science and engineering by passing the qualifying examination within five

enrolled quarters of admission into the program. Students entering with a bachelor's degree must pass the examination within eight enrolled quarters.

The qualifying examination is designed to ascertain the student's depth of knowledge in selected areas of computer science and engineering, and explore the student's ability to integrate concepts and ideas to form solutions for complex problems and applications.

The examination will cover three core areas of computer science and engineering:

1. Operating systems
2. Computer architecture
3. Mathematical foundations of
 - a. computer science
 - b. computer engineering

The student must take examinations in areas 1, 2, and 3a or 3b. The department maintains a syllabus for each examination. The content of the examinations is not directly tied to a set of formal courses that the student must complete prior to attempting the examination. Students who have completed graduate level course work in the three core areas should be able to pass the examination by reviewing materials described in the examination syllabi.

The qualifying examination will be offered twice a year, in the fall quarter and in the spring quarter. Students not passing the examination on the first attempt will be given a grade of U, but will be given one additional opportunity to pass the examination at the next available offering. Any student who fails to pass the examination on the second attempt will be dismissed from the program.

4. Residency Research:

A student must enroll in three quarters over two consecutive years of Residency Research (CS/CEG 897). A student will generally enroll in residency research after completing the Ph.D. Qualifying Examination. Enrollment in residency research prior to completion of the Qualifying Examination will be permitted only by the petition to the Graduate Studies Committee.

5. Course Grade Requirements:

Prior to taking the Candidacy Examination, a student must meet all of the following course grade requirements at the same time.

Out of the following three areas, a student must have:

1. at least three A's in a concentration area,
2. at least one course from each of the other two areas,
3. at least a G.P.A. of 3.3 in each of the three areas

Students transferring directly to the Ph.D. program from another institution may count graduate-level courses with grades to meet the grade requirements through a petition process.

Area 1. Machine Intelligence and Human Computer Interaction

CS 711 Knowledge-Based Systems in AI

CS 712 Advanced Topics in AI

CS 714 Machine Learning I

CS 765 Foundations of Neurocomputing

CS 766 Evolutionary Computing

CS 767 Fuzzy Set Theory and Approximate Reasoning

CS 771 Natural Language Processing Techniques

CS 772 Advanced Natural Language Processing Concepts

CS 865 Advanced Topics in Soft Computing

CEG 724 Computer Vision

CEG 725 Computer Vision II
CEG 756 Robotics I
CEG 759 AI in Robotics
CEG 770 Computer Engineering Mathematics

Area 2. Database and Software Systems
CS 701 Database Systems and Design
CS 740 Computational Complexity and Algorithm Analysis
CS 774 Logic Programming
CS 776 Functional Programming
CS 780 Compiler Design and Construction
CS 781 Compiler Design and Construction II
CS 782 Compiler Design and Construction III
CS 784 Programming Languages
CS 801 Advanced Topics in Database Systems
CS 840 Advanced Topics in the Theory of Computation
CS 884 Advanced Topics in Programming Languages
CEG 730 Distributed Computing Principles
CEG 760 Advanced Software Engineering
CEG 763 Formal Methods in Software Engineering
CEG 830 Distributed Computing Systems
CEG 860 Object-Oriented Programming

Area 3. Computing Systems and Technologies
CS 716 Numerical Analysis I
CS 717 Numerical Analysis II
CS 735 Evaluation and Prediction of System Performance
CEG 720 Computer Architecture
CEG 728 Introduction to Optical Computing
CEG 729 Optical Computer Architectures
CEG 750 Microprocessors
CEG 751 Microprocessors II
CEG 752 VLSI Subsystem Design
CEG 754 VLSI Testing and Design for Testability
CEG 758 CMOS Analog IC Design
CEG 820 Computer Architecture II

6. Candidacy Examination:

The Candidacy Examination permits the student to present his/her proposed research to the dissertation committee and the public. The dissertation committee may be formed only after completion of the Qualifying Examination, but prior to the Candidacy Examination. It is the responsibility of the student to find a faculty member who agrees to be the dissertation director and who will supervise the student's research. The dissertation director, in consultation with the dissertation committee, will determine when the student has identified a program of research suitable for a Ph.D. dissertation and is prepared to take the Candidacy Examination. The examination will consist of a public presentation of the proposed research and a question-and-answer period. The dissertation committee may also have an interrogatory session with the student that is closed to the public. Unanimous consent of the dissertation committee is required to pass the Candidacy Examination. The research proposal must exhibit the student's thorough background knowledge of the research area, indicate previous work in the area, and explicitly outline the proposed research to be undertaken in the dissertation.

7. Dissertation Defense:

In the Dissertation Defense, the student presents the results of his/her research to the dissertation committee and the public. The dissertation director, in consultation with the dissertation committee, will determine when the student has completed sufficient research

to defend the dissertation.

The dissertation director is the chair of the Dissertation Defense. The examination consists of a public presentation of the student's research and a question-and-answer period. The dissertation committee may also have an interrogatory session with the student that is closed to the public. Unanimous consent of the dissertation committee is required to pass the Dissertation Defense.

8. Time Limit:

Students must complete all the requirements for a doctoral degree within 10 years from the date that student was admitted to the Ph.D. program.

The department has a "three C rule" for graduate students. A graduate student who receives 9 or more credit hours of grades C, D, F, or U in computer science or computer engineering graduate courses will be recommended for dismissal from the program. The rule includes prerequisite courses taken for graduate study, independent study, and thesis or dissertation research. Dismissal action will be taken by the School of Graduate Studies.

Facilities

A wide range of computing systems interconnected via the campus-wide network support all the degree programs in the department. Full Internet connectivity is provided from campus labs and from residence halls. A variety of high-end and special-purpose systems is available for research efforts through the Ohio Supercomputer Center. Wright State University is also an Internet 2 member. University and college systems include a variety of servers and workstations running current popular operating systems, including UNIX systems from SGI and Sun, and a variety of personal computer labs featuring current versions of Windows and Mac OS. Department facilities provide specialized systems and support equipment tailored to specific curriculum and research areas. These include an SGI Origin 2000 system with 32 parallel processors, an NCR Teradata 4850, an 8-processor SGI Onyx 2 system, a Linux-based Operating Systems and Internet Security lab, and a variety of workstations and personal computers providing software tools for project design and development. The program has laboratories dedicated to student and faculty study and research in the areas of assistive technology, vision interfaces and systems, medical image analysis, parallel and distributed computing, evolvable hardware, database systems, data mining, mobile information and communications, software engineering, artificial intelligence, adaptive vision, advanced computer networking, and bioinformatics.

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Graduate Assistantship

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Research

A steadily increasing number of funded research projects support modern graduate research in such areas as database systems, knowledge-based systems, knowledge discovery from databases, parallel and distributed computing, machine intelligence,

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Economics

Introduction

The Department of Economics offers a professionally oriented graduate program that leads to a Master of Science in Social and Applied Economics.

This program is designed to develop professional economists who can solve contemporary economic problems with a unique set of skills created by a curriculum that combines applied economics with social economics. In doing so, the program bridges the gap between research and the application of research for use in a wide variety of business and government professions. Students are encouraged to develop and evaluate new approaches to economic problem solving. The curriculum stresses research and field experience, which is complemented by the faculty's teaching and research emphasis on the interplay of theory and applications.

Admission

An applicant for graduate study in the social and applied economics program is required to meet the general requirements of the School of Graduate Studies and also to be accepted by the Graduate Studies Committee of the Department of Economics. Students need not have an undergraduate degree in economics to enter this program; however, the student's undergraduate grade point average (GPA) and, if applicable, graduate GPA will be considered. The Graduate Record Examination (GRE) general test is required. (Students selecting to do the dual degree with the MBA may substitute the GMAT for the GRE.)

Application forms for admission and for the GRE are available in the office of the chair of the Department of Economics or from the School of Graduate Studies. Both full- and part-time students are accepted for admission to the program.

Degree Requirements

Candidates for the Master of Science degree in Social and Applied Economics must successfully complete a minimum of 48 credit hours in courses numbered 600 or above, exclusive of prerequisite survey courses. Of the total 48 hours, 44 must be taken in the department (40 credit hours of courses plus four credit hours of internship). Students must achieve a cumulative grade point average of 3.0 in all graduate courses exclusive of the internship, which requires a grade of pass. No more than nine credit hours of C grades may be applied toward the degree.

As many as 12 graduate credit hours may be transferred into the M.S. program in social and applied economics by petition to the Graduate Studies Committee in the Department of Economics and subject to approval by the School of Graduate Studies.

All candidates are required to complete an internship. Prior to the internship, students should have completed a minimum of 24 credit hours (including EC 709 and EC 712). Approval by the student's advisor and the Graduate Studies Committee of the department is also required. Detailed information on internship objectives, standards, and supervision is available upon request from the director of the M.S. in economics program.

In very rare cases, the Graduate Studies Committee of the Department of Economics may require a student to take and pass a comprehensive written and/or oral examination as a degree requirement.

Prerequisites

A bachelor's degree in economics is not required prior to entering the program; however, basic courses in economics principles, introductory statistics, and calculus are minimum requirements. Students who have not had these courses or the equivalent should complete the courses before entering the program. Upon approval of the Graduate Studies Committee of the Department of Economics, students may make up deficiencies in program prerequisites after admission to the program, but before taking courses requiring these specific prerequisites. The following survey courses have been designed to meet the program prerequisites: EC 510 (for calculus), EC 509 (for statistics), and EC 521 and 522 (for principles of micro- and macro-economics). For full-time students, these requirements must be completed prior to the fall quarter entry date.

Faculty

Professors

John P. Blair, urban and regional economics, economic policy, public finance
Rudy Fichtenbaum, econometrics, labor economics, macroeconomics, health economics
Paulette Olson, labor economics, history of economic thought, methodology, economics of gender
Robert Premus, regional-urban economics, public finance, economic theory, monetary economics
Stephen M. Renas, cost-benefit analysis and public project evaluation, macroeconomics, monetary theory, environmental economics, financial institutions and markets
G. Thomas Sav, microeconomics, public finance, energy economics, property rights
James A. Swaney (chair), history of economic thought, methodology, environmental and resource economics
Thomas Traynor, forecasting, econometrics, industrial organization, microeconomics

Associate Professors

Tran Huu Dung, microeconomics, international economics, physical economics
Barbara E. Hopkins, comparative economic institutions, development economics, gender analysis, economics of the Pacific Rim
Evan W. Osborne, microeconomic theory, law and economics, public choice, international economics

Financial Assistance

Other financial assistance programs are available for graduate students. This assistance may be provided through financial aid and/or graduate academic fellowships. For further information concerning financial aid, please contact the Office of Financial Aid. Information regarding graduate academic fellowships may be obtained by contacting the director of the graduate program.

Graduate Assistantship

Assistantships are available on a competitive basis for the first year of study.

Undergraduate GPA, GRE scores, letters of recommendation, TOEFL score, and other materials are used in the assistantship decision. The department reserves the right to adjust the level of funding conditional on the availability of funds and the student's academic progress. Assistantships require students to spend a specified amount of time assisting either in instruction or in research. The balance of their time is devoted to graduate studies. Graduate assistants are required by the graduate school to register for a minimum of eight hours of graduate credit per quarter (a maximum of six credit hours for each five-week summer term is considered the normal load).

Program Description

Any modification of the following program requirements requires petition approval by the department, college, and university graduate studies committees. The program is designed so that students may complete the degree in one calendar year.

Dual Degree with M.B.A.

Students may obtain both the Master of Business Administration degree and the Master of Science degree in Social and Applied Economics under the dual-degree program, which permits common course work to apply to both programs. This policy does not apply to students who receive an M.B.A. degree from schools other than Wright State. For further information, contact the director of the M.S. program in economics or the director of the M.B.A. program.

Course of Study

Required Courses	36
<hr/>	
EC 709 Econometrics and Its Applications	4
EC 712 Forecasting Economic Activity	4
EC 715 Applied Microeconomics	4
EC 717 Applied Macroeconomics	4
EC 724 Development of Economic Thought	4
EC 725 Economic, Social and Ecological Systems	4
EC 726 Contemporary Political Economy	4
EC 780 Economic Problems Seminars	4
EC 785 Internship*	4
Electives	12
<hr/>	
Choose three courses:	
EC 602 Monetary Economics	
EC 610 Introduction to Mathematical Economics	4
EC 635 Comparative Capitalist Institutions	4
EC 644 Problems of Economic Development and Transition	4
EC 645 Political Economy of Women	4
EC 719 International Economics	4
EC 722 Economics for Managers	4
EC 730 Regional and Urban Economics	4
EC 731 Economics of Public Finance	4
EC 740 Cost-Benefit Analysis and Social Project Evaluation	4
EC 755 The Economics of Health and Health Policy	4
EC 765 Labor Market Theory and Policy	4

EC 777 Economic Studies	4
EC 781/782/783 Research in Economics	
Two courses must be in economics. One course may be noneconomics. Approval of advisor is required for electives taken outside of the Raj Soin College of Business.	
Economics	8-12
Noneconomics	0-4
Total	48

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 Fax: (937) 775-2453
 E-mail: wsugrad@wright.edu

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Economics Education

Introduction

The Center for Economic Education has been established as a center of excellence to increase economic understanding in a designated 15-county area through a number of community outreach programs.

Program Description

The center offers courses designed for the special needs of kindergarten through twelfth grade teachers and administrators. Each course helps participants develop an understanding of economic principles and concepts and demonstrates materials and methods useful in teaching the K–12 curricula. Participants are challenged to develop teaching units for their classrooms or schools.

Although graduate credit is awarded for these courses, this credit may not be applied toward the M.B.A. or M.S. in Social and Applied Economics degrees.

The Center for Economic Education offers in-service training to teachers on a wide range of educational topics. Workshops provide a practical approach to teaching that can be useful in preparing for proficiency testing.

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Education and Human Services—Curriculum and Instruction: Teacher Leader

Admission

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All students considering graduate-level courses in education and human services should do so with the understanding that graduate study differs in quality from undergraduate study. Graduate study requires that students be increasingly self-directed. Students are not guaranteed a master's degree by attending and completing courses. Exit requirements must be met in all programs.

Admission to the College of Education and Human Services is based on the candidate's written statement of purpose, consideration of undergraduate and/or graduate cumulative grade point average, submission of satisfactory scores on either the MAT, GRE, or other required examination, and in some cases, letters of reference and a personal interview (see Admission Standards).

Technology Policy

For admission to the college, all College of Education and Human Services students, graduate and undergraduate, part-time and full-time, will be expected to certify that they own or have access to a computer and the Internet.

In order to meet the mission of the college "...to prepare professionals to meet the educational and human services needs of a diverse, democratic society," it is necessary for our students to play an active role in the technological environment the college and Wright State University are creating to assist in the completion of this mission. An increasing number of classes and options will become available to students using a variety of distributed learning formats; library resources are available in a growing number of full-text formats, and global connections via telecommunications will be part of daily operations. Students preparing to become professionals in education and human service areas must demonstrate appropriate and effective skills and knowledge in technological aspects of their work.

Minimum equipment standards will be either a Power Macintosh or Pentium-based

Personal Computer (PC). The college supports Macintosh computers in faculty and staff offices and maintains computer labs. Wright State University has purchased a site license for most Microsoft software (see the Web page for Wright State's Computing and Telecommunications Services, <http://www.wright.edu/cats/> for details). The college's standard software packages are currently Office 2001 (Word, Excel, PowerPoint), FileMaker Pro, and Netscape; the specific packages, however, are subject to change.

Initial Teaching Credential

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Admission Standards

Candidates with a grade point average of less than 2.3 on a 4.0 grading system are not ordinarily admitted to graduate school. A petition process is available to formally request admissions not having met an admission standard. Candidates for admission to the Department of Human Services must meet additional requirements, which include three letters of reference, a personal interview, and a writing sample. Candidates for admission to certain programs in the Departments of Educational Leadership and Teacher Education must meet additional requirements, which include letters of reference, a personal interview, a writing sample, a self-assessment instrument, and Praxis II specialty area exams.

Waiver of GRE/MAT

Candidates to Educational Leadership master's degree programs, Health, Physical Education, and Recreation (HPR) programs, and select Teacher Education programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.0 or higher (graduate level GPA must be 3.0 or higher.) Candidates to Teacher Education programs requiring a passing score on a PRAXIS II specialty area exam(s) must submit passing Praxis scores regardless of undergraduate GPA.

Candidates to Human Services programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.3 or higher.

Conditional

Students who have an undergraduate grade point average of 2.5 or better, or who have an average between 2.3 and 2.5 with 2.7 or better in the last half of undergraduate work, may be granted conditional admission.

Regular admission to the College of Education and Human Services is granted after successful completion of 12 hours of course work with a grade of B or better in each course.

Licensure Candidate

Students who wish to complete licensure requirements at the graduate level but do not wish to pursue a graduate degree may be admitted as licensure candidates with the permission of the department in which the programs are housed. See Praxis II testing requirement above.

Nondegree Status

Persons who have a bachelor's degree may enroll in nondegree status for graduate courses without being admitted to a graduate program. If you wish to enroll in a degree program, only 50 percent of such credits may be applied to a degree program if they are appropriate, with the exception of the Department of Human Services, which only allows 12 hours of nondegree credit to be applied to one of its degree programs.

Faculty

Professors

Gregory R. Bernhardt (dean), education, counselor education
Donna Cole, teacher education
Diane E. Frey, counselor education
G. William Gayle, health and physical education
T. Stevenson Hansell, reading, language arts
Jan La Forge, rehabilitation counseling
Bonnie K. Mathies, educational technology
Charles W. Ryan, educational leadership, counselor education

Associate Professors

Beth Basista, science education/physics
Thomas Diamantes, educational leadership
Colleen Finegan, early childhood education, special education
Stephen B. Fortson, counselor education
Stephen D. Frederick, health and physical education
Charlotte Harris, teacher education
Ron Helms, teacher education
Phyllis A. Henderson, counselor education
Mary Ann Jones, counselor education
Burga Jung, teacher education
Jill Lindsey, educational leadership
Susann Mathews, mathematics education
Richelle O'Connor, teacher education
June A. Ovington, educational leadership
D. Drew Pringle, health and physical education
Linda Ramey, teacher education
Patricia Renick, special education
James Tomlin, science education/biology
Carol Wagner Williams, rehabilitation counseling
Richard A. Wantz, counselor education

Assistant Professors

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Joseph Keferl, rehabilitation counseling
Will Mosier, early childhood education
Timothy Rafferty, educational leadership

Joanne Risacher, educational leader/student affairs in higher education
 Doug Roby, educational leadership
 Tracy Rusch, mathematics education
 Ken Schatmeyer, literacy education
 Eileen F. Self, counselor education
 William Slattery, science education/geology
 Donna Tromski-Klingshirn, counselor education

Lecturers

Lori Carter, workforce education
 Glenn Graham, educational leadership
 Marguerite Veres, educational leadership
 Tony Ortiz, athletic training

Course of Study

**Educational Leadership: Curriculum and Instruction: Teacher Leader
 Teacher Leader Course Work**

48

EDL 771 Educational Leadership Behavior	4
EDL 782 School Law	4
EDL 712 Philosophical and Curricular Foundations	4
EDL 751 Statistics and Research for Education	4
EDL 713 Applied Psychological Learning Theory	4
EDL 780 Ethics and Politics	4
EDL 775 Instructional Management and Evaluation for School Leaders	4
EDL 773 Curriculum Development for School Leaders	4
EDL 774 Analysis of Instruction for School Leaders	4
EDL 733 Seminar: Professional Development for Teachers	4
EDT 757 Student Appraisal Methods	4
EDL 792 Professional Development & Change: From Theory to Practice	4
Total (minimum)	48

After satisfactorily completing the above requirements, students will be awarded a master's degree.

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Education and Human Services—Educational Administrative Specialist: Curriculum, Instruction, and Professional Development

Admission

In addition to meeting requirements for admission established by the School of Graduate Studies, candidates for these degrees who do not meet the minimum cumulative GPA requirement to waive the GRE or MAT, must submit satisfactory Graduate Record Examination (GRE) or Miller Analogies Test (MAT) scores, unless otherwise noted (see Admission Standards). The Adolescence Young Adult, Multi-Age, and Middle Childhood initial teacher licensure programs require passing scores on the state of Ohio's mandated Praxis II Specialty (Content) Area Exam(s). Contact the college's Office of Student Services or visit their Web site at www.ed.wright.edu/ss/ to learn more about the Praxis II exams.

All students considering graduate-level courses in education and human services should do so with the understanding that graduate study differs in quality from undergraduate study. Graduate study requires that students be increasingly self-directed. Students are not guaranteed a master's degree by attending and completing courses. Exit requirements must be met in all programs.

Admission to the College of Education and Human Services is based on the candidate's written statement of purpose, consideration of undergraduate and/or graduate cumulative grade point average, submission of satisfactory scores on either the MAT, GRE, or other required examination, and in some cases, letters of reference and a personal interview (see Admission Standards).

Technology Policy

For admission to the college, all College of Education and Human Services students, graduate and undergraduate, part-time and full-time, will be expected to certify that they own or have access to a computer and the Internet.

In order to meet the mission of the college "...to prepare professionals to meet the educational and human services needs of a diverse, democratic society," it is necessary for our students to play an active role in the technological environment the college and Wright State University are creating to assist in the completion of this mission. An increasing number of classes and options will become available to students using a variety of distributed learning formats; library resources are available in a growing number of full-text formats, and global connections via telecommunications will be part of daily operations. Students preparing to become professionals in education and human service areas must demonstrate appropriate and effective skills and knowledge in technological aspects of their work.

Minimum equipment standards will be either a Power Macintosh or Pentium-based

Personal Computer (PC). The college supports Macintosh computers in faculty and staff offices and maintains computer labs. Wright State University has purchased a site license for most Microsoft software (see the Web page for Wright State's Computing and Telecommunications Services, <http://www.wright.edu/cats/> for details). The college's standard software packages are currently Office 2001 (Word, Excel, PowerPoint), FileMaker Pro, and Netscape; the specific packages, however, are subject to change.

Initial Teaching Credential

Students seeking to enroll in a Teacher Education program designed to deliver an initial teaching credential (license) are required to pass the Praxis II specialty/content area exam(s) as defined by current state of Ohio standards. Candidates to these programs must contact the college's Office of Student Services for assistance in identifying the appropriate exam(s) for his/her desired teaching field. Students unable to achieve a passing score as defined by state of Ohio standards will not be admitted to a Teacher Education program. Students seeking to enroll in a Teacher Education program designed to deliver an initial teaching credential will not be required to take the GRE or MAT exams. An exception to this rule is the Intervention Specialist programs. Applicants to these programs must take the GRE or MAT exams, unless eligible to waive testing requirement based on cumulative GPA (see Admission Standards).

Admission Standards

Candidates with a grade point average of less than 2.3 on a 4.0 grading system are not ordinarily admitted to graduate school. A petition process is available to formally request admissions not having met an admission standard. Candidates for admission to the Department of Human Services must meet additional requirements, which include three letters of reference, a personal interview, and a writing sample. Candidates for admission to certain programs in the Departments of Educational Leadership and Teacher Education must meet additional requirements, which include letters of reference, a personal interview, a writing sample, a self-assessment instrument, and Praxis II specialty area exams.

Waiver of GRE/MAT

Candidates to Educational Leadership master's degree programs, Health, Physical Education, and Recreation (HPR) programs, and select Teacher Education programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.0 or higher (graduate level GPA must be 3.0 or higher.) Candidates to Teacher Education programs requiring a passing score on a PRAXIS II specialty area exam(s) must submit passing Praxis scores regardless of undergraduate GPA.

Candidates to Human Services programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.3 or higher.

Conditional

Students who have an undergraduate grade point average of 2.5 or better, or who have an average between 2.3 and 2.5 with 2.7 or better in the last half of undergraduate work, may be granted conditional admission.

Regular admission to the College of Education and Human Services is granted after successful completion of 12 hours of course work with a grade of B or better in each course.

Licensure Candidate

Students who wish to complete licensure requirements at the graduate level but do not wish to pursue a graduate degree may be admitted as licensure candidates with the permission of the department in which the programs are housed. See Praxis II testing requirement above.

Nondegree Status

Persons who have a bachelor's degree may enroll in nondegree status for graduate courses without being admitted to a graduate program. If you wish to enroll in a degree program, only 50 percent of such credits may be applied to a degree program if they are appropriate, with the exception of the Department of Human Services, which only allows 12 hours of nondegree credit to be applied to one of its degree programs.

Faculty

Professors

Gregory R. Bernhardt (dean), education, counselor education
Donna Cole, teacher education
Diane E. Frey, counselor education
G. William Gayle, health and physical education
T. Stevenson Hansell, reading, language arts
Jan La Forge, rehabilitation counseling
Bonnie K. Mathies, educational technology
Charles W. Ryan, educational leadership, counselor education

Associate Professors

Beth Basista, science education/physics
Thomas Diamantes, educational leadership
Colleen Finegan, early childhood education, special education
Stephen B. Fortson, counselor education
Stephen D. Frederick, health and physical education
Charlotte Harris, teacher education
Ron Helms, teacher education
Phyllis A. Henderson, counselor education
Mary Ann Jones, counselor education
Burga Jung, teacher education
Jill Lindsey, Educational Leadership
Susann Mathews, mathematics education
Richelle O'Connor, teacher education
June A. Ovington, educational leadership
D. Drew Pringle, health and physical education
Linda Ramey, teacher education
Patricia Renick, special education
James Tomlin, science education/biology
Carol Wagner Williams, rehabilitation counseling
Richard A. Wantz, counselor education

Assistant Professors

Kathy Adams, educational leadership
Mary Ellen Bargerhuff, special education
Angela Beumer-Johnson, English education
Jacqueline Collier, literacy education
Roger Carlsen, educational leadership
Stephanie Davis, educational leadership
James Dunne, special education
Nancy Gallenstein, early childhood education
Rochelle Garner, educational leadership/organizational leadership
Scott Graham, educational leadership/organizational leadership
Grant Hambright, educational leadership
Deborah Hess, early childhood education
Doris Johnson, teacher education
Joseph Keferl, rehabilitation counseling
Will Mosier, early childhood education
Timothy Rafferty, educational leadership

Joanne Risacher, educational leader/student affairs in higher education
 Doug Roby, educational leadership
 Tracy Rusch, mathematics education
 Ken Schatmeyer, literacy education
 Eileen F. Self, counselor education
 William Slattery, science education/geology
 Donna Tromski-Klingshirn, counselor education

Lecturers

Lori Carter, workforce education
 Glenn Graham, educational leadership
 Marguerite Veres, educational leadership
 Tony Ortiz, athletic training

Course of Study

(This program leads to the Educational Administrative Specialist: Curriculum/Instruction: Professional Development license.)

Core Courses (any sequence) 12

EDL 712 Applied Psychological Learning Theory	4
EDL 713 Philosophical and Curricular Foundations	4
EDL 751 Statistics and Research for Education	4

Leadership Courses 36

EDL 771 Educational Leadership Behavior	4
EDL 773 Curriculum Development for School Leaders	4
EDL 774 Analysis of Instruction for School Leaders	4
EDL 775 Instructional Management and Evaluation for School Leaders	4
EDL 776 Supervision of Instruction and Personnel	4
EDL 780 Ethics and Politics in Education	4
EDL 782 School Law	4
EDL 790 Practicum in Instructional Leadership	4
EDL 792 Professional Development and Change: From Theory to Practice	4

Total 48

After satisfactory completion of the above requirements, students will be awarded a master's degree in Educational Leadership.

Courses Required for Completion of Licensure Requirements after Master's Degree 8

EDT 895 Administration and Supervision of Educational Technology	4
EDT 781 School Finance	4

Total for EAS: C&I:PD Licensure 56

Educational Leadership: Principalship (This program leads to the Educational Administrative Specialist: Principal Ages 3–12 and 8–21 license)

Core Courses 12

EDL 712 Philosophical and Curricular Foundations	4
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EDL 713 Applied Psychological Learning Theory	4
EDL 751 Statistics and Research for Education	4

Leadership Courses **36**

EDL 771 Educational Leadership Behavior	4
EDL 773 Curriculum Development for School Leaders	4
EDL 775 Instructional Management and Evaluation for School Leaders	4
EDL 776 Supervision of Instruction and Personnel	4
EDL 780 Ethics and Politics in Education	4
EDL 781 School Finance	4
EDL 782 School Law	4
EDL 790 Practicum in Instructional Leadership	4
EDT 895 Administrative Support of Technology	4

Total **48**

After satisfactory completion of the above requirements, students will be awarded a master's degree.

Courses Required for Completion of Principal Licensure after Master's Degree **20**

EDL 871 Management of the School	4
EDL 872 Staff Personnel Administration	4
EDL 873 Pupil Personnel Services Administration	4
EDL 874 School Business Management	4
EDL 890 Practicum in School Administration	4 (equivalent of six months during principal program)

Total for Principal Licensure Program **68**

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Education and Human Services—Educational Administrative Specialist: Curriculum, Instruction, and Professional Development—Technology

Admission

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 Doug Roby, educational leadership
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 Eileen F. Self, counselor education
 William Slattery, science education/geology
 Donna Tromski-Klingshirn, counselor education

Lecturers

Lori Carter, workforce education
 Glenn Graham, educational leadership
 Marguerite Veres, educational leadership
 Tony Ortiz, athletic training

Course of Study

Introductory Course Work 14

To be taken in any sequence during the first 24 credit hours of graduate education course work: (select one from each category)

Foundations (select one) 4

EDL 712 Philosophical and Curricular Foundations
 EDL 713 Applied Psychological Learning Theory

Statistics and Research (select one) 4

EDL 751 Statistics and Research for Education
 EDL 852 Advanced Seminar in Educational Research Design and Analysis

Curriculum 4

EDL 773 Curriculum Development for School Leaders

To be taken as a prerequisite to other EDT course work:

EDT 700 Entry Seminar for Educational Technology 2

Program Concentration-Administrative Specialist/Curriculum and Technology 43**

Technology

EDT 786 Applications of Computers in Education 4
 EDT 817 Issues and Implications of Telecommunications 3
 EDT 839 Instructional Design and Development 4
 EDT 895 Administration and Supervision of Education Technology 4
 EDT 975 Directed Study 4

Educational Leadership

EDL 771 Educational Leadership Behavior 4
 EDL 774 Analysis of Teaching 4

EDL 776 Supervision of Instruction and Personnel	4
EDL 782 School Law	4
EDL 874 School Business Management and Facilities	4
EDL 985 Organizational Dynamics: The Individual and the Organization	4

Required Exit Course **2**

To be taken at the end of the program of study.

EDT 799 Exit Seminar in Educational Technology	2
--	---

A department comprehensive portfolio will be required during the final quarter of course work on the program of study.

Total **63**

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Education and Human Services—Educational Administrative Specialist: Superintendent (License)

Admission

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Technology Policy

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Minimum equipment standards will be either a Power Macintosh or Pentium-based

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Waiver of GRE/MAT

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Conditional

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Licensure Candidate

Students who wish to complete licensure requirements at the graduate level but do not wish to pursue a graduate degree may be admitted as licensure candidates with the permission of the department in which the programs are housed. See Praxis II testing requirement above.

Nondegree Status

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Faculty

Professors

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G. William Gayle, health and physical education
T. Stevenson Hansell, reading, language arts
Jan La Forge, rehabilitation counseling
Bonnie K. Mathies, educational technology
Charles W. Ryan, educational leadership, counselor education

Associate Professors

Beth Basista, science education/physics
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Stephen Fortson, counselor education
Stephen D. Frederick, health and physical education
Charlotte Harris, teacher education
Ron Helms, teacher education
Phyllis A. Henderson, counselor education
Mary Ann Jones, counselor education
Burga Jung, teacher education
Susann Mathews, mathematics education
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Linda Ramey, teacher education
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James Tomlin, science education/biology
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Jacqueline Collier, literacy education
Roger Carlsen, educational leadership
James Dunne, special education
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Rochelle Garner, educational leadership/organizational leadership
Scott Graham, educational leadership/organizational leadership
Grant Hambright, educational leadership
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Doris Johnson, teacher education
Joseph Keferl, rehabilitation counseling
Jill Lindsey, educational leadership
Will Mosier, early childhood education
Timothy Rafferty, educational leadership
Joanne Risacher, educational leader/student affairs in higher education

Doug Roby, educational leadership
 Tracy Rusch, mathematics education
 Ken Schatmeyer, literacy education
 Eileen F. Self, counselor education
 William Slattery, science education/geology
 Donna Tromski-Klingshirn, counselor education

Lecturers

Lori Carter, workforce education
 Glenn Graham, educational leadership
 Marguerite Veres, educational leadership
 Tony Ortiz, athletic training

Course of Study

Core Courses	12
<hr/>	
EDL 712 Philosophical and Curricular Foundations	4
EDL 713 Applied Psychological Learning Theory	4
EDL 751 Statistics and Research for Education	4
Leadership Courses	36
<hr/>	
EDL 771 Educational Leadership Behavior	4
EDL 773 Curriculum Development for School Leaders	4
EDL 775 Instructional Management and Evaluation for School Leaders	4
EDL 776 Supervision of Instruction and Personnel	4
EDL 780 Ethics and Politics in Education	4
EDL 781 School Finance	4
EDL 782 School Law	4
EDL 790 Practicum in Instructional Leadership	4
EDT 895 Administration and Supervision of Educational Technology	4
Total	48

After satisfactorily completing the above requirements, students will be awarded a master's degree in Educational Leadership.

Courses Required for Completion of Superintendent Licensure after Completion of Master's Degree 36

<hr/>	
EDL 871 Management of the School	4
EDL 872 Staff Personnel Administration	4
EDL 874 School Business Management and Facilities	4
EDL 890 Practicum in School Administration	4
EDL 941 Planning Educational Futures	4
EDL 873 Pupil Personnel Services in the School and Community Resources	4
EDL 993 School District Business Management	4
EDL 971 Superintendent/Staff/Board Relationships	4
EDL 987 Administrative Leadership Skills	4

Electives 8

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Education and Human Services—Educational Leadership Classroom Teacher Programs

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Licensure Candidate

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 Eileen F. Self, counselor education
 William Slattery, science education/geology
 Donna Tromski-Klingshirn, counselor education

Lecturers

Lori Carter, workforce education
 Glenn Graham, educational leadership
 Marguerite Veres, educational leadership
 Tony Ortiz, athletic training

Course of Study

Classroom Teacher: Library/Media

Introductory Course Work 14

To be taken in any sequence during the first 24 credit hours of graduate education course work: (select one from each category)

Foundations (select one) 4

DL 712 Philosophical and Curricular Foundations
 EDL 713 Applied Psychological Learning Theory

Statistics and Research 4

EDL 751 Statistics and Research for Education

Curriculum 4

EDL 773 Curriculum Development for School Leaders

To be taken as a prerequisite to other EDT course work:

EDT 700 Entry Seminar for Educational Technology 2

Program Concentration-Library/Media* 32

*additional hours needed for Multi-Age licensure

EDT 711 Small Library Media Collection Development 4
 EDT 721 Cataloging and Classification 4
 EDT 746 Teaching Information and Research Skills 4
 EDT 751 Educational Use of Video Technology 4
 EDT 786 Applications of Computers in Education 4
 EDT 791 Organization and Administration of School Media Centers 4
 EDT 890 Internship 4
 EDT Electives 4

Required Exit Course 2

To be taken at the end of the program of study.

EDT 799 Exit Seminar in Educational Technology 2

A Department comprehensive portfolio will be required during the final quarter of course work on the program of study.

Total 48

*Multi-Age Library/Media licensure requires 57 hours of course work. Library/Media concentration course work can be applied toward these hour

**Classroom Teacher: Computer/Technology Education
Introductory Course Work 14**

To be taken in any sequence during the first 24 credit hours of graduate education course work: (select one from each category)

Foundations (select one) 4

EDL 712 Philosophical and Curricular Foundations
EDL 713 Applied Psychological Learning Theory

Statistics and Research 4

EDL 751 Statistics and Research for Education

Curriculum 4

EDL 773 Curriculum Development for School Leaders

To be taken as a prerequisite to other EDT course work:

EDT 700 Entry Seminar for Educational Technology 2

Program Concentration-Computer Technology Education* 32

EDT 786 Applications of Computers in Education 4
EDT 782 Developing Multimedia Productions 4
EDT 751 Educational Use of Video Technology 4
EDT 756 Advanced Television Production 4
EDT 890 Internship 4
EDT Electives** 12

Required Exit Course 2

To be taken at the end of the program of study.

EDT 799 Exit Seminar in Educational Technology 2

A Department comprehensive portfolio will be required during the final quarter of course work on the program of study.

*All candidates seeking endorsement in computer/technology must provide evidence that the following foundations have been attained: basic technology operations and concepts (use computer operating systems and user interfaces to run programs, access, generate, and manipulate data, and to report results; evaluate performance of hardware and software components of computer systems and apply basic troubleshooting strategies as needed); personal and professional use of technology (apply tools for enhancing productivity and professional growth, use technology in communicating, collaborating, conducting research, and solving problems; includes equitable, ethical, and legal use of computer/technology resources); and application of technology in instruction (teach computer/technology applications and use technology to support content areas).

**EDT Electives

EDT 714 Online Communication	(1)
EDT 715 Information Retrieval Through Technology	(4)
EDT 716 Building Online Applications	(2)
EDT 817 Issues of Telecommunications in Education	(3)
EDT 839 Instructional Design and Development	(4)
EDT 895 Administration and Supervision of Educational Technology	(4)
EDT 670 Workshops-special topics	(limit 4 hours)

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Education and Human Services—Educational Leadership: Student Affairs in Higher Education—Administration

Admission

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Program Description

Educational Leadership: Student Affairs in Higher Education - Administration

The Student Affairs in Higher Education program was developed to provide education and training for individuals interested in careers in student services. The emphasis of this program is student affairs and development from an administrative perspective. The primary mission of this program is to prepare students for leadership roles in higher education student affairs. Integrating theory and practice, maintaining strong interdisciplinary relationships, fostering high-quality research, and sponsoring activities that enhance the development of professionals are high priorities of the program.

Course of Study

Educational Leadership: Student Affairs in Higher Education - Administration

Foundation Course Work	25
<hr/>	
EDL 760 Introduction to Student Affairs in Higher Education	4
EDL 761 Theories of Student Development	4
EDL 763 Campus Ecology	4
EDL 751 Statistics and Research for Education	4
EDL 765 Practicum in Student Affairs in Higher Education	4
EDL 767 Internship in Student Affairs in Higher Education	5
Professional Requirements	25-33
<hr/>	
EDL 762 Student Affairs Administration in Higher Education	4
EDL 764 Program Evaluation and Assessment in Student Affairs in Higher Education	4
EDL 766 Advanced Seminar in Student Affairs in Higher Education	4
EDL 768 Finance and Budget Management in Student Affairs in Higher Education	4
EDL 920 History and Philosophy of Higher Education in the U.S.	4
EDL 922 Law of Higher Education	4
EDL 852 Statistical Analysis and Research	(required for M.A. only)
EDL 999 Thesis	(Credit Variable) 6-9
Electives	10-16
<hr/>	

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E-mail: wsugrad@wright.edu

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Please send comments to [Denise Thomas-Hoskins](#).

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Education and Human Services—Educational Specialist Program

Introduction

The growing complexity of the educational enterprise has created a need for persons with additional training for public and private schools, federally and state-funded programs, higher education, and adult development programs.

This Ed.S. program is designed to enhance individual capabilities for leadership in the roles of superintendents, supervisors, principals, higher education staff, and adult development personnel.

The program emphasizes the achievement of competence in such areas as leadership, institutional change, decision-making, organizational structure and theory, and communication processes. Further, the program focuses upon the development of broad understanding and experiences across the professional field, the acquisition of in-depth knowledge in a specific area of educational leadership, the acquisition of concepts from related fields of knowledge, and a planned field experience which will integrate the concepts, skills, and attitudes acquired in formal course settings.

Admission

In addition to meeting requirements for admission established by the School of Graduate Studies, candidates for these degrees who do not meet the minimum cumulative GPA requirement to waive the GRE or MAT, must submit satisfactory Graduate Record Examination (GRE) or Miller Analogies Test (MAT) scores, unless otherwise noted (see Admission Standards). The Adolescence Young Adult, Multi-Age, and Middle Childhood initial teacher licensure programs require passing scores on the state of Ohio's mandated Praxis II Specialty (Content) Area Exam(s). Contact the college's Office of Student Services or visit their Web site at www.ed.wright.edu/ss/ to learn more about the Praxis II exams.

All students considering graduate-level courses in education and human services should do so with the understanding that graduate study differs in quality from undergraduate study. Graduate study requires that students be increasingly self-directed. Students are not guaranteed a master's degree by attending and completing courses. Exit requirements must be met in all programs.

Admission to the College of Education and Human Services is based on the candidate's written statement of purpose, consideration of undergraduate and/or graduate cumulative grade point average, submission of satisfactory scores on either the MAT, GRE, or other required examination, and in some cases, letters of reference and a personal interview (see Admission Standards).

Technology Policy

For admission to the college, all College of Education and Human Services students, graduate and undergraduate, part-time and full-time, will be expected to certify that they own or have access to a computer and the Internet.

In order to meet the mission of the college "...to prepare professionals to meet the educational and human services needs of a diverse, democratic society," it is necessary for our students to play an active role in the technological environment the college and Wright State University are creating to assist in the completion of this mission. An increasing number of classes and options will become available to students using a variety of distributed learning formats; library resources are available in a growing number of full-text formats, and global connections via telecommunications will be part of daily operations. Students preparing to become professionals in education and human service areas must demonstrate appropriate and effective skills and knowledge in technological aspects of their work.

Minimum equipment standards will be either a Power Macintosh or Pentium-based Personal Computer (PC). The college supports Macintosh computers in faculty and staff offices and maintains computer labs. Wright State University has purchased a site license for most Microsoft software (see the Web page for Wright State's Computing and Telecommunications Services, <http://www.wright.edu/cats/> for details). The college's standard software packages are currently Office 2001 (Word, Excel, PowerPoint), FileMaker Pro, and Netscape; the specific packages, however, are subject to change.

Initial Teaching Credential

Students seeking to enroll in a Teacher Education program designed to deliver an initial teaching credential (license) are required to pass the Praxis II specialty/content area exam(s) as defined by current state of Ohio standards. Candidates to these programs must contact the college's Office of Student Services for assistance in identifying the appropriate exam(s) for his/her desired teaching field. Students unable to achieve a passing score as defined by state of Ohio standards will not be admitted to a Teacher Education program. Students seeking to enroll in a Teacher Education program designed to deliver an initial teaching credential will not be required to take the GRE or MAT exams. An exception to this rule is the Intervention Specialist programs. Applicants to these programs must take the GRE or MAT exams, unless eligible to waive testing requirement based on cumulative GPA (see Admission Standards).

Admission Standards

Candidates with a grade point average of less than 2.3 on a 4.0 grading system are not ordinarily admitted to graduate school. A petition process is available to formally request admissions not having met an admission standard. Candidates for admission to the Department of Human Services must meet additional requirements, which include three letters of reference, a personal interview, and a writing sample. Candidates for admission to certain programs in the Departments of Educational Leadership and Teacher Education must meet additional requirements, which include letters of reference, a personal interview, a writing sample, a self-assessment instrument, and Praxis II specialty area exams.

Waiver of GRE/MAT

Candidates to Educational Leadership master's degree programs, Health, Physical Education, and Recreation (HPR) programs, and select Teacher Education programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.0 or higher (graduate level GPA must be 3.0 or higher.) Candidates to Teacher Education programs requiring a passing score on a PRAXIS II specialty area exam(s) must submit passing Praxis scores regardless of undergraduate GPA.

Candidates to Human Services programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.3 or higher.

Conditional

Students who have an undergraduate grade point average of 2.5 or better, or who have an average between 2.3 and 2.5 with 2.7 or better in the last half of undergraduate work, may be granted conditional admission.

Regular admission to the College of Education and Human Services is granted after successful completion of 12 hours of course work with a grade of B or better in each course.

Licensure Candidate

Students who wish to complete licensure requirements at the graduate level but do not wish to pursue a graduate degree may be admitted as licensure candidates with the permission of the department in which the programs are housed. See Praxis II testing requirement above.

Nondegree Status

Persons who have a bachelor's degree may enroll in nondegree status for graduate courses without being admitted to a graduate program. If you wish to enroll in a degree program, only 50 percent of such credits may be applied to a degree program if they are appropriate, with the exception of the Department of Human Services, which only allows 12 hours of nondegree credit to be applied to one of its degree programs.

Admission to the educational specialist degree program is based on the following criteria:

1. Three letters of recommendation from persons who know your work
2. Graduate Record Examination*
3. Appropriate professional experience
4. Interview with members of the Education Leadership faculty
5. A grade point average of 3.5 in previous graduate work
6. Earned master's degree from regionally accredited post-secondary institution

*Miller Analogies Test is accepted for students not planning to apply to a doctoral program.

Faculty

Professors

Gregory R. Bernhardt (dean), education, counselor education
Donna Cole, teacher education
Diane E. Frey, counselor education
G. William Gayle, health and physical education
T. Stevenson Hansell, reading, language arts
Jan La Forge, rehabilitation counseling
Bonnie K. Mathies, educational technology
Charles W. Ryan, educational leadership, counselor education

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Charlotte Harris, teacher education
Ron Helms, teacher education
Phyllis A. Henderson, counselor education
Mary Ann Jones, counselor education

Burga Jung, teacher education
Susann Mathews, mathematics education
Richelle O'Connor, teacher education
June A. Ovington, educational leadership
D. Drew Pringle, health and physical education
Linda Ramey, teacher education
Patricia Renick, special education
James Tomlin, science education/biology
Carol Wagner Williams, rehabilitation counseling
Richard Wantz, counselor education

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Kathy Adams, educational leadership
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Angela Beumer-Johnson, English education
Jacqueline Collier, literacy education
Roger Carlsen, educational leadership
James Dunne, special education
Nancy Gallenstein, early childhood education
Rochelle Garner, educational leadership/organizational leadership
Scott Graham, educational leadership/organizational leadership
Grant Hambright, educational leadership
Deborah Hess, early childhood education
Doris Johnson, teacher education
Joseph Keferl, rehabilitation counseling
Jill Lindsey, educational leadership
Will Mosier, early childhood education
Timothy Rafferty, educational leadership
Joanne Risacher, educational leader/student affairs in higher education
Doug Roby, educational leadership
Tracy Rusch, mathematics education
Ken Schatmeyer, literacy education
Eileen F. Self, counselor education
William Slattery, science education/geology
Donna Tromski-Klingshirn, counselor education

Lecturers

Lori Carter, workforce education
Glenn Graham, educational leadership
Marguerite Veres, educational leadership
Tony Ortiz, athletic training

Program Description

Educational Specialist Degree in Educational Leadership

Three concentrations are available, determined by master's degree concentration:

- * Higher Education/Adult Continuing Education
- * Advanced Curriculum and Instruction
- * Superintendent

Samples of each concentration are shown below.

Course of Study

Sample Ed.S. Superintendent Program

Required Courses 47

EDL 852 Statistical Analysis and Research Design	4
EDL 871 Management of the School	4
EDL 872 Staff Personnel Administration	4
EDL 873 Pupil Personnel Administration	4
EDL 874 School Business Management and Facilities	4
EDL 890 Practicum in School Administration	4
EDL 941 Planning Educational Futures	4
EDL 971 Superintendent/Staff/Board Relationships	4
EDL 986 Organizational Behavior in Education and Human Services	4
EDL 987 Administrative Leadership Skills	3
EDL 988 Research and the Educational Leader	3
EDL 999 Thesis	6 - 9

Total Quarter Hours 45-48

Total Quarter Hours with master's degree minimum 90

Sample Ed.S. Advanced Curriculum and Instruction Program

Major 19

EDL 852 Statistical Analysis and Research Design	4
EDL 941 Planning Educational Futures	4
EDL 986 Organizational Behavior in Education and Human Services	4
EDL 987 Administrative Leadership Skills	3
EDT 895 Administration and Supervision of Educational Technology	4

Research 12

EDL 988 Research and the Educational Leader	3
EDL 999 Thesis	9

Cognates/Electives 14

Total 45

Sample Ed.S. Higher Education/Adult Continuing Education Program

Major 36

EDL 920 History and Philosophy of Higher Education in the United States	4
EDL 921 Curriculum in Higher Education	4
EDL 922 Law of Higher Education	4
EDL 923 Instruction in Higher Education	4
EDL 924 Administration in Higher Education	4
EDL 926 The Community College	4
EDL 928 Internship In Higher Education	4
EDL 929 Role of Intercollegiate Athletics in Higher Education	4
EDL 768 Finance and Budget Management in Student Affairs in Higher Education	4

Research	6
<hr/>	
EDL 999 Thesis	6
Cognates/Electives	3
<hr/>	
Total	45
<hr/>	

*Students must complete Educational Statistics, EDL 852, prior to enrolling in EDL 999-Thesis.

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Education and Human Services—General

Introduction

The College of Education and Human Services offers programs leading to graduate degrees in the following areas: educational leadership, with programs in curriculum and supervision (M.A., M.Ed., Ed.S.) and school administration (M.A., M.Ed., Ed.S.); teacher leader (M.Ed.); the M.A., M.Ed. in student affairs in higher education, and Ed.S. in adult and higher education; human services with programs in counseling (M.A., M.S.), rehabilitation counseling (M.R.C.), and student personnel services (M.A., M.Ed.); and teacher education, with a classroom teacher program (M.A., M.Ed.) that includes a variety of concentrations and specialized areas in K–12 such as art, physical education, reading, and special education. Concentrations in these programs are listed in the Graduate Degrees, Programs, and Credit section and are described in detail in the following pages.

Wright State also offers a post-master's degree program leading to the educational specialist (Ed.S.) degree.

Admission

In addition to meeting requirements for admission established by the School of Graduate Studies, candidates for these degrees who do not meet the minimum cumulative GPA requirement to waive the GRE or MAT, must submit satisfactory Graduate Record Examination (GRE) or Miller Analogies Test (MAT) scores, unless otherwise noted (see Admission Standards). The Adolescence Young Adult, Multi-Age, and Middle Childhood initial teacher licensure programs require passing scores on the state of Ohio's mandated Praxis II Specialty (Content) Area Exam(s). Contact the college's Office of Student Services or visit their Web site at www.ed.wright.edu/ss/ to learn more about the Praxis II exams.

All students considering graduate-level courses in education and human services should do so with the understanding that graduate study differs in quality from undergraduate study. Graduate study requires that students be increasingly self-directed. Students are not guaranteed a master's degree by attending and completing courses. Exit requirements must be met in all programs.

Admission to the College of Education and Human Services is based on the candidate's written statement of purpose, consideration of undergraduate and/or graduate cumulative grade point average, submission of satisfactory scores on either the MAT, GRE, or other required examination, and in some cases, letters of reference and a personal interview (see Admission Standards).

Technology Policy

For admission to the college, all College of Education and Human Services students,

graduate and undergraduate, part-time and full-time, will be expected to certify that they own or have access to a computer and the Internet.

In order to meet the mission of the college "...to prepare professionals to meet the educational and human services needs of a diverse, democratic society," it is necessary for our students to play an active role in the technological environment the college and Wright State University are creating to assist in the completion of this mission. An increasing number of classes and options will become available to students using a variety of distributed learning formats; library resources are available in a growing number of full-text formats, and global connections via telecommunications will be part of daily operations. Students preparing to become professionals in education and human service areas must demonstrate appropriate and effective skills and knowledge in technological aspects of their work.

Minimum equipment standards will be either a Power Macintosh or Pentium-based Personal Computer (PC). The college supports Macintosh computers in faculty and staff offices and maintains computer labs. Wright State University has purchased a site license for most Microsoft software (see the Web page for Wright State's Computing and Telecommunications Services, <http://www.wright.edu/cats/> for details). The college's standard software packages are currently Office 2001 (Word, Excel, PowerPoint), FileMaker Pro, and Netscape; the specific packages, however, are subject to change.

Initial Teaching Credential

Students seeking to enroll in a Teacher Education program designed to deliver an initial teaching credential (license) are required to pass the Praxis II specialty/content area exam(s) as defined by current state of Ohio standards. Candidates to these programs must contact the college's Office of Student Services for assistance in identifying the appropriate exam(s) for his/her desired teaching field. Students unable to achieve a passing score as defined by state of Ohio standards will not be admitted to a Teacher Education program. Students seeking to enroll in a Teacher Education program designed to deliver an initial teaching credential will not be required to take the GRE or MAT exams. An exception to this rule is the Intervention Specialist programs. Applicants to these programs must take the GRE or MAT exams, unless eligible to waive testing requirement based on cumulative GPA (see Admission Standards).

Admission Standards

Candidates with a grade point average of less than 2.3 on a 4.0 grading system are not ordinarily admitted to graduate school. A petition process is available to formally request admissions not having met an admission standard. Candidates for admission to the Department of Human Services must meet additional requirements, which include three letters of reference, a personal interview, and a writing sample. Candidates for admission to certain programs in the Departments of Educational Leadership and Teacher Education must meet additional requirements, which include letters of reference, a personal interview, a writing sample, a self-assessment instrument, and Praxis II specialty area exams.

Waiver of GRE/MAT

Candidates to Educational Leadership master's degree programs, Health, Physical Education, and Recreation (HPR) programs, and select Teacher Education programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.0 or higher (graduate level GPA must be 3.0 or higher.) Candidates to Teacher Education programs requiring a passing score on a PRAXIS II specialty area exam(s) must submit passing Praxis scores regardless of undergraduate GPA.

Candidates to Human Services programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.3 or higher.

Conditional

Students who have an undergraduate grade point average of 2.5 or better, or who have an average between 2.3 and 2.5 with 2.7 or better in the last half of undergraduate work, may be granted conditional admission.

Regular admission to the College of Education and Human Services is granted after successful completion of 12 hours of course work with a grade of B or better in each course.

Teaching Licensure Candidate

Students who wish to complete licensure requirements at the graduate level but do not wish to pursue a graduate degree may be admitted as licensure candidates with the permission of the department in which the programs are housed. See Praxis II testing requirement above.

Nondegree Status

Persons who have a bachelor's degree may enroll in nondegree status for graduate courses without being admitted to a graduate program. If you wish to enroll in a degree program, only 50 percent of such credits may be applied to a degree program if they are appropriate, with the exception of the Department of Human Services, which only allows 12 hours of nondegree credit to be applied to one of its degree programs.

Degree Requirements

Master of Arts

The Master of Arts (M.A.) degree in education may be obtained in almost all of the programs offered by the College of Education and Human Services. The M.A. degree requires a thesis with a minimum of 45 credit hours, including a maximum of nine hours of thesis credit. An oral defense is required for students writing a thesis. The examining committee will consist of three members of the graduate faculty selected by the student and advisor.

Each graduate student will be assigned an advisor upon admission as a degree student. The student is required to consult with the advisor to plan the program of study during the first quarter of graduate study and to review the procedure for admission to candidacy.

Master of Education

A program of concurrent degree and licensure work typically will require more course work than the standard master's degree program, and may require the individual to take undergraduate courses. These undergraduate courses apply to licensure requirements, but do not apply as graduate credit toward a master's degree.

The Master of Education (M.Ed.) degree may be obtained by completing one of three patterns: (a) a minimum of 45 credit hours of course work, (b) a minimum of 40 credit hours of course work, plus five credit hours of a research project, or (c) 73 credit hours to receive the M.Ed. in school counseling.

Each graduate degree student will be assigned an advisor upon admission to the college. The student is required to consult with the advisor to plan the program of study during the first quarter of graduate study and to review the procedure for admission to candidacy.

An exit requirement must be successfully completed at the end of the program of study in all CEHS departments.

Master of Science

The Master of Science (M.S.) degree in counseling offers concentrations in five specialties: mental health counseling, community counseling, business and industrial management counseling, marriage and family counseling, and counseling* exceptional children. The M.Ed. in school counseling is also offered.

*Note: These three programs are accredited by the Council for Accreditation of Counseling and Related Education Program (CACREP). These programs require the completion of a practicum and/or internship.

Admission requirements include a completed graduate application submitted to the School of Graduate Studies. In addition to the application, candidates must also submit a writing sample and three letters of recommendation, and participate in a group interview. The Master of Science degree may be obtained by completing all requirements outlined in the student's program of study. The program of study is the student's contract with the School of Graduate Studies (SGS), which outlines required courses and electives, department and SGS academic standards, and any modifications agreed on by the student's academic faculty advisor.

Each graduate degree student will be assigned an advisor upon admission to the college. The student is required to consult with the advisor to plan the program of study during the first quarter of graduate study and to review the procedure for candidacy.

Successful completion of a written departmental comprehensive examination is required at the end of each program of study.

Master of Rehabilitation Counseling

The Master of Rehabilitation Counseling (M.R.C.) program offers training and course work designed to develop skills in the holistic counseling process. The program prepares students for work within a wide variety of settings, and students may choose to specialize in either the rehabilitation of persons with severe disabilities or the rehabilitation of individuals who are chemically dependent. M.R.C. students must successfully complete a 600-hour internship. These programs are accredited by the Council on Rehabilitation Education (CORE).

Each graduate degree student will be assigned an advisor upon admission as a degree student. The student is required to consult with the advisor to plan the program of study during the first quarter of graduate study and to review the procedure for admission to candidacy.

Successful completion of a written departmental comprehensive examination is required at the end of the degree program.

Educational Specialist

The Educational Specialist (Ed.S.) program is an advanced (post-master's) degree program in educational leadership for individuals who have career interests in superintendency or central office administration, higher education, administration, and adult continuing education. Successful thesis defense constitutes the comprehensive examination for this degree.

Final Evaluation for Programs

For students in the M.A. programs, the oral defense of the thesis constitutes the major emphasis of the final evaluation. The examining committee will consist of three members of the graduate faculty selected with the student's advisor.

Students in the M.Ed., M.S., M.R.C., and M.A. programs must successfully complete a departmental comprehensive exit requirement. Should the student fail to pass the final comprehensive requirement, the student and advisor will plan a remedial program of study in preparation for reevaluation. Such a program could include independent study, further course work, or both. As a result, the quarter hour requirements for the degree may also be increased. Students may retake the comprehensive examination a maximum of three times.

Thesis and/or Project Procedures

(for M.A. Candidates)

Students planning to write a thesis or do a research project in partial fulfillment of the requirements for the master's degree should do the following:

1. Upon completion of EDL 751, EDL 852 and EDL 988 (consult with your advisor), register for one of the following to receive thesis credit:
ED 899 1–9 hours or
EDL 999 1–9 hours.
2. Prepare a preliminary thesis or project proposal following the college or departmental outline for proposals. This proposal is to be developed with the assistance of the faculty advisor.
3. Establish a thesis or project committee. It is customary, although not required, for a student's advisor to be a member of the committee. The remainder of the committee may include persons in the College of Education and Human Services or other disciplines and should be chosen as resource persons relative to the research. The function of the committee is to facilitate the student's progress toward completing the proposal, conducting the study, and preparing the final report or thesis. Further, the committee serves as the primary source of evaluation of the student's oral defense.
4. Upon completion of the oral defense, submit three bound copies of the final project or thesis to the School of Graduate Studies. The outline for thesis and project proposals may be obtained from the college's Office of Student Services. The Graduate Thesis/Dissertation Handbook may be obtained from the School of Graduate Studies.

Faculty

Professors

Gregory R. Bernhardt (dean), education, counselor education
Donna Cole, teacher education
Diane E. Frey, counselor education
G. William Gayle, health and physical education
T. Stevenson Hansell, reading, language arts
Jan La Forge, rehabilitation counseling
Bonnie K. Mathies, educational technology
Charles W. Ryan, educational leadership, counselor education

Associate Professors

Beth Basista, science education/physics
Thomas Diamantes, educational leadership
Colleen Finegan, early childhood education, special education
Stephen B. Fortson, counselor education
Stephen D. Frederick, health and physical education
Charlotte Harris, teacher education
Ron Helms, teacher education
Phyllis A. Henderson, counselor education
Mary Ann Jones, counselor education
Burga Jung, teacher education
Jill Lindsey, educational leadership

Susann Mathews, mathematics education
Richelle O'Connor, teacher education
June A. Ovington, educational leadership
D. Drew Pringle, health and physical education
Linda Ramey, teacher education
Patricia Renick, special education
James Tomlin, science education/biology
Carol Wagner Williams, rehabilitation counseling
Richard A. Wantz, counselor education

Assistant Professors

Kathy Adams, educational leadership
Mary Ellen Bargerhuff, special education
Angela Beumer-Johnson, English education
Jacqueline Collier, literacy education
Roger Carlsen, educational leadership
Srephanie Davis, educational leadership
James Dunne, special education
Nancy Gallenstein, early childhood education
Rochelle Garner, educational leadership/organizational leadership
Scott Graham, educational leadership/organizational leadership
Grant Hambright, educational leadership
Deborah Hess, early childhood education
Doris Johnson, teacher education
Joseph Keferl, rehabilitation counseling
Will Mosier, early childhood education
Timothy Rafferty, educational leadership
Joanne Risacher, educational leader/student affairs in higher education
Doug Roby, educational leadership
Tracy Rusch, mathematics education
Ken Schatmeyer, literacy education
Eileen F. Self, counselor education
William Slattery, science education/geology
Donna Tromski-Klingshirn, counselor education

Lecturers

Lori Carter, workforce education
Glenn Graham, educational leadership
Marguerite Veres, educational leadership
Tony Ortiz, athletic training

Program Description

The programs within educational leadership are designed primarily for those who want to prepare for leadership roles in educational settings. All of the programs lead to licensure except the Teacher Leader Program. Completion of a professional, reflective portfolio is the exit requirement for all graduate programs in this department. The programs are:

Educational Administrative Specialist: Curriculum, Instruction, and Professional Development. This master's degree program leads to licensure in the state of Ohio in this area. Initial licensure requires three years of teaching experience under a valid teaching certificate or license.

Principalship. (Ages 3–14 and Ages 8–21). The Principalship master's degree program leads to the Educational Administrative Specialists Principal Licensure. This master's degree program leads to principal licensure in the state of Ohio in the same level (elementary, middle, or secondary) as the individual's teaching certificate or license. Initial

licensure requires 68 quarter hours of course work and three years of teaching experience under a valid teaching certificate or license.

Educational Administrative Specialist: Superintendent. This program leads to licensure as Superintendent in the state of Ohio. Initial licensure requires 84 quarter hours of course work and three years of administrative experience under a valid administrative license.

Educational Administrative Specialist: Curriculum, Instruction, and Professional Development: Technology. This program leads to licensure in the state of Ohio in this area. Initial licensure requires three years of teaching experience under a valid teaching certificate or license. This program is designed for individuals wishing to perform in a district-level leadership role in technology.

Educational Administrative Specialist: Teacher Leader. This master's degree program is designed primarily for teachers who wish to remain in the classroom and combine an instructional improvement focus with leadership and curriculum development skills. The program is offered off campus to cohort groups. Forty-eight quarter hours are required for the M.Ed. Successful completion of a professional portfolio is also required. This program may be used as a basis for further work in educational leadership.

Student Affairs in Higher Education–Administration. This master's degree program was developed to provide education and training for individuals interested in careers in student services. The emphasis of this program is student affairs and development from an administrative perspective.

Educational Specialist (Ed.S.) in Educational Leadership. This program is an advanced degree program for individuals who have career interests in school administration, higher education, and adult development. It leads to the Educational Specialist degree. A planned program of study requires a minimum of 45 quarter hours of graduate work beyond the master's degree. The Ed.S. degree is an intermediate degree between the M.Ed. and the Ph.D. degree.

Classroom Teacher: Library Media. This program leads to the Multi-Age License in library media for teachers who wish to work in Pre-K–12 library media centers.

Classroom Teacher: Computer/Technology Education. This program leads to a computer/technology endorsement that can be added to a teaching credential. It is designed for teachers who wish to focus on current and emerging technologies for instruction.

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Education and Human Services—Health, Physical Education and Recreation

Admission

In addition to meeting requirements for admission established by the School of Graduate Studies, candidates for these degrees who do not meet the minimum cumulative GPA requirement to waive the GRE or MAT, must submit satisfactory Graduate Record Examination (GRE) or Miller Analogies Test (MAT) scores, unless otherwise noted (see Admission Standards). The Adolescence Young Adult, Multi-Age, and Middle Childhood initial teacher licensure programs require passing scores on the state of Ohio's mandated Praxis II Specialty (Content) Area Exam(s). Contact the college's Office of Student Services or visit their Web site at www.ed.wright.edu/ss/ to learn more about the Praxis II exams.

All students considering graduate-level courses in education and human services should do so with the understanding that graduate study differs in quality from undergraduate study. Graduate study requires that students be increasingly self-directed. Students are not guaranteed a master's degree by attending and completing courses. Exit requirements must be met in all programs.

Admission to the College of Education and Human Services is based on the candidate's written statement of purpose, consideration of undergraduate and/or graduate cumulative grade point average, submission of satisfactory scores on either the MAT, GRE, or other required examination, and in some cases, letters of reference and a personal interview (see Admission Standards).

Technology Policy

For admission to the college, all College of Education and Human Services students, graduate and undergraduate, part-time and full-time, will be expected to certify that they own or have access to a computer and the Internet.

In order to meet the mission of the college "...to prepare professionals to meet the educational and human services needs of a diverse, democratic society," it is necessary for our students to play an active role in the technological environment the college and Wright State University are creating to assist in the completion of this mission. An increasing number of classes and options will become available to students using a variety of distributed learning formats; library resources are available in a growing number of full-text formats, and global connections via telecommunications will be part of daily operations. Students preparing to become professionals in education and human service areas must demonstrate appropriate and effective skills and knowledge in technological aspects of their work.

Minimum equipment standards will be either a Power Macintosh or Pentium-based

Personal Computer (PC). The college supports Macintosh computers in faculty and staff offices and maintains computer labs. Wright State University has purchased a site license for most Microsoft software (see the Web page for Wright State's Computing and Telecommunications Services, <http://www.wright.edu/cats/> for details). The college's standard software packages are currently Office 2001 (Word, Excel, PowerPoint), FileMaker Pro, and Netscape; the specific packages, however, are subject to change.

Initial Teaching Credential

Students seeking to enroll in a Teacher Education program designed to deliver an initial teaching credential (license) are required to pass the Praxis II specialty/content area exam(s) as defined by current state of Ohio standards. Candidates to these programs must contact the college's Office of Student Services for assistance in identifying the appropriate exam(s) for his/her desired teaching field. Students unable to achieve a passing score as defined by state of Ohio standards will not be admitted to a Teacher Education program. Students seeking to enroll in a Teacher Education program designed to deliver an initial teaching credential will not be required to take the GRE or MAT exams. An exception to this rule is the Intervention Specialist programs. Applicants to these programs must take the GRE or MAT exams, unless eligible to waive testing requirement based on cumulative GPA (see Admission Standards).

Admission Standards

Candidates with a grade point average of less than 2.3 on a 4.0 grading system are not ordinarily admitted to graduate school. A petition process is available to formally request admissions not having met an admission standard. Candidates for admission to the Department of Human Services must meet additional requirements, which include three letters of reference, a personal interview, and a writing sample. Candidates for admission to certain programs in the Departments of Educational Leadership and Teacher Education must meet additional requirements, which include letters of reference, a personal interview, a writing sample, a self-assessment instrument, and Praxis II specialty area exams.

Waiver of GRE/MAT

Candidates to Educational Leadership master's degree programs, Health, Physical Education, and Recreation (HPR) programs, and select Teacher Education programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.0 or higher (graduate level GPA must be 3.0 or higher.) Candidates to Teacher Education programs requiring a passing score on a PRAXIS II specialty area exam(s) must submit passing Praxis scores regardless of undergraduate GPA.

Candidates to Human Services programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.3 or higher.

Conditional

Students who have an undergraduate grade point average of 2.5 or better, or who have an average between 2.3 and 2.5 with 2.7 or better in the last half of undergraduate work, may be granted conditional admission.

Regular admission to the College of Education and Human Services is granted after successful completion of 12 hours of course work with a grade of B or better in each course.

Licensure Candidate

Students who wish to complete licensure requirements at the graduate level but do not wish to pursue a graduate degree may be admitted as licensure candidates with the permission of the department in which the programs are housed. See Praxis II testing requirement above.

Nondegree Status

Persons who have a bachelor's degree may enroll in nondegree status for graduate courses without being admitted to a graduate program. If you wish to enroll in a degree program, only 50 percent of such credits may be applied to a degree program if they are appropriate, with the exception of the Department of Human Services, which only allows 12 hours of nondegree credit to be applied to one of its degree programs.

Faculty

Professors

Gregory R. Bernhardt (dean), education, counselor education
Donna Cole, teacher education
Diane E. Frey, counselor education
G. William Gayle, health and physical education
T. Stevenson Hansell, reading, language arts
Jan La Forge, rehabilitation counseling
Bonnie K. Mathies, educational technology
Charles W. Ryan, educational leadership, counselor education

Associate Professors

Beth Basista, science education/physics
Thomas Diamantes, educational leadership
Colleen Finegan, early childhood education, special education
Stephen Fortson, counselor education
Stephen D. Frederick, health and physical education
Charlotte Harris, teacher education
Ron Helms, teacher education
Phyllis A. Henderson, counselor education
Mary Ann Jones, counselor education
Burga Jung, teacher education
Susann Mathews, mathematics education
Richelle O'Connor, teacher education
June A. Ovington, educational leadership
D. Drew Pringle, health and physical education
Linda Ramey, teacher education
Patricia Renick, special education
James Tomlin, science education/biology
Carol Wagner Williams, rehabilitation counseling
Richard Wantz, counselor education

Assistant Professors

Kathy Adams, educational leadership
Mary Ellen Bargerhuff, special education
Angela Beumer-Johnson, English education
Jacqueline Collier, literacy education
Roger Carlsen, educational leadership
James Dunne, special education
Nancy Gallenstein, early childhood education
Rochelle Garner, educational leadership/organizational leadership
Scott Graham, educational leadership/organizational leadership
Grant Hambright, educational leadership
Deborah Hess, early childhood education
Doris Johnson, teacher education
Joseph Keferl, rehabilitation counseling
Jill Lindsey, educational leadership
Will Mosier, early childhood education
Timothy Rafferty, educational leadership
Joanne Risacher, educational leader/student affairs in higher education

Doug Roby, educational leadership
 Tracy Rusch, mathematics education
 Ken Schatmeyer, literacy education
 Eileen F. Self, counselor education
 William Slattery, science education/geology
 Donna Tromski-Klingshirn, counselor education

Lecturers

Lori Carter, workforce education
 Glenn Graham, educational leadership
 Marguerite Veres, educational leadership
 Tony Ortiz, athletic training

Course of Study

Classroom Teacher: Physical Education (HPR) Master of Education (M.Ed.) This degree program, accredited by the National Association for Sport and Physical Education (NASPE), is appropriate for physical education teachers who desire to enhance pedagogical content knowledge and teaching skills in health and physical education. Based upon the NASPE Advanced Program Standards, candidates also develop competencies in curriculum development and evaluation, student assessment, and teacher leadership. Each student’s program of study includes 50 percent physical education content and 25 percent of an area of professional interest. Successful completion of the program of study includes the development and presentation of a student portfolio.

Core Coursework **32**

EDL 751 Educational Statistics and Research	4
EDL 773 Curriculum Design and Evaluation	4
HPR 710 Physical Education for Children with Special Needs	4
HPR 740 Athletic Supervision and Administration	4
HPR 750 Scientific Foundations for Conditioning and Health	4
HPR 753 Assessment of Physical Activity	4
HED 770 Social and Behavioral Determinants of Health	4
HPR 780 Research Methods and Program Evaluation	4

Elective Requirements **16**

Hours and courses require approval

Total **48**

Master of Arts (M.A.) This degree program is appropriate for health, physical education and recreation professionals who desire to enhance specific health and physical education content knowledge and research skills. Each student’s individual program of study includes 50% health and physical education content and 25% of an area of professional interest. The area of interest may reflect a research or practice focus. Successful completion of the program of study includes the development and presentation of a student thesis.

Core Coursework **17**

EDL 751 Educational Statistics and Research	4
HPR 780 Research Methods and Program Evaluation	4
ED 899 Thesis	9

Program Concentration (choose 6 from the selections below) **24**

HPR 710 Physical Education for Children with Special Needs	4
HPR 740 Athletic Supervision and Administration	4
HPR 750 Scientific Foundations for Conditioning and Health	4
HPR 753 Assessment of Physical Activity	4
HPR 760 Advanced Athletic Training	4
HED 770 Social and Behavioral Determinants of Health	4
HED 775 Application of Research in Health Seminar	4
EDT 786 Application of Computers in Education	4
EDL 852 Statistical Analysis & Research Design	4
CMH 734 Health Systems Management	4
BMS 674 Biostatistics	4
CMH 621 Epidemiology I	4
ES 701 Environmental Health	4
EC 755 Health Economics	4
URS 620 Public Safety Administration	4
URS 650 Ethics in Public Service	4
URS 675 Management of Urban Nonprofit Agencies	4

Electives	8
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Hours and courses require approval

Total	49
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 Fax: (937) 775-2453
 E-mail: wsugrad@wright.edu

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Education and Human Services—Human Services (Counseling) Programs

Introduction

The Department of Human Services' programs share a common curriculum of courses associated with five different counseling concentrations. Students may choose to obtain a M.A. or M.S. degree in counseling with a specialization in mental health counseling; business and industrial management counseling; community counseling; marriage and family counseling; exceptional children; or students may choose to obtain either a M.R.C. degree with a specialization in severe disabilities or chemical dependency, or a M.Ed. in school counseling.

Students entering the Human Services Department must complete a program of study that includes a general core curriculum and requirements specific for their area of concentration. Students plan their program of study in consultation with their faculty advisor, and elective courses may be chosen as appropriate.

Students must pass a written comprehensive examination at the conclusion of their plan of study. Department faculty will endorse students completing all requirements of their degree program.

The Council for Accreditation of Counseling and Related Educational Programs (CACREP) has conferred accreditation to the following program areas in the department: mental health counseling; community counseling and school counseling (M.Ed.). The Council on Rehabilitation Education (CORE) has accredited both rehabilitation counseling programs: severe disabilities and chemical dependency.

Admission

In addition to meeting requirements for admission established by the School of Graduate Studies, candidates for these degrees who do not meet the minimum cumulative GPA requirement of 3.3 to waive the GRE or MAT, must submit satisfactory Graduate Record Examination (GRE) or Miller Analogies Test (MAT) scores, unless otherwise noted (see Admission Standards).

All students considering graduate-level courses in human services should do so with the understanding that graduate study differs in quality from undergraduate study. Graduate study requires that students be increasingly self-directed. Students are not guaranteed a master's degree by attending and completing courses. Exit requirements must be met in all programs.

Admission to the College of Education and Human Services is based on the candidate's written statement of purpose, consideration of undergraduate and/or graduate cumulative

grade point average, submission of satisfactory scores on either the MAT, GRE, or other required examination, and in some cases, letters of reference and a personal interview (see Admission Standards).

Technology Policy

For admission to the college, all College of Education and Human Services, graduate students part-time and full-time, will be expected to certify that they own or have access to a computer and the Internet.

In order to meet the mission of the college "...to prepare professionals to meet the educational and human services needs of a diverse, democratic society," it is necessary for our students to play an active role in the technological environment the college and Wright State University are creating to assist in the completion of this mission. An increasing number of classes and options will become available to students using a variety of distributed learning formats; library resources are available in a growing number of full-text formats, and global connections via telecommunications will be part of daily operations. Students preparing to become professionals in education and human service areas must demonstrate appropriate and effective skills and knowledge in technological aspects of their work.

Minimum equipment standards will be either a Power Macintosh or Pentium-based Personal Computer (PC). The college supports Macintosh computers in faculty and staff offices and maintains computer labs. Wright State University has purchased a site license for most Microsoft software (see the Web page for Wright State's Computing and Telecommunications Services, <http://www.wright.edu/cats/> for details). The college's standard software packages are currently Office 2001 (Word, Excel, PowerPoint), FileMaker Pro, and Netscape; the specific packages, however, are subject to change.

Admission Standards

Candidates with a grade point average of less than 2.3 on a 4.0 grading system are not ordinarily admitted to graduate school. A petition process is available to formally request admissions not having met an admission standard. Candidates for admission to the Department of Human Services must meet additional requirements, which include three letters of reference, a personal interview, and a writing sample.

Waiver of GRE/MAT

Candidates to Human Services programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.3 or higher.

Conditional

Students who have an undergraduate grade point average of 2.5 or better, or who have an average between 2.3 and 2.5 with 2.7 or better in the last half of undergraduate work, may be granted conditional admission.

Regular admission to the College of Education and Human Services is granted after successful completion of 12 hours of course work with a grade of B or better in each course.

Nondegree Status

Persons who have a bachelor's degree may enroll in nondegree status for graduate courses without being admitted to a graduate program. If you wish to enroll in a degree program, only 12 hours of such credits may be applied to a degree program in the Department of Human Services.

Degree Requirements

Licensure Requirements for Professional Counselors (PC)

Students seeking to pursue eligibility for licensure as a professional counselor (PC) must complete a minimum of 90 hours. These 90 hours of courses must meet the state minimum requirement of 11 core areas of counselor training and five clinical areas. The 11 core areas include Counseling Theory and Practice (RHB 701); Techniques of Counseling (CNL 863); Counseling Practicum (CNL 864, 865 or RHB 865); Social and Cultural Foundations in Counseling (CNL 973); Counseling for Life-Span Development (CNL 971); Group Background and Theory, or Group Processes in Counseling and Guidance (CNL 667 or 767); Career Development and Information Services (CNL 762); Behavioral Assessment (RHB 705); Statistics and Assessment for Education (EDL 751) - Human Services taught section; Legal, Professional, and Ethical Issues in the Human Services (CNL 972); and Counseling Internship (CNL 867, 954 or RHB 801).

The five clinical areas include the following courses: Personality Theory and Psychopathology (CNL 950); Clinical Assessment in Counseling Practice (CNL 951); Diagnosis and Clinical Counseling Practice (CNL 952); depending on the student's major one of the following courses: Marriage and Family Counseling (CNL 779), Crisis Intervention (CNL 664), Mental Health II (CNL 773), Techniques of Child Counseling (CNL 769), Techniques of Play Therapy (CNL 778), Counseling the Gifted (CNL 961), Psychological Adjustment: Severe Disability (RHB 704), Treatment Approaches in Chemical Dependency (RHB 731), and Case Formulation and Clinical Intervention (CNL 953). Students needing to complete additional internship hours beyond what is required in their program may also need to take CNL 954, Advanced Clinical Internship.

Licensure Requirements for Professional Clinical Counselors (PCC)

Students seeking to pursue eligibility for licensure as a professional counselor with the clinical endorsement (PCC) must complete 90 hours of counseling credits. These 90 hours of courses must meet the state minimum requirement of 11 areas of counselor training and five clinical areas. The Mental Health Counseling concentration meets all state requirements for counseling licensure. All other concentrations require additional course work to meet the 90 hours minimum requirement. In addition to completing the 90 hours of course work, PCC applicants must also complete 3,000 clock hours of supervised work experience after the awarding of PC licensure.

Faculty

Professors

Gregory R. Bernhardt (dean), education, counselor education
Diane E. Frey, counselor education
Jan La Forge, rehabilitation counseling

Associate Professors

Stephen B. Fortson, counselor education
Phyllis A. Henderson, counselor education
Mary Ann Jones, counselor education
Carol Wagner Williams, rehabilitation counseling
Richard A. Wantz, counselor education

Assistant Professors

Eileen F. Self, counselor education
Donna Tromski-Klingshirn, counselor education

Course of Study

Counseling: Business and Industrial Management Major # 265
Introductory Course Work

RHB 701 Counseling Theory and Practice	4
*CNL 863 Techniques of Counseling	4
EDL 751 Statistics and Research for Education (Human Services taught section)	4
Professional Requirements	40
CNL 667 Group Background and Theory	4
CNL 762 Career Development and Information Services	4
CNL 864 Practicum	4
CNL 971 Counseling for Life-Span Development	4
CNL 972 Legal, Professional, and Ethical Issues in the Human Services	4
CNL 973 Social and Cultural Foundations in Counseling	4
MBA 740 Legal and Ethical Decision Making	4
MBA 750 Leading Teams and Organizations	4
LAW 620 Legal Aspects of Managing a Diverse Workforce	4
RHB 705 Behavioral Assessment	4
Electives	8
Total	60
*Unless permission is granted, you must take RHB 701 prior to or concurrent with CNL 863.	
Counseling: Exceptional Children Major # 278	
Introductory Course Work	12
RHB 701 Counseling Theory and Practice	4
*CNL 863 Techniques of Counseling	4
EDL 751 Statistics and Research for Education (Human Services taught section)	4
Professional Requirements (Counseling)	20
CNL 662 Problems in Student Personality and Development or	4
CNL 663 Mental Health I	4
CNL 667 Group Background and Theory or	4
CNL 767 Group Processes in Counseling and Guidance	4
CNL 769 Techniques of Child Counseling or	4
CNL 778 Techniques of Play Therapy	4
CNL 865 Individual and Group Practicum with Exceptional Children	4
CNL 972 Legal, Professional, and Ethical Issues in Human Services	4
Professional Requirements (Special Education)	12
EDS 652 Education of Individuals with Physical, Sensory, and Motor Disorders	3
EDS 659 Communication and Consultation Skills for Special Educators and/or	3
EDS 722 Education of Students with Gifted Educational Needs	4
CNL 961 Counseling the Gifted	3
Recommended Electives	20
Total	60

*Unless permission is granted, you must take RHB 701 prior to or concurrent with CNL 863.

Community Counseling Major # 276

Introductory Course Work **12**

RHB 701 Counseling Theory and Practice	4
*CNL 863 Techniques of Counseling	4
EDL 751 Statistics and Research for Education (Education Services taught section)	4

Professional Requirements **56**

CNL 663 Mental Health I	4
CNL 664 Crisis Intervention Counseling	4
CNL 667 Group Background and Theory or	4
CNL 767 Group Process in Counseling and Guidance	4
CNL 762 Career Development and Information Services	4
CNL 773 Mental Health II	4
CNL 779 Marriage and Family Counseling	4
CNL 865 Individual and Group Practicum	4
CNL 867 Internship: Community Counseling	12
CNL 971 Counseling for Life-Span Development	4
CNL 972 Legal, Professional, and Ethical Issues in Human Services	4
CNL 973 Social and Cultural Foundations in Counseling	4
RHB 705 Behavioral Assessment	4

Advised Electives **4**

CNL 670 Counseling Workshop: Human Sexuality	1-3
CNL 770 Independent Study and Minor Problems	1-3
CNL 778 Techniques of Play Therapy	4
CNL 780 Systems Theory and Family Counseling	4
CNL 781 Advanced Techniques of Family Counseling	4
CNL 782 Techniques of Marital Counseling	4
CNL 961 Counseling the Gifted	3
RHB 730 Epidemiology of Chemical Dependency	4
RHB 731 Treatment Approaches in Chemical Dependency	4

Total **72**

Counseling: Marriage and Family Major # 268

Introductory Course Work **12**

RHB 701 Counseling Theory and Practice	4
*CNL 863 Techniques of Counseling	4
EDL 751 Statistics and Research for Education (Human Services taught section)	4

Professional Requirements **55**

CNL 762 Career Development and Information Services	4
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CNL 779 Marriage and Family Counseling	4
CNL 780 Systems Theory and Family Counseling	4
CNL 781 Advanced Techniques of Family Counseling	4
CNL 782 Techniques of Marital Counseling	4
CNL 670 Counseling Workshop: Human Sexuality and Counseling	3
CNL 663 Mental Health I	4
CNL 971 Counseling for Life-Span Development	4
CNL 972 Legal, Professional, and Ethical Issues in the Human Services	4
CNL 973 Social and Cultural Foundations in Counseling	4
CNL 867 Internship: Marriage and Family Counseling	12
RHB 705 Behavioral Assessment	4

Electives† **4**

Total **72**

*Unless permission is granted, you must take RHB 701 prior to or concurrent with CNL 863.

†CNL 667 is recommended for this major's elective in order to meet Ohio PC requirements. Students are also encouraged to take CNL 865 Practicum, which is also a requirement for PC licensure.

Mental Health Counseling Major # 267

Phase I, Introductory Course Work **12**

RHB 701* Counseling Theory and Practice	4
CNL 863* Techniques of Counseling	4
EDL 751 Statistics and Research for Education (Human Services taught section)	4

*Unless Permission is granted, RHB 701 must be taken prior ot or concurrently with CNL 863

Phase II, Professional Requirement, Course to be taken after Phase I **40**

RHB 705 Behavior Assesment (EDL 751 is a prerequisite)	4
CNL 663 Mental Health I	4
CNL 664 Crisis Intervention Counseling	4
CNL 667 Group Background and Theory or CNL 767 Group Process in Counseling and Guidance	4
CNL 767 Group Process in Counseling and Guidance	4
CNL 762 Career Development and Information Services	4
CNL 773 Mental Health II	4
CNL 779 Marriage and Family Counseling	4
CNL 971 Counseling for Life-Span Development	4
CNL 972 Legal, Professional, and Ethical Issues in the Human Services	4
CNL 973 Social and Cultural Foundations in Counseling	4

Phase III, Clinical Instruction, Course to be taken after Phase II **16**

CNL 865 Individual and Group Practicum	4
CNL 867 Interntship, Mental Health Counseling**	12

**Mental Health Counseling interenshio is 900 Clock Hours

Phase IV, Courses to be completed after Phase II and during or after Phase III 17

CNL 950 Personality Theory & Psychopathology	4
CNL 951 Clinical Assesment in Counseling Pracice	4
CNL 952 Diagnosis and Clinical Counseling Practice	4
CNL 953 Case Formulation and Clinical Intervention	4
CNL 670 Meeting the Challenge of Supervision or similar course	1

Advised Electives 5

Total 90

Rehabilitation Counseling: Chemical Dependency

Major#270

Introductory Course Work 12

RHB 701 Counseling Theory and Practice	4
*CNL 863 Techniques of Counseling	4
EDL 751 Statistics and Research for Education (Human Services taught section)	4

Professional Requirements 62

CNL 663 Mental Health I	4
CNL 779 Marriage and Family Counseling	4
CNL 667 Group Background and Theory or CNL 767 Group Processes in Counseling and Guidance	4
CNL 973 Social and Cultural Foundations in Counseling	4
RHB 700 Counseling: Severe Disability Foundations of Vocational Rehabilitation	4
RHB 704 Psychological Adjustment: Severe Disability	4
RHB 705 Behavioral Assessment	4
RHB 707 Medical Assessment: Chemical Dependency	4
RHB 711 Vocational Evaluation and Job Placement Techniques	4
RHB 720 Counseling: Severe Disability Case Management in Vocational Rehabilitation	4
RHB 730 Epidemiology of Chemical Dependency	4
RHB 731 Treatment Approaches in Chemical Dependency	4
†RHB 865 Rehabilitation Counseling Practicum	4
†RHB 801 Internship: Chemical Dependency	10

Total 74

*Unless permission is granted, you must take RHB 701 prior to or concurrent with CNL 863.

Exit Requirements: Students must pass a written comprehensive examination.

Rehabilitation Counseling: Severe Disabilities

Major # 271

Introductory Course Work	12
<hr/>	
RHB 701 Counseling Theory and Practice	4
*CNL 863 Techniques of Counseling	4
EDL 751 Statistics and Research for Education (Human Services taught section)	4
Professional Requirements	58
<hr/>	
CNL 667 Group Background and Theory or CNL 767 Group Processes in Counseling and Guidance	4
CNL 762 Career Development and Information Services	4
CNL 971 Counseling for Life-Span Development	4
CNL 972 Legal, Professional, and Ethical Issues in the Human Services	4
CNL 973 Social and Cultural Foundations in Counseling	4
RHB 700 Counseling: Severe Disability Foundations of Vocational Rehabilitation	4
RHB 702 Medical Assessment	4
RHB 704 Psychological Adjustment: Severe Disability	4
RHB 705 Behavioral Assessment	4
RHB 711 Vocational Evaluation and Job Placement Techniques	4
RHB 720 Counseling: Severe Disability Case Management in Vocational Rehabilitation	4
RHB 801 Internship: Severe Disability	10
RHB 865 Rehabilitation Counseling Practicum	4
Electives	4
<hr/>	
Students' choice	
Total	74
<hr/>	

*Unless permission is granted, you must take RHB 701 prior to or concurrent with CNL 863.

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Last updated by the WSU Web Team (mnr).
Please send comments to [Denise Thomas-Hoskins](mailto:Denise.Thomas-Hoskins).

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Education and Human Services—Pupil Personnel Services Program

Introduction

The student personnel services program, leading to the Master of Arts or Master of Education degree, offers a concentration in school counseling. This program is designed for students with professional backgrounds in education.

Students are expected to take electives in areas other than counseling and guidance. The student and the advisor mutually decide upon elective courses. Graduate courses in the behavioral sciences (anthropology, psychology, sociology) are suggested electives. Depending upon the student's background and educational objectives, other electives may be more appropriate.

Students entering the program for counselor preparation must complete both the admission procedures and the appropriate graduate core requirements for their area of concentration and complete an exit evaluation, which is a written comprehensive examination.

The following requirements and procedures must be met by students applying for the M.Ed. or M.A. degrees within student personnel services: complete appropriate graduate core requirements for area of concentration; complete an interview with the assigned advisor and file a planned program of study; demonstrate proficiency with specified counseling behaviors during CNL 863; and complete the application for a counseling practicum during the first week of the term preceding the quarter in which the practicum is offered, except for fall quarter for which application is made during the first two weeks of spring quarter.

Admission

In addition to meeting requirements for admission established by the School of Graduate Studies, candidates for these degrees who do not meet the minimum cumulative GPA requirement to waive the GRE or MAT, must submit satisfactory Graduate Record Examination (GRE) or Miller Analogies Test (MAT) scores, unless otherwise noted (see Admission Standards). The Adolescence Young Adult, Multi-Age, and Middle Childhood initial teacher licensure programs require passing scores on the state of Ohio's mandated Praxis II Specialty (Content) Area Exam(s). Contact the college's Office of Student Services or visit their Web site at www.ed.wright.edu/ss/ to learn more about the Praxis II exams.

All students considering graduate-level courses in education and human services should do so with the understanding that graduate study differs in quality from undergraduate study. Graduate study requires that students be increasingly self-directed. Students are not

guaranteed a master's degree by attending and completing courses. Exit requirements must be met in all programs.

Admission to the College of Education and Human Services is based on the candidate's written statement of purpose, consideration of undergraduate and/or graduate cumulative grade point average, submission of satisfactory scores on either the MAT, GRE, or other required examination, and in some cases, letters of reference and a personal interview (see Admission Standards).

Technology Policy

For admission to the college, all College of Education and Human Services students, graduate and undergraduate, part-time and full-time, will be expected to certify that they own or have access to a computer and the Internet.

In order to meet the mission of the college "...to prepare professionals to meet the educational and human services needs of a diverse, democratic society," it is necessary for our students to play an active role in the technological environment the college and Wright State University are creating to assist in the completion of this mission. An increasing number of classes and options will become available to students using a variety of distributed learning formats; library resources are available in a growing number of full-text formats, and global connections via telecommunications will be part of daily operations. Students preparing to become professionals in education and human service areas must demonstrate appropriate and effective skills and knowledge in technological aspects of their work.

Minimum equipment standards will be either a Power Macintosh or Pentium-based Personal Computer (PC). The college supports Macintosh computers in faculty and staff offices and maintains computer labs. Wright State University has purchased a site license for most Microsoft software (see the Web page for Wright State's Computing and Telecommunications Services, <http://www.wright.edu/cats/> for details). The college's standard software packages are currently Office 2001 (Word, Excel, PowerPoint), FileMaker Pro, and Netscape; the specific packages, however, are subject to change.

Initial Teaching Credential

Students seeking to enroll in a Teacher Education program designed to deliver an initial teaching credential (license) are required to pass the Praxis II specialty/content area exam(s) as defined by current state of Ohio standards. Candidates to these programs must contact the college's Office of Student Services for assistance in identifying the appropriate exam(s) for his/her desired teaching field. Students unable to achieve a passing score as defined by state of Ohio standards will not be admitted to a Teacher Education program. Students seeking to enroll in a Teacher Education program designed to deliver an initial teaching credential will not be required to take the GRE or MAT exams. An exception to this rule is the Intervention Specialist programs. Applicants to these programs must take the GRE or MAT exams, unless eligible to waive testing requirement based on cumulative GPA (see Admission Standards).

Admission Standards

Candidates with a grade point average of less than 2.3 on a 4.0 grading system are not ordinarily admitted to graduate school. A petition process is available to formally request admissions not having met an admission standard. Candidates for admission to the Department of Human Services must meet additional requirements, which include three letters of reference, a personal interview, and a writing sample. Candidates for admission to certain programs in the Departments of Educational Leadership and Teacher Education must meet additional requirements, which include letters of reference, a personal interview, a writing sample, a self-assessment instrument, and Praxis II specialty area exams.

Waiver of GRE/MAT

Candidates to Educational Leadership master's degree programs, Health, Physical Education, and Recreation (HPR) programs, and select Teacher Education programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.0 or higher (graduate level GPA must be 3.0 or higher.) Candidates to Teacher Education programs requiring a passing score on a PRAXIS II specialty area exam(s) must submit passing Praxis scores regardless of undergraduate GPA.

Candidates to Human Services programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.3 or higher.

Conditional

Students who have an undergraduate grade point average of 2.5 or better, or who have an average between 2.3 and 2.5 with 2.7 or better in the last half of undergraduate work, may be granted conditional admission.

Regular admission to the College of Education and Human Services is granted after successful completion of 12 hours of course work with a grade of B or better in each course.

Licensure Candidate

Students who wish to complete licensure requirements at the graduate level but do not wish to pursue a graduate degree may be admitted as licensure candidates with the permission of the department in which the programs are housed. See Praxis II testing requirement above.

Nondegree Status

Persons who have a bachelor's degree may enroll in nondegree status for graduate courses without being admitted to a graduate program. If you wish to enroll in a degree program, only 50 percent of such credits may be applied to a degree program if they are appropriate, with the exception of the Department of Human Services, which only allows 12 hours of nondegree credit to be applied to one of its degree programs.

Faculty

Professors

Gregory R. Bernhardt (dean), education, counselor education

Donna Cole, teacher education

Diane E. Frey, counselor education

G. William Gayle, health and physical education

T. Stevenson Hansell, reading, language arts

Jan La Forge, rehabilitation counseling

Bonnie K. Mathies, educational technology

Charles W. Ryan, educational leadership, counselor education

Associate Professors

Beth Basista, science education/physics

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Colleen Finegan, early childhood education, special education

Stephen Fortson, counselor education

Stephen D. Frederick, health and physical education

Charlotte Harris, teacher education

Ron Helms, teacher education

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Mary Ann Jones, counselor education

Burga Jung, teacher education

Susann Mathews, mathematics education

Richelle O'Connor, teacher education

June A. Ovington, educational leadership
 D. Drew Pringle, health and physical education
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 Carol Wagner Williams, rehabilitation counseling
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 Roger Carlsen, educational leadership
 James Dunne, special education
 Nancy Gallenstein, early childhood education
 Rochelle Garner, educational leadership/organizational leadership
 Scott Graham, educational leadership/organizational leadership
 Grant Hambright, educational leadership
 Deborah Hess, early childhood education
 Doris Johnson, teacher education
 Joseph Keferl, rehabilitation counseling
 Jill Lindsey, educational leadership
 Will Mosier, early childhood education
 Timothy Rafferty, educational leadership
 Joanne Risacher, educational leader/student affairs in higher education
 Doug Roby, educational leadership
 Tracy Rusch, mathematics education
 Ken Schatmeyer, literacy education
 Eileen F. Self, counselor education
 William Slattery, science education/geology
 Donna Tromski-Klingshirn, counselor education

Lecturers

Lori Carter, workforce education
 Glenn Graham, educational leadership
 Marguerite Veres, educational leadership
 Tony Ortiz, athletic training

Course of Study

School Counseling

Introductory Course Work **12**

RHB 701 Counseling Theory and Practice	4
*CNL 863 Techniques of Counseling	4
EDL 751 Statistics and Research for Education	4

Professional Requirements **60**

CNL 662 Problems in Student Personality and Development	4
CNL 667 Group Background and Theory or CNL 767 Group Processes in Counseling and Guidance	4
CNL 762 Career Development and Information Services	4
CNL 765 Pupil Personnel Services in the School and Community Resources	4
CNL 779 Marriage and Family Counseling	4

CNL 971 Counseling for Life Span Development	4
CNL 972 Legal, Professional and Ethical Issues in Human Services	4
CNL 973 Social and Cultural Foundations in Counseling	4
EDS 655 Nature and Needs of Students with Mild to Moderate Educational Needs	4
EDL 773 Curriculum Development for School Leaders	4
RHB 705 Behavioral Assessment	4
CNL 865 Individual and Group Practicum	4
CNL 867 Internship: School Counseling	12
Electives	to 5
<hr/>	
Total	76-77
<hr/>	

*Unless permission is granted, you must take RHB 701 prior to or concurrent with CNL 863.

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Education and Human Services—School Nurse Licensure

Introduction

The purpose of Wright State University's Professional Pupil Services School Nurse Licensure Program is to prepare highly qualified school nurses. These future school nurses must first complete a baccalaureate degree with course work in growth and development, psychology, sociology, and/or anthropology. Each candidate must also have course work in community health and a current license to practice as a registered nurse issued by the Ohio Board of Nursing.

This post baccalaureate School Nurse Licensure Program is designed to build upon an undergraduate education and to prepare the school nurse to be a collaborative team member within the school and community system. A 22-credit, graduate-level program, with courses taught by both the College of Nursing and Health and the College of Education and Human Services, requires course work in school nurse related topics. In addition, students must successfully complete an all-day, 10-week, Monday through Friday practicum in the school under the supervision of a university supervisor and a licensed school nurse.

Admission

In addition to meeting requirements for admission established by the School of Graduate Studies, candidates for these degrees who do not meet the minimum cumulative GPA requirement to waive the GRE or MAT, must submit satisfactory Graduate Record Examination (GRE) or Miller Analogies Test (MAT) scores, unless otherwise noted (see Admission Standards). The Adolescence Young Adult, Multi-Age, and Middle Childhood initial teacher licensure programs require passing scores on the state of Ohio's mandated Praxis II Specialty (Content) Area Exam(s). Contact the college's Office of Student Services or visit their Web site at www.ed.wright.edu/ss/ to learn more about the Praxis II exams.

All students considering graduate-level courses in education and human services should do so with the understanding that graduate study differs in quality from undergraduate study. Graduate study requires that students be increasingly self-directed. Students are not guaranteed a master's degree by attending and completing courses. Exit requirements must be met in all programs.

Admission to the College of Education and Human Services is based on the candidate's written statement of purpose, consideration of undergraduate and/or graduate cumulative grade point average, submission of satisfactory scores on either the MAT, GRE, or other required examination, and in some cases, letters of reference and a personal interview (see Admission Standards).

Technology Policy

For admission to the college, all College of Education and Human Services students, graduate and undergraduate, part-time and full-time, will be expected to certify that they own or have access to a computer and the Internet.

In order to meet the mission of the college "...to prepare professionals to meet the educational and human services needs of a diverse, democratic society," it is necessary for our students to play an active role in the technological environment the college and Wright State University are creating to assist in the completion of this mission. An increasing number of classes and options will become available to students using a variety of distributed learning formats; library resources are available in a growing number of full-text formats, and global connections via telecommunications will be part of daily operations. Students preparing to become professionals in education and human service areas must demonstrate appropriate and effective skills and knowledge in technological aspects of their work.

Minimum equipment standards will be either a Power Macintosh or Pentium-based Personal Computer (PC). The college supports Macintosh computers in faculty and staff offices and maintains computer labs. Wright State University has purchased a site license for most Microsoft software (see the Web page for Wright State's Computing and Telecommunications Services, <http://www.wright.edu/cats/> for details). The college's standard software packages are currently Office 2001 (Word, Excel, PowerPoint), FileMaker Pro, and Netscape; the specific packages, however, are subject to change.

Initial Teaching Credential

Students seeking to enroll in a Teacher Education program designed to deliver an initial teaching credential (license) are required to pass the Praxis II specialty/content area exam(s) as defined by current state of Ohio standards. Candidates to these programs must contact the college's Office of Student Services for assistance in identifying the appropriate exam(s) for his/her desired teaching field. Students unable to achieve a passing score as defined by state of Ohio standards will not be admitted to a Teacher Education program. Students seeking to enroll in a Teacher Education program designed to deliver an initial teaching credential will not be required to take the GRE or MAT exams. An exception to this rule is the Intervention Specialist programs. Applicants to these programs must take the GRE or MAT exams, unless eligible to waive testing requirement based on cumulative GPA (see Admission Standards).

Admission Standards

Candidates with a grade point average of less than 2.3 on a 4.0 grading system are not ordinarily admitted to graduate school. A petition process is available to formally request admissions not having met an admission standard. Candidates for admission to the Department of Human Services must meet additional requirements, which include three letters of reference, a personal interview, and a writing sample. Candidates for admission to certain programs in the Departments of Educational Leadership and Teacher Education must meet additional requirements, which include letters of reference, a personal interview, a writing sample, a self-assessment instrument, and Praxis II specialty area exams.

Waiver of GRE/MAT

Candidates to Educational Leadership master's degree programs, Health, Physical Education, and Recreation (HPR) programs, and select Teacher Education programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.0 or higher (graduate level GPA must be 3.0 or higher.) Candidates to Teacher Education programs requiring a passing score on a PRAXIS II specialty area exam(s) must submit passing Praxis scores regardless of undergraduate GPA.

Candidates to Human Services programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.3 or higher.

Conditional

Students who have an undergraduate grade point average of 2.5 or better, or who have an average between 2.3 and 2.5 with 2.7 or better in the last half of undergraduate work, may be granted conditional admission.

Regular admission to the College of Education and Human Services is granted after successful completion of 12 hours of course work with a grade of B or better in each course.

Licensure Candidate

Students who wish to complete licensure requirements at the graduate level but do not wish to pursue a graduate degree may be admitted as licensure candidates with the permission of the department in which the programs are housed. See Praxis II testing requirement above.

Nondegree Status

Persons who have a bachelor's degree may enroll in nondegree status for graduate courses without being admitted to a graduate program. If you wish to enroll in a degree program, only 50 percent of such credits may be applied to a degree program if they are appropriate, with the exception of the Department of Human Services, which only allows 12 hours of nondegree credit to be applied to one of its degree programs.

Prerequisites

1. Baccalaureate degree with course work in growth and development, psychology, sociology, and/or anthropology
2. License to practice professional nursing in the State of Ohio
3. Course work in community health

Faculty**Professors**

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 William Slattery, science education/geology
 Donna Tromski-Klingshirn, counselor education

Lecturers

Lori Carter, workforce education
 Glenn Graham, educational leadership
 Marguerite Veres, educational leadership
 Tony Ortiz, athletic training

Course of Study

Professional Requirements

HPR 640 The Role of the Nurse in Schools	5
HPR 643 Practicum in School Nursing	5
NUR 640 School Nursing	5
NUR 642 Assessment of Children and Adolescents in Schools	2
NUR 643 Practicum in School Nursing	5
Total	22

Approved Course Substitutions:

NUR 766 or NUR 762 for NUR 642
 NUR 744 for NUR 643

*The HPR 643/NUR 643 Practicum in School Nursing courses are reserved for students who have been officially admitted to the School Nurse Licensure program and have successfully completed the prerequisite course work (HPR 640, NUR 640, 641, 642). Written permission of the instructor is required to register.

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Education and Human Services—Teacher Education Programs

Introduction

The Teacher Education Department offers programs that lead to licensure as a teacher, to master's degrees, or to both. Each program has a brief description before the requirements. The list below represents the programs available from the Teacher Education department:

Master's Degree Programs for Initial Teacher Licensure (for those who are not teachers)

Classroom Teacher: Middle Childhood Education
Classroom Teacher: Adolescent to Young Adult Education
Classroom Teacher: Multi-Age Education

Master's Degree Programs for Initial Teacher Licensure and for Current Teachers Seeking Advanced Study and/or Additional Teaching Credentials

Classroom Teacher: Intervention Specialist: Mild to Moderate Educational Needs
Classroom Teacher: Intervention Specialist: Moderate to Intensive Educational Needs
Classroom Teacher: Intervention Specialist: Gifted Educational Needs

Master's Degree Programs for Teachers Seeking Advanced Study and/or Additional Teaching Credentials (Not Initial Teacher Licensure Programs)

Classroom Teacher: Early Childhood Education: Early Childhood Intervention Specialist (a non-degree or licensure program)
Classroom Teacher: General
Classroom Teacher: Mathematics
Classroom Teacher: Modern Languages
Classroom Teacher: Reading
Classroom Teacher: Science

Admission

In addition to meeting requirements for admission established by the School of Graduate Studies, candidates for these degrees who do not meet the minimum cumulative GPA requirement to waive the GRE or MAT, must submit satisfactory Graduate Record Examination (GRE) or Miller Analogies Test (MAT) scores, unless otherwise noted (see Admission Standards). The Adolescence Young Adult, Multi-Age, and Middle Childhood initial teacher licensure programs require passing scores on the state of Ohio's mandated Praxis II Specialty (Content) Area Exam(s). Contact the college's Office of Student Services or visit their Web site at www.ed.wright.edu/ss/ to learn more about the Praxis II exams.

All students considering graduate-level courses in education and human services should do so with the understanding that graduate study differs in quality from undergraduate study. Graduate study requires that students be increasingly self-directed. Students are not guaranteed a master's degree by attending and completing courses. Exit requirements must be met in all programs.

Admission to the College of Education and Human Services is based on the candidate's written statement of purpose, consideration of undergraduate and/or graduate cumulative grade point average, submission of satisfactory scores on either the MAT, GRE, or other required examination, and in some cases, letters of reference and a personal interview (see Admission Standards).

Technology Policy

For admission to the college, all College of Education and Human Services students, graduate and undergraduate, part-time and full-time, will be expected to certify that they own or have access to a computer and the Internet.

In order to meet the mission of the college "...to prepare professionals to meet the educational and human services needs of a diverse, democratic society," it is necessary for our students to play an active role in the technological environment the college and Wright State University are creating to assist in the completion of this mission. An increasing number of classes and options will become available to students using a variety of distributed learning formats; library resources are available in a growing number of full-text formats, and global connections via telecommunications will be part of daily operations. Students preparing to become professionals in education and human service areas must demonstrate appropriate and effective skills and knowledge in technological aspects of their work.

Minimum equipment standards will be either a Power Macintosh or Pentium-based Personal Computer (PC). The college supports Macintosh computers in faculty and staff offices and maintains computer labs. Wright State University has purchased a site license for most Microsoft software (see the Web page for Wright State's Computing and Telecommunications Services, <http://www.wright.edu/cats/> for details). The college's standard software packages are currently Office 2001 (Word, Excel, PowerPoint), FileMaker Pro, and Netscape; the specific packages, however, are subject to change.

Initial Teaching Credential

Students seeking to enroll in a Teacher Education program designed to deliver an initial teaching credential (license) are required to pass the Praxis II specialty/content area exam(s) as defined by current state of Ohio standards. Candidates to these programs must contact the college's Office of Student Services for assistance in identifying the appropriate exam(s) for his/her desired teaching field. Students unable to achieve a passing score as defined by state of Ohio standards will not be admitted to a Teacher Education program. Students seeking to enroll in a Teacher Education program designed to deliver an initial teaching credential will not be required to take the GRE or MAT exams. An exception to this rule is the Intervention Specialist programs. Applicants to these programs must take the GRE or MAT exams, unless eligible to waive testing requirement based on cumulative GPA (see Admission Standards).

Admission Standards

Candidates with a grade point average of less than 2.3 on a 4.0 grading system are not ordinarily admitted to graduate school. A petition process is available to formally request admissions not having met an admission standard. Candidates for admission to the Department of Human Services must meet additional requirements, which include three letters of reference, a personal interview, and a writing sample. Candidates for admission to certain programs in the Departments of Educational Leadership and Teacher Education

must meet additional requirements, which include letters of reference, a personal interview, a writing sample, a self-assessment instrument, and Praxis II specialty area exams.

Waiver of GRE/MAT

Candidates to Educational Leadership master's degree programs, Health, Physical Education, and Recreation (HPR) programs, and select Teacher Education programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.0 or higher (graduate level GPA must be 3.0 or higher.) Candidates to Teacher Education programs requiring a passing score on a PRAXIS II specialty area exam(s) must submit passing Praxis scores regardless of undergraduate GPA.

Candidates to Human Services programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.3 or higher.

Conditional

Students who have an undergraduate grade point average of 2.5 or better, or who have an average between 2.3 and 2.5 with 2.7 or better in the last half of undergraduate work, may be granted conditional admission.

Regular admission to the College of Education and Human Services is granted after successful completion of 12 hours of course work with a grade of B or better in each course.

Licensure Candidate

Students who wish to complete licensure requirements at the graduate level but do not wish to pursue a graduate degree may be admitted as licensure candidates with the permission of the department in which the programs are housed. See Praxis II testing requirement above.

Nondegree Status

Persons who have a bachelor's degree may enroll in nondegree status for graduate courses without being admitted to a graduate program. If you wish to enroll in a degree program, only 50 percent of such credits may be applied to a degree program if they are appropriate, with the exception of the Department of Human Services, which only allows 12 hours of nondegree credit to be applied to one of its degree programs.

Entry requirements vary by program. All students will be required to pass a standardized test, have a 2.7 grade point average as an undergraduate, submit a sample of writing, and have an admissions interview and a criminal background check. All students who seek to attain a teaching license will be required to meet Ohio standards on a Praxis II Principles of Learning and Teaching exam at the end of the licensure portion of the program.

Praxis II Specialty (Content Area) exams will serve as the entrance exam for the Middle Childhood, Multi-Age, and Adolescent to Young Adult initial licensure programs. The Early Childhood program and the Intervention Specialists programs require the Graduate Record Exam (a combined score of 800 or more on the Quantitative and Verbal portion of the exam) or the Miller Analogy Test (a score of 30 or better) as the entrance exam. All candidates for an initial licensure program (in any licensure area) must complete the college's application process concurrent with the School of Graduate Studies application. The college's initial teacher applications are found on the Office of Student Services Web site at www.ed.wright.edu/ss/. Please contact the college's Office of Student Services if you have any questions about the requirements of a particular program.

Please note that the initial licensure programs in Middle Childhood (MC), Multi-Age (MA), and Adolescent Young Adult (AYA) programs currently require students to be full-time students in order to complete both course work and meet the Ohio Department of Education requirements for field experiences in schools.

Advising

Teacher Licensure Advisors and Faculty Advisors

The college's Office of Student Services is referred to in many areas of this catalog. Persons considering becoming a teacher and teachers who have questions about adding a new licensure area are encouraged to visit the Office of Student Services and consult with a licensure advisor. The office is located in 378 Allyn Hall and employs full-time professional licensure advisors for consultation. Advisors are available without an appointment during regularly scheduled walk-in advising times. Daytime and evening walk-in advising is available; please consult the office's Web site for current information regarding advising times at www.ed.wright.edu/ss/.

These advisors are charged by the college to audit student's programs for compliance with state of Ohio teacher licensure standards. Working with these advisors as you begin your studies will greatly increase the probability that you will select and take the appropriate courses for any given licensure area. Your application for the teaching license is filed with this office, and the licensure advisors assist the faculty by auditing your program at various stages of your program.

Many of our teacher licensure programs are also degree programs. We also offer advanced programs of study that provide current teachers with the opportunity for an in-depth study of an area, and the program does not include a new teaching license. Faculty advisors are assigned to each degree-seeking student at the point of acceptance to develop a separate plan for the degree. This formal program of study should be completed during the first term of a student's program. The faculty advisor will determine course substitutes, transfer of credit, and other appropriate modifications of the published degree curriculum as it appears in this catalog. The faculty advisor provides professional advising regarding current research, career development, and professional organizations. Any questions regarding the degree portion of your program will be directed to this faculty advisor. The licensure advisors will consult with this faculty person when needed.

Degree Requirements

Middle Childhood (Grades 4 through 9 and ages 8 through 14)

Middle Childhood teachers will teach two of the following subject (content) areas: language arts, mathematics, science, and social studies. This is a full time program of study currently requiring your commitment Monday through Friday. Students from Wright State University's Bachelor of Education program in Middle Childhood Education and others with a bachelor's degree who meet the content requirements (two content concentrations) of Wright State's educator program will be enrolled in this program in a cohort group. Prerequisite content requirements are described on the college's Web site at www.ed.wright.edu/ss/. Students will serve as interns in school settings throughout the school year. Therefore, this program operates on a different calendar than the university. Upon successful completion of the licensure portion of this program and passing the Praxis II exams in the Principles of Learning and Teaching 5–9 and the Praxis II subject area(s), the student may apply for a provisional license in Middle Childhood Education. The state of Ohio will require a criminal background check as a part of the licensure application. A Master of Education degree in classroom teaching may be earned with the successful completion of an Inquiry Project. This program may be completed in 15 months of full time study and internship.

At the time of publication of this catalog, the above program was being revised. Please contact the college's Office of Student Services for current information.

Note regarding the Middle Childhood Generalist Endorsement:

The state of Ohio has an endorsement available to the Middle Childhood license. The college has an approved program for the middle childhood generalist licensed teacher to add the English and/or Social Studies concentrations to their Middle Childhood mathematics and science concentrations license. This endorsement requires additional undergraduate content courses and passing the required Praxis II subject area assessments. The Middle Childhood Generalist Endorsement qualifies one to work in self-contained classrooms in grades 4 to 6. We expect to have approval from the state of Ohio for adding the Mathematics and Science areas by Fall 2005.

Adolescent Young Adult (Grades 7 through 12, ages 12 through 21)

The holder of an AYA license will teach a single subject such as language arts, social sciences, mathematics, or science in grades 7 through 12. To learn more about the approved AYA teaching (content) areas of study that Wright State offers, please visit our college's Office of Student Services.

This is currently a full-time program of study requiring your commitment Monday through Friday. Students from Wright State University and others with a bachelor's degree who meet the content requirements of Wright State's educator program will be enrolled in this program in a cohort group. Prerequisite content requirements are described on the college's Web site at www.ed.wright.edu/ss/.

Students will serve as interns in school settings throughout the school year. Therefore, this program operates on a different calendar than the university. Upon successful completion of the licensure portion of this program and passing the Praxis II exams in the Principles of Learning and Teaching 7-12 and the Praxis II subject area(s), the student may apply for a provisional license in Adolescent to Young Adult Education. The state of Ohio will require a criminal background check as a part of the licensure application. A Master of Education degree in classroom teaching may be earned with the successful completion of an Inquiry Project. This program may be completed in 15 months of full time study and internship.

At the time of publication of this catalog, the above program was being revised. Please contact the college's Office of Student Services for current information.

Multi-Age (Grades pre-kindergarten through 12, ages 3 through 21)

Wright State is approved to endorse candidates for the Multi-Age license for those persons who wish to teach a modern language (French or Spanish), health education, physical education, or visual arts. (Music education is only available on the undergraduate level through the university's College of Liberal Arts.)

This is currently a full-time program of study requiring your commitment Monday through Friday. Students from Wright State University and others with a bachelor's degree who meet the content requirements of Wright State's educator program will be enrolled in this program in a cohort group. Prerequisite content requirements are described on the college's Web site at www.ed.wright.edu/ss/.

Students will serve as interns in school settings throughout the school year. Therefore, this program operates on a different calendar than the university. Upon successful completion of the licensure portion of this program and passing the Praxis II exams in the Principles of Learning and Teaching (any level) and the Praxis II subject area(s), the student may apply for a provisional license in Multi-Age Education. The state of Ohio will require a criminal background check as a part of the licensure application. A Master of Education degree in classroom teaching may be earned with the successful completion of an Inquiry Project. This program may be completed in 15 months of full time study and internship.

At the time of publication of this catalog, the above program was being revised. Please contact the college's Office of Student Services for current information.

Early Childhood Programs (Grades pre-kindergarten through 3, ages 3 through 8)

The Early Childhood graduate programs are designed to address the needs of two different audiences: (1) holders of an early childhood education license or certificates who seek a master's degree, and (2) holders of an elementary teaching certificate or license who seek a master's degree (and the early childhood license).

The college requires the GRE or MAT exam as the entrance exam for this program unless the cumulative undergraduate and graduate GPA is 3.0 or higher.

Classroom Teacher: Early Childhood Education

This program is for those individuals with a valid certificate or license in Early Childhood or Elementary Education. Students not licensed in Early Childhood will need additional courses in order to achieve licensure first or concurrently. Please visit our college's Office of Student Services to learn about licensure requirements.

At the time of publication of this catalog, the above program was being revised. Please contact the college's Office of Student Services for current information.

Early Childhood Education Intervention Specialist License

This is not a master's degree program. This enables a teacher to work with children 3–5 years old with special needs. This can be an initial licensure program or a program for one who already has a teaching credential. Please visit our college's Office of Student Services to learn about the licensure requirements for this program.

Intervention Specialist Programs (Grades Kindergarten through 12, ages 5 through 21)

The Intervention Specialist Programs in Gifted, Mild to Moderate, and Moderate to Intensive Educational Needs are available for the currently practicing teacher as well as those persons who are not currently holding a teaching license. These are separate, individual programs. Because of the high demand for intervention specialists, it is not uncommon for persons to be employed by a school district on a special, temporary license pending completion of an Intervention Specialist licensure program. These programs are designed to serve both of those populations. Candidates who are not currently licensed will be required to complete prerequisite coursework prior to entering the professional course sequence. Please consult with a licensure advisor in the college's Office of Student Services regarding prerequisite coursework.

Upon successful completion of the licensure portion of this program and passing any one of the Praxis II exams in the Principles of Learning and Teaching and passing the Praxis II Specialty (Content) exams in special education, the student may apply for a provisional Intervention Specialists license valid for teaching students in the program area the student completed (Mild to Moderate, Moderate to Intensive, Gifted). A Master of Education degree in classroom teaching may be earned with the successful completion of the balance of the programs.

Note: The following Classroom Teacher programs are not initial licensure programs. They are available solely for advanced study by current teachers.

Classroom Teacher: General

The general classroom teacher program is designed for teachers who desire additional preparation in a field or area not offering a specialized program or certificate/licensure. This program offers a more flexible option for highly motivated persons who seek a master's degree with a specific professional objective, such as additional course work to update knowledge or skills in the content field. 12 hours may be taken either in advanced professional studies or in courses offered outside the College of Education and Human Services in a teaching discipline.

At the time of publication of this catalog, the above program was being revised. Please contact the college's Office of Student Services for current information

Classroom Teacher: Mathematics

This program enables teachers to take substantial advanced graduate course work in mathematics in order to update skills and strengthen knowledge in their major teaching field. This program is provided in a partnership with the university's College of Science and Mathematics.

This is not an initial licensure program to become a mathematics teacher. (See CT: AYA)

Classroom Teacher: Modern Languages

This program enables teachers to take substantial advanced graduate course work in Modern Languages in order to update skills and strengthen knowledge in their major teaching field. This program is provided in a partnership with the university's College of Liberal Arts (COLA). The Teacher Education (CEHS) department and the Modern Language department (COLA) jointly make admissions and advising decisions.

This is not an initial licensure program to become a Spanish or French teacher. (See CT: MA)

Classroom Teacher: Reading

The reading program is designed to aid the classroom teacher in helping students improve reading and thinking skills. The program leads to a validation of a standard certificate for a reading teacher. Opportunities for graduates of this program include classroom teaching, tutoring in a variety of settings, and work in training departments in business and industry.

This major could also lead to supervisory positions for the coordination and improvement of school or district-wide reading programs.

This is not an initial licensure program to become a Reading teacher.

Classroom Teacher: Science

This program enables teachers to take substantial advanced graduate course work in the sciences in order to update skills and strengthen knowledge in their major teaching field.

This program is provided in a partnership with the university's College of Science and Mathematics.

This is not an initial licensure program to become a Science teacher.

Faculty

Professors

Gregory R. Bernhardt (dean), education, counselor education
Donna Cole, teacher education
Diane E. Frey, counselor education
G. William Gayle, health and physical education
T. Stevenson Hansell, reading, language arts
Jan La Forge, rehabilitation counseling
Bonnie K. Mathies, educational technology
Charles W. Ryan, educational leadership, counselor education

Associate Professors

Beth Basista, science education/physics
Thomas Diamantes, educational leadership
Colleen Finegan, early childhood education, special education
Stephen Fortson, counselor education
Stephen D. Frederick, health and physical education
Charlotte Harris, teacher education
Ron Helms, teacher education
Phyllis A. Henderson, counselor education
Mary Ann Jones, counselor education
Burga Jung, teacher education
Susann Mathews, mathematics education
Richelle O'Connor, teacher education
June A. Ovington, educational leadership
D. Drew Pringle, health and physical education
Linda Ramey, teacher education
Patricia Renick, special education
James Tomlin, science education/biology
Carol Wagner Williams, rehabilitation counseling
Richard Wantz, counselor education

Assistant Professors

Kathy Adams, educational leadership
Mary Ellen Bargerhuff, special education
Angela Beumer-Johnson, English education
Jacqueline Collier, literacy education
Roger Carlsen, educational leadership
James Dunne, special education
Nancy Gallenstein, early childhood education
Rochelle Garner, educational leadership/organizational leadership
Scott Graham, educational leadership/organizational leadership
Grant Hambright, educational leadership
Deborah Hess, early childhood education
Doris Johnson, teacher education
Joseph Keferl, rehabilitation counseling
Jill Lindsey, educational leadership
Will Mosier, early childhood education
Timothy Rafferty, educational leadership
Joanne Risacher, educational leader/student affairs in higher education
Doug Roby, educational leadership

Tracy Rusch, mathematics education
 Ken Schatmeyer, literacy education
 Eileen F. Self, counselor education
 William Slattery, science education/geology
 Donna Tromski-Klingshirn, counselor education

Lecturers

Lori Carter, workforce education
 Glenn Graham, educational leadership
 Marguerite Veres, educational leadership
 Tony Ortiz, athletic training

Course of Study

Master’s Degree Programs for Initial Teacher Licensure (for those who are not teachers) Classroom Teacher: Middle Childhood Education

Phase I Summer A: For students who do not complete the following courses as undergrads

ED 602 Education in a Pluralistic Society: Middle Childhood Perspective	4
ED 621 Human Development and Learning: Middle Childhood Perspective	4
EDS 624 Addressing Learning Differences	4

Phase I Summer B: For all students

ED 612 Practicum I: Middle Childhood Level	1
ED 732 Principles and Practices of Middle School	4
ED 606 Reading & Literacy Instruction I	4.5

Phase II Fall Quarter (First Quarter Phase II)

ED 600 Classroom Management: Middle Childhood Level	4
ED 717 Word Study: Phonics	5
ED 614 Practicum II: Middle Childhood Level	1
** Content Pedagogy (See below)	8

Phase II Winter Quarter (Second Quarter Phase II)

ED 709 Diagnosis & Assessment of Reading Performance	4.5
ED 607 Reading & Literacy Instruction II	4.5
ED 616 Practicum III: Middle Childhood Level	1
ED 645 Inquiry & Assessment	3

Phase III Spring Quarter

ED 641 Internship/Seminar: Middle Childhood	12
---	----

****Content Pedagogy: Choose Two**

ED 636 Integrated Middle Childhood Level Science Methods	4
ED 610 Middle Childhood Mathematics: Philosophy, Curriculum and Materials	4
ED 624 Middle Childhood Literature, Speech, and Drama	4
ED 629 Middle School Social Studies: Curriculum and Materials	4

Summer Quarter

ED 771 Inquiry Project Completion (Course required for M.Ed.)	1
---	---

Total M.Ed. Program Hours if Graduate Phase I Is Needed 65.5

Total M.Ed. Program Hours if Graduate Phase I is not needed	53.5
--	-------------

Classroom Teacher: Adolescent to Young Adult Education

Phase I Summer A: For students who do not complete the following courses as undergrads

ED 602 Education in a Pluralistic Society	4
ED 621 Human Development and Learning	4
EDS 624 Addressing Learning Differences	4
ED 612 Practicum I/Seminar	2

Phase II Fall Quarter (First Quarter Phase II)

ED 600 Classroom Management	4
ED 670 Research Methods	4
** Content Pedagogy I(See below)	4
ED 614 Practicum II/Seminar	2

Phase II Winter Quarter (Second Quarter Phase II)

ED 631 Literacy Skills Through Adolescence	5
** Content Pedagogy II(See below)	4
ED 616 Practicum III/Seminar	2
ED 771 Inquiry Project Completion	2

Phase III Spring Quarter

ED 651 Internship/Seminar: Adolescence	12
--	----

****Content Pedagogy (Choose one Area)**

Social Studies

Content Pedagogy I	
ED 639 Adolescence Social Studies: Curriculum & Materials	4
Content Pedagogy II	
ED 648 Improvement of Social Studies Instruction	4

Science

Content Pedagogy I	
ED 731 Adolescence & Young Adult Science: Methods, Curriculum, & Materials	4
Content Pedagogy II	
ED 746 Science, Technology & Society as a Teaching Imperative	4

English

Content Pedagogy I	
ED 620 Studies in English Education	4
Content Pedagogy II	
ED 623 Adolescence English: Curriculum & Materials	4

Mathematics

Content Pedagogy I	
ED 637 Secondary School Mathematics: Curriculum & Materials	4
Content Pedagogy II	
ED 638 Methods for Teaching Mathematics to Adolescence & Young Adults	4

Integrated Business	
Content Pedagogy I	
EDT 633 Business Education: Curriculum & Materials in Basic Business Subjects	4
Content Pedagogy II	
EDT 634 Curriculum & Materials: Office Procedures & Technology	4
Marketing	
Content Pedagogy I	
EDT 633 Business Education: Curriculum & Materials in Basic Business Subjects	4
Summer Quarter	
ED 645 Inquiry and Assessment	4
ED 646 Inquiry and Prospectus (Course required for M.Ed.)	4
<hr/>	
Total M.Ed. Program Hours if Graduate Phase I Is Needed	61
<hr/>	
Total M.Ed. Program Hours if Graduate Phase I Is Not needed	47
<hr/>	
Classroom Teacher: Multi-Age Education	
Phase I Summer A: For students who do not complete the following courses as undergrads	
ED 602 Education in a Pluralistic Society	4
ED 621 Human Development and Learning	4
EDS 624 Addressing Learning Differences	4
ED 612 Practicum I/Seminar	2
Phase II Fall Quarter (First Quarter Phase II)	
ED 600 Classroom Management	4
ED 670 Research Methods	4
** Content Pedagogy I(See below)	4
ED 614 Practicum II/Seminar	2
Phase II Winter Quarter (Second Quarter Phase II)	
ED 631 Literacy Skills Through Adolescence	5
** Content Pedagogy II(See below)	4
ED 616 Practicum III/Seminar	2
ED 771 Inquiry Project Completion	2
Phase III Spring Quarter	
ED 651 Internship/Seminar: Adolescence	12
Phase III Spring Quarter	
ED 661 Internship/Seminar: Multi-Age	12
**Content Pedagogy (Choose one Area)	
Visual Arts	
Content Pedagogy I	
AED 631 Art & the Child	4
Content Pedagogy II	

AED 638 Multi-Age Visual Arts Methods 4

Modern Language

Content Pedagogy I

ED 670 Foreign Language Education 4

Content Pedagogy II

ED 625 Modern Foreign Languages: Curriculum & Materials 4

Summer Quarter

ED 645 Inquiry and Assessment 4

ED 646 Inquiry and Prospectus (Course required for M.Ed.) 4

Total M.Ed. Program Hours if Graduate Phase I Is Needed 61

Total M.Ed. Program Hours if Graduate Phase I Is Not needed 47

Master's Degree Programs for Initial Teacher Licensure and for Current Teachers Seeking Advanced Study and/or Additional Teaching Credentials Classroom Teacher: Intervention Specialist: Mild to Moderate Educational Needs

EDS 700 Special Education Entrance Seminar 2

ED 704 Introduction to the Foundations of Education 4

EDL 771 Leadership Skills for School Improvement 3

EDL 751 Statistics and Research for Education 4

EDT 786 Application for Computers in Education 4

EDS 655 Nature and Needs of Students with Mild to Moderate Educational Needs 4

EDS 651 Nature and Needs of Students with Moderate to Intensive Educational Needs 3

EDS 654 Assessment Skills: The Intervention Specialist Role 3

EDS 642 Curriculum Methods and Materials to Teach Students with Mild/Moderate Educational Needs 4

EDS 644 Instructional and Behavioral Management Skills for Intervention Specialists 3

EDS 645 Transition of Students with Special Needs 3

EDS 659 Communication and Consultation Skills for Educators 3

HPR 710 Physical Education for Children with Special Needs 4

or

HPR 712 Motor Development for Low Incidence Disabilities 4

ED 716 Foundations of Reading Instruction 3

ED 717 Instruction in Word Study: Phonics 5

ED 709 Diagnosis and Assessment of Reading Performance 4

EDS 656 Clinical Practice in Remediation 4

ED 769 Content Reading Instruction Grades 4-12 3

ED 661 Practicum in Special Education Mild/Moderate 5-12

EDS 799 Special Education Exit Seminar 2

Total (M.Ed.) 70-77

EDL 752 Statistical Analysis and Research Design, 4 hours, and ED 899 Thesis, 1-9 hours, required for the Master of Arts option. The M.A. option removes EDT 786, EDS 700, and EDS 799 from this program of study.

Total (M.A.)	62-82
Classroom Teacher: Intervention Specialist: Moderate to Intensive Educational Needs	
EDS 700 Special Education Entrance Seminar	2
ED 704 Introduction to the Foundations of Education	4
EDL 771 Leadership Skills for School Improvement	3
EDL 751 Statistics and Research for Education	4
EDT 786 Application for Computers in Education	4
EDS 655 Nature and Needs of Students with Mild to Moderate Educational Needs	4
EDS 651 Nature and Needs of Students with Moderate to Intensive Educational Needs	3
EDS 652 Education of Individuals with Physical Sensory and Motor Disorders	3
EDS 653 Curriculum Methods, Materials and Adaptive Equipment	3
EDS 643 Introduction to Augmentative Communication	3
EDS 644 Instructional and Behavioral Management Skills for Intervention Specialists	3
EDS 645 Transition of Students with Special Needs	3
EDS 654 Assessment Skills: The Intervention Specialist's Role	3
EDS 659 Communication and Consultation Skills for Educators	3
HPR 710 Physical Education for Children with Special Needs	4

or

HPR 712 Motor Development for Low Incidence Disabilities	4
ED 716 Foundations of Reading Instruction	3
ED 717 Instruction in Word Study: Phonics	5
ED 709 Diagnosis and Assessment of Reading Performance	4
DS 656 Clinical Practice in Remediation	4
ED 769 Content Reading Instruction: Grades 4-12	3
ED 661 Practicum in Special Education Moderate/Intensive	5-12
EDS 799 Special Education Exit Seminar	2

Total (M.Ed.) **75-82**

EDL 752 Statistical Analysis and Research Design, 4 hours, and ED 899 Thesis, 1-9 hours, required for the Master of Arts option. The M.A. option removes EDT 786, EDS 700, and EDS 799 from this program of study.

Total (M.A.)	72-87
Classroom Teacher: Intervention Specialist: Gifted Educational Needs	
EDS 700 Special Education Entrance Seminar	2
ED 704 Introduction to the Foundations of Education	4
EDL 771 Leadership Skills for School Improvement	3
EDL 751 Statistics and Research for Education	4
EDS 655 Nature and Needs of Students with Mild to Moderate Educational Needs	4
EDS 722 Education of Students with Gifted Educational Needs	4
EDS 720 Creative Problem Solving in the Classroom	4
EDS 723 Curriculum for the Students with Gifted Educational Needs	4
EDS 654 Assessment Skills: The Intervention Specialist's Role	3

EDS 645 Transition of Students with Special Needs	3
EDS 659 Communication and Consultation Skills for Educators	3
CNL 961 Affective Needs/Counsel of Students with Gifted Educational Needs	3

or

CNL 751 Counseling Skills for Educators	3
ED 622 Instructional Design and Technology	6

or

EDT 749 Introduction to Instructional Media	4
EDT 786 Applications of Computers in Education	4
ED 716 Foundation of Reading Instruction	3
ED 717 Instruction in Word Study: Phonics	5
ED 709 Diagnosis and Assessment of Reading Performance	3
EDS 656 Clinical Practice in Remediation	4
ED 769 Content Reading Instruction: Grades 4-12	3
EDS 661 Practicum in Special Education: Gifted	5-12
EDS 799 Special Education Exit Seminar	2

Total (M.Ed.) **74-83**

EDL 752 Statistical Analysis and Research Design, 4 hours, and ED 899 Thesis, 1-9 hours, required for the Master of Arts option. The M.A. option removes EDT 786, EDS 700, and EDS 799 from this program of study.

Total (M.A.) **71-88**

Master's Degree Programs for Teachers Seeking Advanced Study and/or Additional Teaching Credentials (Not Initial Teacher Licensure Programs) Classroom Teacher: Early Childhood Education: Early Childhood Intervention Specialist (a non-degree or licensure program) Classroom Teacher: General

Introductory Course Work **12**

ED 704 Inquiry into Foundations of Education	4
EDL 771 Educational Leadership Behavior	4
EDL 751 Statistics and Research for Education	4

Professional Requirements **22**

ED 701 Advanced Educational Psychology	3
EDL 791 Curriculum Design and Evaluation	4
ED 710 Teaching Strategies in Culturally Diverse Settings	4
EDL 740 Legal and Professional Issues	4
EDT 749 Introduction to Instructional Media	4
ED 820 Seminar in Secondary Education*	3

or

ED 810 Seminar in Elementary Education*	3
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Program Electives **12**

12 hours to be chosen by student and advisor. Electives may be selected from courses offered by the College of Education and Human Services or one of the other colleges offering appropriate graduate courses. For example, courses may be chosen in the areas of English, mathematics, religion, science, social studies, student learning and behavior, or othe

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Please send comments to [Denise Thomas-Hoskins](#).

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Education and Human Services—Vocational Education

Admission

In addition to meeting requirements for admission established by the School of Graduate Studies, candidates for these degrees who do not meet the minimum cumulative GPA requirement to waive the GRE or MAT, must submit satisfactory Graduate Record Examination (GRE) or Miller Analogies Test (MAT) scores, unless otherwise noted (see Admission Standards). The Adolescence Young Adult, Multi-Age, and Middle Childhood initial teacher licensure programs require passing scores on the state of Ohio's mandated Praxis II Specialty (Content) Area Exam(s). Contact the college's Office of Student Services or visit their Web site at www.ed.wright.edu/ss/ to learn more about the Praxis II exams.

All students considering graduate-level courses in education and human services should do so with the understanding that graduate study differs in quality from undergraduate study. Graduate study requires that students be increasingly self-directed. Students are not guaranteed a master's degree by attending and completing courses. Exit requirements must be met in all programs.

Admission to the College of Education and Human Services is based on the candidate's written statement of purpose, consideration of undergraduate and/or graduate cumulative grade point average, submission of satisfactory scores on either the MAT, GRE, or other required examination, and in some cases, letters of reference and a personal interview (see Admission Standards).

Technology Policy

For admission to the college, all College of Education and Human Services students, graduate and undergraduate, part-time and full-time, will be expected to certify that they own or have access to a computer and the Internet.

In order to meet the mission of the college "...to prepare professionals to meet the educational and human services needs of a diverse, democratic society," it is necessary for our students to play an active role in the technological environment the college and Wright State University are creating to assist in the completion of this mission. An increasing number of classes and options will become available to students using a variety of distributed learning formats; library resources are available in a growing number of full-text formats, and global connections via telecommunications will be part of daily operations. Students preparing to become professionals in education and human service areas must demonstrate appropriate and effective skills and knowledge in technological aspects of their work.

Minimum equipment standards will be either a Power Macintosh or Pentium-based Personal Computer (PC). The college supports Macintosh computers in faculty and staff

offices and maintains computer labs. Wright State University has purchased a site license for most Microsoft software (see the Web page for Wright State's Computing and Telecommunications Services, <http://www.wright.edu/cats/> for details). The college's standard software packages are currently Office 2001 (Word, Excel, PowerPoint), FileMaker Pro, and Netscape; the specific packages, however, are subject to change.

Initial Teaching Credential

Students seeking to enroll in a Teacher Education program designed to deliver an initial teaching credential (license) are required to pass the Praxis II specialty/content area exam(s) as defined by current state of Ohio standards. Candidates to these programs must contact the college's Office of Student Services for assistance in identifying the appropriate exam(s) for his/her desired teaching field. Students unable to achieve a passing score as defined by state of Ohio standards will not be admitted to a Teacher Education program. Students seeking to enroll in a Teacher Education program designed to deliver an initial teaching credential will not be required to take the GRE or MAT exams. An exception to this rule is the Intervention Specialist programs. Applicants to these programs must take the GRE or MAT exams, unless eligible to waive testing requirement based on cumulative GPA (see Admission Standards).

Admission Standards

Candidates with a grade point average of less than 2.3 on a 4.0 grading system are not ordinarily admitted to graduate school. A petition process is available to formally request admissions not having met an admission standard. Candidates for admission to the Department of Human Services must meet additional requirements, which include three letters of reference, a personal interview, and a writing sample. Candidates for admission to certain programs in the Departments of Educational Leadership and Teacher Education must meet additional requirements, which include letters of reference, a personal interview, a writing sample, a self-assessment instrument, and Praxis II specialty area exams.

Waiver of GRE/MAT

Candidates to Educational Leadership master's degree programs, Health, Physical Education, and Recreation (HPR) programs, and select Teacher Education programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.0 or higher (graduate level GPA must be 3.0 or higher.) Candidates to Teacher Education programs requiring a passing score on a PRAXIS II specialty area exam(s) must submit passing Praxis scores regardless of undergraduate GPA.

Candidates to Human Services programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.3 or higher.

Conditional

Students who have an undergraduate grade point average of 2.5 or better, or who have an average between 2.3 and 2.5 with 2.7 or better in the last half of undergraduate work, may be granted conditional admission.

Regular admission to the College of Education and Human Services is granted after successful completion of 12 hours of course work with a grade of B or better in each course.

Licensure Candidate

Students who wish to complete licensure requirements at the graduate level but do not wish to pursue a graduate degree may be admitted as licensure candidates with the permission of the department in which the programs are housed. See Praxis II testing requirement above.

Nondegree Status

Persons who have a bachelor's degree may enroll in nondegree status for graduate

courses without being admitted to a graduate program. If you wish to enroll in a degree program, only 50 percent of such credits may be applied to a degree program if they are appropriate, with the exception of the Department of Human Services, which only allows 12 hours of nondegree credit to be applied to one of its degree programs.

Faculty

Professors

Gregory R. Bernhardt (dean), education, counselor education
Donna Cole, teacher education
Diane E. Frey, counselor education
G. William Gayle, health and physical education
T. Stevenson Hansell, reading, language arts
Jan La Forge, rehabilitation counseling
Bonnie K. Mathies, educational technology
Charles W. Ryan, educational leadership, counselor education

Associate Professors

Beth Basista, science education/physics
Thomas Diamantes, educational leadership
Colleen Finegan, early childhood education, special education
Stephen Fortson, counselor education
Stephen D. Frederick, health and physical education
Charlotte Harris, teacher education
Ron Helms, teacher education
Phyllis A. Henderson, counselor education
Mary Ann Jones, counselor education
Burga Jung, teacher education
Susann Mathews, mathematics education
Richelle O'Connor, teacher education
June A. Ovington, educational leadership
D. Drew Pringle, health and physical education
Linda Ramey, teacher education
Patricia Renick, special education
James Tomlin, science education/biology
Carol Wagner Williams, rehabilitation counseling
Richard Wantz, counselor education

Assistant Professors

Kathy Adams, educational leadership
Mary Ellen Bargerhuff, special education
Angela Beumer-Johnson, English education
Jacqueline Collier, literacy education
Roger Carlsen, educational leadership
James Dunne, special education
Nancy Gallenstein, early childhood education
Rochelle Garner, educational leadership/organizational leadership
Scott Graham, educational leadership/organizational leadership
Grant Hambright, educational leadership
Deborah Hess, early childhood education
Doris Johnson, teacher education
Joseph Keferl, rehabilitation counseling
Jill Lindsey, educational leadership
Will Mosier, early childhood education
Timothy Rafferty, educational leadership
Joanne Risacher, educational leader/student affairs in higher education
Doug Roby, educational leadership

Tracy Rusch, mathematics education
 Ken Schatmeyer, literacy education
 Eileen F. Self, counselor education
 William Slattery, science education/geology
 Donna Tromski-Klingshirn, counselor education

Lecturers

Lori Carter, workforce education
 Glenn Graham, educational leadership
 Marguerite Veres, educational leadership
 Tony Ortiz, athletic training

Course of Study

**Educational Administrative Specialist: Vocational Education Administration
 (Master’s Degree and Licensure Program) (Master of Education, M.Ed.)**

Note: Must have or be eligible for a Professional five-year Vocational License to enter this program.

Required Course Work:

EDL 713 Applied Psychological Learning Theory	4
EDL 751 Statistics and Research for Education	4
EDL 771 Educational Leadership Behavior	4
EDL 776 Supervision of Instruction and Personnel	4
EDL 780 Ethics and Politics in Education	4
EDL 782 School Law	4
EDL 871 Management of the School	4
EDL 872 Staff Personnel Administration	4
EDL 873 Pupil Personnel Services Administration	4
EDL 890 Practicum in School Administration	4
EDL 993 School District Business Management	4
EDT 795 Administrative Support of Educational Technology*	4
*At the time of publication, this course was under development	

Degree Total **48**

Courses required for completion of licensure requirements after completion of master's degree **23**

VOE 618 Historical and Philosophical Foundations of Vocational Education	4
VOE 706 Survey of Workforce Education	3
VOE 725 Administration and Supervision in Workforce Education	3
VOE 726 Adult Workforce Education	4
VOE 824 Curriculum for Workforce Education	3
VOE 825 Facilities and Management of Workforce Education	3
VOE 826 Program Development Techniques for Workforce Education	3

Licensure Total **71**

Classroom Teacher: Career, Technical, and Adult Education: Vocational Teacher Licensure (Master of Education, M.Ed.)

Core Courses **12**

ED 704 Inquiry into Foundations of Education	4
ED 820 Seminar in Secondary Education	4
EDL 751 Statistics and Research in Education	4
Professional Education	37
<hr/>	
VOE 670 Instructional Design of Workforce Education	8
VOE 651 Strategies, Techniques in Workforce Education	3
VOE 621 Student Behavioral Management in Workforce Education	3
VOE 631 Student Performance Assessment in Workforce Education	3
VOE 672 Supervised Teaching in Workforce Education I	3
VOE 675 Workforce Education Integration	4
VOE 669 Coordination Techniques in Workforce Education	3
VOE 611 Workforce Classroom/Laboratory Management	3
VOE 824 Curriculum for Workforce Education	3
EDT 782 Developing Multimedia Production	4
Total	49
<hr/>	

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Education and Human Services—Workforce Education Endorsements

Introduction

The endorsement programs reflect the philosophy of continuous quality education in a changing world in its response to current and emerging strategies in education reform as applied in workforce education. The program adopts the mission statement prepared by the Ohio Department of Education, Division of Career-Technical Vocational and Adult Education, and is crafted to provide quality programs and services to meet the lifelong career and training needs of a diverse range of citizens and the ever-changing needs of the present and future workplace.

The endorsement of a teacher license, valid for teaching the subject or learners named, shall be issued to an individual who holds a baccalaureate degree; who is deemed to be of good moral character; who has successfully completed an examination prescribed by the State Board of Education; and who has been recommended by the dean or head of teacher education at an approved institution. The endorsement shall be limited to the age and grade levels listed on the license.

Admission

In addition to meeting requirements for admission established by the School of Graduate Studies, candidates for these degrees who do not meet the minimum cumulative GPA requirement to waive the GRE or MAT, must submit satisfactory Graduate Record Examination (GRE) or Miller Analogies Test (MAT) scores, unless otherwise noted (see Admission Standards). The Adolescence Young Adult, Multi-Age, and Middle Childhood initial teacher licensure programs require passing scores on the state of Ohio's mandated Praxis II Specialty (Content) Area Exam(s). Contact the college's Office of Student Services or visit their Web site at www.ed.wright.edu/ss/ to learn more about the Praxis II exams.

All students considering graduate-level courses in education and human services should do so with the understanding that graduate study differs in quality from undergraduate study. Graduate study requires that students be increasingly self-directed. Students are not guaranteed a master's degree by attending and completing courses. Exit requirements must be met in all programs.

Admission to the College of Education and Human Services is based on the candidate's written statement of purpose, consideration of undergraduate and/or graduate cumulative grade point average, submission of satisfactory scores on either the MAT, GRE, or other required examination, and in some cases, letters of reference and a personal interview (see Admission Standards).

Technology Policy

For admission to the college, all College of Education and Human Services students, graduate and undergraduate, part-time and full-time, will be expected to certify that they own or have access to a computer and the Internet.

In order to meet the mission of the college "...to prepare professionals to meet the educational and human services needs of a diverse, democratic society," it is necessary for our students to play an active role in the technological environment the college and Wright State University are creating to assist in the completion of this mission. An increasing number of classes and options will become available to students using a variety of distributed learning formats; library resources are available in a growing number of full-text formats, and global connections via telecommunications will be part of daily operations. Students preparing to become professionals in education and human service areas must demonstrate appropriate and effective skills and knowledge in technological aspects of their work.

Minimum equipment standards will be either a Power Macintosh or Pentium-based Personal Computer (PC). The college supports Macintosh computers in faculty and staff offices and maintains computer labs. Wright State University has purchased a site license for most Microsoft software (see the Web page for Wright State's Computing and Telecommunications Services, <http://www.wright.edu/cats/> for details). The college's standard software packages are currently Office 2001 (Word, Excel, PowerPoint), FileMaker Pro, and Netscape; the specific packages, however, are subject to change.

Initial Teaching Credential

Students seeking to enroll in a Teacher Education program designed to deliver an initial teaching credential (license) are required to pass the Praxis II specialty/content area exam(s) as defined by current state of Ohio standards. Candidates to these programs must contact the college's Office of Student Services for assistance in identifying the appropriate exam(s) for his/her desired teaching field. Students unable to achieve a passing score as defined by state of Ohio standards will not be admitted to a Teacher Education program. Students seeking to enroll in a Teacher Education program designed to deliver an initial teaching credential will not be required to take the GRE or MAT exams. An exception to this rule is the Intervention Specialist programs. Applicants to these programs must take the GRE or MAT exams, unless eligible to waive testing requirement based on cumulative GPA (see Admission Standards).

Admission Standards

Candidates with a grade point average of less than 2.3 on a 4.0 grading system are not ordinarily admitted to graduate school. A petition process is available to formally request admissions not having met an admission standard. Candidates for admission to the Department of Human Services must meet additional requirements, which include three letters of reference, a personal interview, and a writing sample. Candidates for admission to certain programs in the Departments of Educational Leadership and Teacher Education must meet additional requirements, which include letters of reference, a personal interview, a writing sample, a self-assessment instrument, and Praxis II specialty area exams.

Waiver of GRE/MAT

Candidates to Educational Leadership master's degree programs, Health, Physical Education, and Recreation (HPR) programs, and select Teacher Education programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.0 or higher (graduate level GPA must be 3.0 or higher.) Candidates to Teacher Education programs requiring a passing score on a PRAXIS II specialty area exam(s) must submit passing Praxis scores regardless of undergraduate GPA.

Candidates to Human Services programs may not be required to submit passing GRE or MAT scores if their cumulative undergraduate GPA is a 3.3 or higher.

Conditional

Students who have an undergraduate grade point average of 2.5 or better, or who have an average between 2.3 and 2.5 with 2.7 or better in the last half of undergraduate work, may be granted conditional admission.

Regular admission to the College of Education and Human Services is granted after successful completion of 12 hours of course work with a grade of B or better in each course.

Licensure Candidate

Students who wish to complete licensure requirements at the graduate level but do not wish to pursue a graduate degree may be admitted as licensure candidates with the permission of the department in which the programs are housed. See Praxis II testing requirement above.

Nondegree Status

Persons who have a bachelor's degree may enroll in nondegree status for graduate courses without being admitted to a graduate program. If you wish to enroll in a degree program, only 50 percent of such credits may be applied to a degree program if they are appropriate, with the exception of the Department of Human Services, which only allows 12 hours of nondegree credit to be applied to one of its degree programs.

Faculty**Professors**

Gregory R. Bernhardt (dean), education, counselor education
Donna Cole, teacher education
Diane E. Frey, counselor education
G. William Gayle, health and physical education
T. Stevenson Hansell, reading, language arts
Jan La Forge, rehabilitation counseling
Bonnie K. Mathies, educational technology
Charles W. Ryan, educational leadership, counselor education

Associate Professors

Beth Basista, science education/physics
Thomas Diamantes, educational leadership
Colleen Finegan, early childhood education, special education
Stephen Fortson, counselor education
Stephen D. Frederick, health and physical education
Charlotte Harris, teacher education
Ron Helms, teacher education
Phyllis A. Henderson, counselor education
Mary Ann Jones, counselor education
Burga Jung, teacher education
Susann Mathews, mathematics education
Richelle O'Connor, teacher education
June A. Ovington, educational leadership
D. Drew Pringle, health and physical education
Linda Ramey, teacher education
Patricia Renick, special education
James Tomlin, science education/biology
Carol Wagner Williams, rehabilitation counseling
Richard Wantz, counselor education

Assistant Professors

Kathy Adams, educational leadership
 Mary Ellen Bargerhuff, special education
 Angela Beumer-Johnson, English education
 Jacqueline Collier, literacy education
 Roger Carlsen, educational leadership
 James Dunne, special education
 Nancy Gallenstein, early childhood education
 Rochelle Garner, educational leadership/organizational leadership
 Scott Graham, educational leadership/organizational leadership
 Grant Hambright, educational leadership
 Deborah Hess, early childhood education
 Doris Johnson, teacher education
 Joseph Keferl, rehabilitation counseling
 Jill Lindsey, educational leadership
 Will Mosier, early childhood education
 Timothy Rafferty, educational leadership
 Joanne Risacher, educational leader/student affairs in higher education
 Doug Roby, educational leadership
 Tracy Rusch, mathematics education
 Ken Schatmeyer, literacy education
 Eileen F. Self, counselor education
 William Slattery, science education/geology
 Donna Tromski-Klingshirn, counselor education

Lecturers

Lori Carter, workforce education
 Glenn Graham, educational leadership
 Marguerite Veres, educational leadership
 Tony Ortiz, athletic training

Course of Study

Workforce Education Endorsement: Adult Education—Full-Time The adult education—full-time endorsement program will offer instruction on workforce education programs for adults, including curriculum, special methods, and the development of curriculum materials suitable to such programs. Additional focus will be placed on information about adult learners in terms of development, learning capabilities, learning needs, and planning and implementing a marketing effort for adult programs. Various methods of determining individual training needs and planning instruction for adults will be discussed, along with instructional techniques effective with adults to help the student manage the adult instructional process while evaluating the adult learners' progress in meeting specified objectives.

Required Course Work:

VOE 726 Adult Workforce Education	4
VOE 727 Preparing to Work with Adult Learners and Marketing Adult Education Programs	4
VOE 728 Determining Individual Training Needs and Planning Instruction for Adults	4
VOE 729 Managing the Instructional Process and Evaluating the Performance of Adults	4
Total	16

Workforce Education Endorsement: OWE/OWA The OWE/OWA endorsement program will offer instruction on workforce education for at-risk students, including curriculum, special methods, and the development of curriculum materials suitable to such programs. Additional focus will be placed on information about at-risk learners in terms of

development, learning capabilities, learning needs, and planning and implementing a marketing effort for at-risk programs. Various methods of determining individual training needs and planning instruction for at-risk students will be discussed, along with instructional techniques effective with at-risk students to help the instructor manage the instructional process while evaluating the at-risk students' progress in meeting specified coordinating cooperative education.

Required Course Work:

VOE 613 Organization and Operation of a Cooperative Education Program for At-Risk Students	3
VOE 614 Teaching in a Cooperative Education Program I	3
VOE 615 Teaching in a Cooperative Education Program II	3
VOE 616 Teaching in a Cooperative Education Program III	3
VOE 642 Science Content in the OWA/OWE Classroom	3
VOE 643 English/Language Arts Content in the OWA/OWE Classroom	3
VOE 644 Mathematics Content in the OWA/OWE Classroom	3
VOE 645 Social Studies Content in the OWA/OWE Classroom	3
VOE 646 English/Literature Arts Methods in the OWA/OWE Classroom	3
VOE 647 Mathematics Methods in the OWA/OWE Classroom	3
VOE 648 Social Studies Methods in the OWA/OWE Classroom	3
VOE 649 Science Methods in the OWA/OWE Classroom	3
VOE 664 Methods and Strategies for At-Risk Students	3
Total	39

Transition to Work Endorsement Transition to Work Endorsement may be earned or added to either an intervention specialist or vocational license. The endorsement training has adopted the transition standards from the Council of Exceptional Children (CEC) as the model curriculum for transition specialists in Ohio. The training is interdisciplinary, with involvement of the departments of educational leadership and human services. Contact (937) 775-3270, College of Education and Human Services, to obtain an application to have your transcripts evaluated for participation in the endorsement training. Specific questions about the endorsement process can also be answered by calling this number.

Required Course Work:

EDS 645 Career and Occupational Training for Students Needing Educational Intervention	3
EDS 651 Nature and Needs of Students with Moderate to Intensive Educational Needs	3
EDS 655 Nature and Needs of Students with Mild to Moderate Educational Needs	2-4
EDS 659 Communication and Consultation Skills for Educators	3
RHB 670 (91) Vocational Evaluation and Job Placement Techniques	4
VOE 706 Survey of Workforce Education	3
RHB 670 (91) Internship*	8
*2 hours per quarter for a total of 8	
Total:	26-28

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Electrical Engineering

Introduction

The Department of Electrical Engineering offers a program of graduate study leading to a Master of Science in Engineering (M.S.E.) degree with a major in electrical engineering. The M.S.E. program is broad in scope and emphasizes portable concepts in the design and analysis of complex physical systems using modeling, synthesis, and optimization techniques, and bridges interdisciplinary engineering areas such as controls, robotics, electronics, and communications. A Ph.D. in engineering with a major in electrical engineering is also available. For details, see Engineering Ph.D. Program.

Admission

To be considered for admission to the M.S.E.–Electrical Engineering program, students must first satisfy basic requirements of the School of Graduate Studies. This includes having a bachelor's degree in engineering or a related area with an overall undergraduate grade point average of at least 2.7 (on a 4.0 scale) or an overall undergraduate grade point average of at least 2.5 with an average of 3.0 or better for the last 90 quarter hours (60 semester hours) earned toward the undergraduate degree. International students must have a TOEFL score of at least 550 on the paper-based exam or 213 on the computer-based exam. In addition, the program requires students from non-ABET accredited undergraduate programs to submit general GRE test scores. Program admission decisions are based on complete application information including overall academic performance and standardized test scores where applicable.

Collaboration

The Dayton Area Graduate Studies Institute provides collaboration opportunities through the graduate engineering courses, faculty, and research resources of the Air Force Institute of Technology, the University of Dayton, The Ohio State University, and the University of Cincinnati.

Degree Requirements

Students should plan a program of study in consultation with a faculty advisor. The program of study should be finalized by the time the student completes 12 credit hours of graduate study.

The following requirements must be met for the Master of Science in Engineering degree with a major in electrical engineering:

1. Completion of 45 graduate credit hours (in courses numbered 600 or above) in a program of study approved by the Electrical Engineering department chair or the Electrical

Engineering Graduate Program Director.

2. At least 33 of the total 45 graduate credit hours must have an EE (electrical engineering) prefix.

3. At least 24 of the 45 graduate credit hours must be courses numbered 700 or above. Of these 24, 700-level credit hours, at least 16 must have an EE prefix.

4. At least 6 of the total 45 graduate credit hours must be from the following: EE 701, EE 702, EE 761, EGR 703, CEG 770, or any 600-700 level math/statistics class approved by the graduate advisor. A grade of "B" or better must be earned in the above class.

5. Students may choose either a thesis option or a 45 credit hours graduate course work option. Students employed as teaching or research assistants through the School of Graduate Studies must choose the thesis option. The thesis option consists of a research project satisfying all requirements of the School of Graduate Studies. The final report (thesis) must be completed and successfully defended in an oral examination before a faculty committee. Up to 12 credit hours of EE 899, Thesis, may count toward degree requirement of 45 graduate credit hours.

6. No more than nine credit hours of "C" grade may be applied toward the program of study. A maximum of four credit hours of independent study (EE 890) may be used toward the degree requirements.

Note: In any given quarter, a minimum of 50 percent of total registered credit hours must have an EE prefix.

Facilities

Graduate students have access to a wide range of computer systems interconnected by local and wide-area networks. Access is available to DEC Alpha servers and workstations, a Silicon Graphics (SGI) Onyx 2 and SGI, DEC and Sun Workstations, as well as numerous networked PCs and x-windowing terminals. Access is also available to the Ohio Supercomputer via the Ohio Academic and Research Network (OARNET).

Faculty

Professors

James E. Brandeberry (Emeritus), circuit and interface design, microprocessors, digital control, robotics and computer-aided design

Chien-In Chen, VLSI design, design testability, computer-aided design automation

Lang Hong, stochastic control systems, computer vision, image processing and pattern recognition, robotics, multiple sensor integration and target tracking

Marian K. Kazimierczuk, electronic circuit analysis, high-frequency tuned power amplifiers, power electronics

William S. McCormick (Emeritus), communication theory, bioengineering, electromagnetics, electro-optics

Kuldip S. Rattan, computer-aided design, digital signal processing and control, bioengineering, robotics

Arnab K. Shaw, communication theory and stochastic processes, estimation and detection, signal modeling and signal processing, simulation of communication systems

Raymond E. Siferd (Emeritus), integrated circuits, signal processing, microelectromechanical systems

Associate Professors

Fred Garber (chair), decision theory and pattern recognition with applications to automatic target recognition, communication theory with emphasis on modulation techniques for

multipath fading channel communications

Russell A. Hannen (Emeritus), electronic systems, control theory, stochastic processes
Pradeep Misra, multivariable control theory, decentralized system theory, robotics and applied numerical analysis, two-dimensional discrete-time systems and robust control theory

Kefu Xue, image processing and computer vision, stochastic processes and filtering, computer and communication systems, control and estimation theory

Assistant Professors

John M. Emmert, physical VLSI design, reconfigurable systems, VHSIC hardware description language (VHDL), verilog, physical design automation for VLSI

Zhigiang Wu, 3G cellular, CDMA systems, multicarrier architectures and frequency domain processing

Graduate Assistantship

Assistantships are available to students on a competitive basis. Students awarded assistantship support are eligible for stipends and remission of tuition fees. Interest in financial support should be indicated at the time of application.

Research

Research in electrical engineering includes the following areas: robotics and control systems, signal and image processing, power electronics, very large scale integrated (VLSI) circuits, and microwaves and antenna theory.

In the areas of robotics and control, faculty members are involved in conventional and fuzzy control of robot manipulators and calibration, robust control of uncertain systems, and computer-aided control design. Related research in system identification, multisensor integration, multidimensional filter design, and computer integrated manufacturing is also being conducted.

A number of faculty members are involved in research programs in the areas of signal and image processing, communications, and radar systems. Topics under investigation include real-time spectrum estimation, radar system analysis, real-time frequency and angle of arrival estimation, parametric modeling techniques, neural network based speech processing, color image processing, and automatic target recognition.

The activities in electronics include design of research in radio frequency power conditioning circuits involving hybrid circuit technology and power electronics.

VLSI research includes design of integrated circuits for signal processing and computer architecture using CMOS technologies as well as developing methods for built-in self-test of VLSI circuits. There is an associated research program in microelectromechanical systems (MEMS).

The research effort in microwaves and antennas is focused on CAD models for millimeter wave integrated circuits (MMIC), and analytical and numerical techniques for arbitrarily shaped, high-frequency printed circuits and conformal antennas.

Research at Wright State is not limited to the laboratory facilities on campus. Several industrial companies, laboratories, and Wright-Patterson Air Force Base are involved in joint research efforts with the university and have unique facilities that are available for faculty and graduate research.

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Engineering Ph.D. Program

Introduction

The College of Engineering and Computer Science offers a program of graduate study leading to the Doctor of Philosophy degree in engineering. The degree is awarded for demonstrated scholarly excellence in study and research that provides a significant contribution to specific areas in the field of engineering. In addition to faculty expertise, the program's strength lies in its unique multidisciplinary approach and outstanding opportunities for collaborative research.

Admission

Students may be admitted to the Ph.D. in Engineering Program with a bachelor's degree from an ABET-accredited program or a master's degree from an engineering program; satisfaction of the admission requirements as set forth by the School of Graduate Studies; and a record (transcripts, statement of research interests, GRE scores, and, if applicable, TOEFL scores) that indicates potential for a career in engineering research as evaluated by the program's admission committee. Students should come to the program with a strong understanding of engineering fundamentals. Interest in financial support should also be indicated at the time of application.

Collaboration

The program's six research focus areas are not intended to be disciplinary boundaries; rather, they are intended to focus and help define research efforts across disciplinary boundaries in a way that exploits collaborative opportunities.

The Dayton Area Graduate Studies Institute (DAGSI) provides collaboration opportunities through the graduate engineering courses, faculty, and research resources of the Air Force Institute of Technology (AFIT), the University of Dayton (UD), The Ohio State University (OSU), and the University of Cincinnati (UC). Students enrolled in Wright State's Ph.D. in engineering program are effectively considered resident students of both AFIT and UD. Additionally, WSU engineering Ph.D. students have the faculty and research resources of OSU and UC available to them, as well as courses on a transfer credit basis.

Degree Requirements

To obtain the Ph.D. in Engineering degree, the student must complete an approved program of study containing at least 135 quarter graduate credit hours beyond the bachelor's degree in engineering or equivalent degree, or 90 quarter graduate credit hours beyond a master's degree in engineering. At least 30 of these credit hours must be for graduate course work beyond a master's degree. The program must be completed with a

minimum grade point average of 3.0.

The following requirements must be satisfied to complete the requirements of the Ph.D. in engineering degree:

- Complete at least three courses from the following interdisciplinary core courses:

EGR 701 Linear Systems

EGR 702 Systems Engineering and Analysis

EGR 703 Computation Engineering Analysis

EGR 704 Design Optimization

EGR 705 Design and Analysis of Engineering Experiments

- Pass a written qualifying exam on three of the five interdisciplinary core courses.
- Complete courses in a major specialization area – at least 24 credit hours of 700-level or above courses must be taken in electrical, mechanical, materials, biomedical or human factors engineering, or in a research focus area.
- Complete courses in a breadth area – at least 12 credit hours of graduate credit must be taken in research focus areas that are outside the student's own.
- Complete at least 8 hours of graduate credits in mathematics (MTH) or statistics (STT). For students entering the program with a master's degree, the minimum is 4 graduate credit hours.
- Complete 6 credit hours of seminar courses.
- Complete at least 12 credit hours of course work in the focus area selected for the dissertation research. Note: This requirement might not involve additional hours since these hours could be included in the major or breadth requirements.
- Satisfy the collaboration requirement. At least 10 percent of the courses in a student's program of study will come from other Dayton Area Graduate Studies Institute (DAGSI) member institutions.
- Satisfactorily complete a Candidacy Exam and Research Proposal Defense as defined and judged by the student's dissertation committee. The dissertation research must fall into one of the six focus areas below:
 - o Computational Design and Optimization
 - o Controls and Robotics
 - o Electronics and Microwave
 - o Humans in Complex Systems
 - o Processing and Properties of Materials
 - o Sensor Signal and Image Processing
- Complete at least 45 credit hours of dissertation research and submit a doctoral dissertation. A maximum of 60 credit hours of dissertation research may be applied toward fulfilling the degree requirements.
- Submit at least one substantial, original paper based on the dissertation research to a refereed, archival journal before approval is granted for the dissertation.
- Present a one-hour dissertation seminar through the seminar course, EGR 891.
- Successfully defend the doctoral dissertation as judged by the student's dissertation

committee.

Facilities

A wide range of computing systems interconnected by both local and wide-area networks supports the program. Full Internet connectivity is available in campus labs. Equipment includes an NCR WorldMark 4800 Data Warehouse, DEC Alpha servers, Silicon Graphics (SGI) servers, Sun Microsystems servers, and SGI and Sun workstations as well as numerous PCs and X-Windowing terminals. Access is also available to the Ohio Supercomputer via the Ohio Academic and Research Network (OARNET) and Internet2.

Faculty

The program is a collaborative effort in the College of Engineering and Computer Science. Program faculty at Wright State reside in the departments of biomedical, industrial and human factors engineering; computer science and engineering; electrical engineering; and mechanical and materials engineering.

Graduate Assistantship

Teaching assistantships are available on a competitive basis for students who have established strong academic credentials and can demonstrate good communication and teaching skills. A number of departmental research assistantships are awarded annually based on exceptional performance or potential. Additional graduate support is available in the form of assistantships associated with research projects of the faculty. Scholarships are also available from the Dayton Area Graduate Studies Institute (DAGSI). Application forms for teaching and research assistantships are available from the department for students admitted to the graduate program. The online application form for DAGSI scholarships is available at www.dagsi.org.

Research

The program supports research in six focus areas: computational design and optimization, controls and robotics, electronics and microwave, humans in complex systems, processing and properties of materials and sensor signal and image processing.

Recent and current sources of research support include federal agencies, military agencies and local industries. Research at Wright State is not limited to on-campus facilities. Several industrial laboratories, Wright-Patterson Air Force Base laboratories, the Air Force Research Laboratory at Wright-Patterson Air Force Base and the laboratories of other local and regional universities are involved in joint research efforts with Wright State University.

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English Language and Literatures

Introduction

The Department of English Language and Literatures offers a flexible M.A. program designed to meet various needs, including those of prospective or practicing high school or college English teachers, ESL specialists, professional writers, and predoctoral students. The program is structured around work in language, literature, and writing. Courses are regularly available in the standard areas of literature, linguistics, composition/rhetoric, professional writing, and gender studies, as well as in nontraditional and interdisciplinary studies. Elective options allow students to design programs to meet their educational goals. In addition to the course and thesis options, special options allow students to combine courses in literature or language with work in creative writing, professional writing, technical writing, women's studies, or the teaching of writing and literature. The program in TESOL (Teaching English to Speakers of Other Languages), which includes linguistics and which may be pursued as an option, as an endorsement for certified public school teachers, or as a concentration in itself, prepares students to teach English to nonnative speakers. Details about the different offerings in the TESOL program are available in the departmental office. Interdisciplinary options allow work in programs like reading, communications, religion studies, or history. Internships within the various options prepare students for professional writing careers, for college teaching, or for positions in special collections, archives, and private and rare book libraries by offering on-the-job experience at appropriate sites. Full-time or part-time study is possible.

Admission

Regular

In addition to meeting the admission requirements of the School of Graduate Studies, applicants for regular standing in the M.A. program in English must present either an undergraduate major in English from an accredited college or university with a major average of 3.2 or better (on a 4.0 scale), or five appropriate upper-division courses in English with an average of 3.5 or better in those classes. Applicants must also present an academic paper on a subject in English using secondary sources and an overall undergraduate grade point average of 3.0 or better. Applicants with deficiencies in their undergraduate preparation may be required to take additional courses.

Conditional

Applicants whose overall grade point average is between 3.0 and 2.7 will be admitted to conditional standing by action of the English department graduate committee if they meet the other requirements above. To attain regular standing, students must be reviewed by the graduate committee and must earn a grade of B or better in each of the first three graduate courses (12 credit hours) taken.

Upon petition of the student seeking admission, reasonable exceptions to these

requirements may be made for sufficient cause.

International Students

It is essential that applicants for an M.A. in English be able to demonstrate their proficiency in written and spoken English. In addition to a minimum TOEFL score of at least 600 on the paper-based exam or 250 on the computer-based exam, applicants should submit (1) a sample of written English in the form of one or two school papers, one that the applicant regards as his or her best effort and perhaps a second showing a professor's marks and grade; and (2) a score on the Test of Spoken English of 250 or above (old test) or 55 or above (new test); the Test of Spoken English can be taken on the same date as the TOEFL test.

Nondegree students enrolled in English graduate courses are subject to review and approval by the English department graduate committee.

Advising

No student should take graduate work without departmental advisement. Both full- and part-time students should consult regularly each quarter with the director of graduate studies in English, the department's graduate advisor. Students taking graduate English courses who are not enrolled in the M.A. program should also consult the director of graduate studies to determine the courses that will best meet their needs.

Degree Requirements

The master's program in English comprises three concentrations. The concentration in literature enables students to increase their knowledge of English and American literature and to improve their critical skills and their grasp of scholarly method. The concentration in composition and rhetoric provides training in writing theory and pedagogy. The concentration in TESOL provides those who wish to teach ESL with thorough grounding in linguistics, language acquisition theory, and classroom practice. To meet these goals, the program uses three groups of courses:

The 600-level courses offer widely varied topics in literature and language and are especially suitable for students wishing to extend their knowledge of English and American literature, critical theory, writing pedagogy, and linguistics.

The 700-level core courses provide students with the necessary scholarly and critical skills for graduate-level work. All students in the concentration in literature are required to take both ENG 701 and 702; all students in the concentration in composition and rhetoric and the concentration in TESOL are required to take both ENG 700 and 711.

The 700-level seminar courses offer opportunities for intensive and specialized scholarly and critical study on a broad range of specific literary and linguistic topics; three seminars are required of all students in the program.

Additional elective courses are available in literature, language, and writing.

All students are required to submit a graduate portfolio.

Graduate Portfolio

During the last quarter in the program, a candidate for a degree must submit a portfolio that includes a cover essay, and an independent paper. Every Candidate must pass the graduate portfolio in order to receive a degree.

Details concerning the portfolio are available from the Department of English Language and Literatures.

Thesis

Students who elect the thesis option or the creative writing thesis option are required to enroll for 8 quarter hours of credit under ENG 799 and prepare a thesis or, in the case of creative writing students, a work of imaginative literature, under the supervision of an advisor approved by the director of graduate studies in English. This thesis will be read and approved by the candidate's committee, which will be chaired by the candidate's thesis advisor.

Certificate Programs in English

Wright State University offers graduate certificate programs in professional writing, technical writing, Teaching English to Speakers of Other Languages (TESOL), and Teaching English as a Foreign Language (TEFL). For more information about these certificates, contact the Department of English Language and Literatures, or visit <http://cola.wright.edu/Dept/ENG/>

Graduate Validation in TESOL

For information about the endorsement in TESOL, which enables the recipient to teach English as a second language to students in grades for which the candidate already holds or plans to earn a state of Ohio teaching licensure, students should contact the director of TESOL, the College of Education and Human Services, or visit <http://cola.wright.edu/Dept/ENG/tesol/>

Language Requirement

A reading knowledge of a modern foreign language is not required of any student but is strongly recommended for students contemplating additional graduate work at the doctoral level. An adequate reading knowledge can be demonstrated either by course work or an examination that certifies competence at the third year level.

Faculty

Professors

Peter S. Bracher (Emeritus), Victorian literature, English novel
Richard H. Bullock, director of writing programs
Norman R. Cary (Emeritus), world literature in English, non-Western literature
Robert M. Correale (Emeritus), Chaucer, Middle English literature
John F. Fleischauer (Emeritus), Renaissance literature, classical rhetoric
James R. Guthrie, American literature
O. Elizabeth Harden (Emerita), English romantic literature, English novel
Lillie P. Howard, African American literature, eighteenth-century novel, Jane Austen
James M. Hughes (Emeritus), American literature, American studies, popular culture
Lawrence E. Hussman (Emeritus), American literature, naturalism
Joe Law, composition and rhetorical theory, Victorian literature
Martin Maner, eighteenth-century English literature
Barry Milligan, nineteenth-century British literature, Romantic literature
Gary B. Pacernick, creative writing, modern poetry
Mary Beth Pringle, modern novel; women's literary studies; professional, business, and technical writing
Martha C. Sammons, technical writing, fantasy literature
Donald R. Swanson (Emeritus), nineteenth- and twentieth-century English literature, English novel
Thomas R. Whissen (Emeritus), modern British literature, comparative literature, English novel

Associate Professors

Angela Beumer Johnson, English education, integrated language arts

Cecile W. Cary (Emerita), Shakespeare, Renaissance studies
 Deborah Crusan, Director of ESL, TESOL, ESL, assessment, applied linguistics
 Chris Hall, ESL composition, computers and writing
 Lynette L. Jones, African American literature, American literature, women writers
 Henry S. Limouze (chair), Milton, seventeenth-century literature, linguistics
 Carol S. Loranger, Director of Graduate Studies in English, twentieth-century American literature, critical theory
 Marguerite G. MacDonald, Director of TESOL
 Nancy Mack, English education, writing theory
 Annette Oxindine, twentieth-century British literature, feminist criticism
 David Seitz, composition studies, rhetorical theory
 Alpana Sharma, postcolonial literature and theory, feminist literature and theory, critical theory, U.S. multi-ethnic literature

Assistant Professors

Heidi J. Breuer, Medieval literature, Arthurian literature, women in literature
 Erin Flanagan, Creative Writing
 John Haught, TESOL, education

Alex Macleod, Shakespeare, sixteenth-century literature, early modern drama

Financial Assistance

The Department of English Language and Literatures awards a limited number of graduate assistantships annually to qualified students. Assistants are usually assigned teaching responsibilities. Assistantships may be renewed for a second year, and assistants can complete the requirements for a degree in two academic years.

International students who wish to apply for teaching assistantships must demonstrate near-native proficiency in English by scoring 600 on TOEFL and 300 (old test) or 60 (new test) on the Test of Spoken English.

Course of Study

Program of Study: Concentration in Literature

Core Courses	8
<hr/>	
ENG 701 Methods and Materials of Research in Literature	4
ENG 702 Theory and Practice of Literary Criticism	4
Additional Courses	20
<hr/>	
Five 700-level courses, at least three of which must be seminars: ENG 720, 730, 740, 750, 760 (prerequisite ENG 701)	
Elective Options (see below)	20-22
Total	48-50

Program of Study: Concentration in Composition and Rhetoric

Core Courses	8
<hr/>	
ENG 700 Methods and Materials of Research in Writing and Language	4
ENG 711 Rhetoric	4
Additional Courses	20

Five 700-level courses: at least three must be seminars, and at least two must be seminars in writing and/or language: ENG 770, 780 (prerequisite ENG 700)	
Elective Options (see below)	20-22
Total	48-50

Program of Study: Concentration in TESOL

Core Courses	8
<hr/>	
ENG 700 Methods and Materials of Research in Writing and Language	4
ENG 711 Rhetoric	4
700-level Courses	20
ENG 770 TESOL Listening and Speaking	4
ENG 780 TESOL Reading and Writing	4
Three additional 700-level courses in writing or language, at least one of which must be a seminar 12 (prerequisite ENG 700)	
600-level courses in TESOL	24
<hr/>	
ENG 681 Theory of ESL	4
ENG 682 Grammatical Structures of English	4
ENG 683 Sociolinguistics	4
ENG 684 TESOL Methods and Materials	4
ENG 687 TESOL Assessment	4
ED 660 or 658* Practicum	4
Total	52

*ED 658 is required for Endorsement in TESOL.

Details about adding a TESOL endorsement to the M.A. in TESOL are available in the departmental offices. The endorsement in TESOL enables the recipient to teach English as a second language to students in grades for which the candidate is licensed. It is attached to the existing state of Ohio teaching licensure in a related field.

Elective Options

Students may satisfy the Elective Option requirement in either emphasis above by taking any one of the following groups of courses:

Course Option

Five additional courses at the 600 or 700 level 20

Interdisciplinary Option

One or two additional courses at the 600 or 700 level 4-8

Four or five graduate courses from outside the department 12-16

Communication Options

Organizational Communication Option

This track is designed to develop or enhance applied communications skills appropriate to work in organizations in the public and private sectors.

Required 16

COM 741 Principles and Application of Communication Theory

COM 643 Interviewing

COM 647 Organizational Communication

COM 651 Communication Consulting and Training

Elective(s) 4-6

One or two communication courses chosen by the student and approved by the departmental advisor.

Mass Communication Option

This track is designed to develop or enhance applied communication skills appropriate to work in the mass media of radio, television, print journalism, cable, and videotape.

Required 16

COM 741 Principles and Application of Communication Theory

COM 654 Feature Story Writing

COM 658 Editing for the Media

COM 662 Mass Media Law and Regulation

Elective(s) 4-6

One or two communication courses chosen by the student and approved by the departmental advisor.

Communications Studies Option

This track is designed to allow students to design a program of study that coherently complements the English curriculum and allows for the development of applied communication skills or the enhancement of theoretical sophistication in the communicative arts.

Required 4

COM 741 Principles and Application of Communication Theory

Elective(s) 16-18

Communication courses chosen by the student and approved by the departmental advisor.

Option in Teaching Writing and Literature

ENG 716 The Study of Literature 4

One of the following: 4-6

ENG 703/704 Teaching College Composition

ENG 717 The Study of Writing

One of the following: 4

ENG 711 Rhetoric

ENG 712 Style in Writing

ENG 717 The Study of Writing

One of the following: 4

ENG 721 Teaching Gender Studies

ENG 731 Teaching Major Writers

ENG 741 Teaching Literary Genres

ENG 751 Teaching Cultural Periods

ENG 761 Teaching Literary Problems

Supervised Classroom Teaching Experience: 4

ENG 795 Internship in Teaching or another course chosen in consultation with the graduate director

Thesis Option

Three additional courses at the 600 or 700 level 12

ENG 799 Thesis (total of 8 credits required) 8

Creative Writing Option

Creative Writing Seminar

ENG 692 Poetry Writing Seminar

or

ENG 693 Fiction Writing Seminar

Two courses chosen from those in creative writing (e.g. ENG 692, ENG 710)

Two more courses in selected other courses in creative writing (memoir, creative non-fiction, multi-genre folklore), creative process, contemporary literature, aesthetics or literary criticism

or

ENG 799 Thesis (8 hours)

Note: ENG 692 and 693 may count up to three times (12 hours) for credit toward the M.A. degree. While each may be taken three times for credit, no more than 12 hours of such credit will count on any student's program of study.

Archives and Records Management Option

HST 687 Introduction to Public History	4
HST 711 Introduction to Archives and Manuscripts	4
HST 714 Advances Programs in Archival Work	4
HST 730 Archival Records Technologies	2
HST 740 Information Management	2
HST 715 Historical Management Internship	5
HST 720 Project	1

Note: Upon successful completion of these courses, students are eligible for a certificate in Archives and Records Management from the Department of History. Students must fill out a certificate application with the Director of Public History.

Museum Studies Option

HST 687 Introduction to Public History	4
HST 712 Museum Administration and Collections	4
HST 712 Museum Interpretation and Exhibits	4
HST 725 Topics in Public History: Decorative Arts	4
HST 715 Historical management Internship	5
HST 720 Project	1

Note: Upon successful completion of these courses, students are eligible for a certificate in Museum Studies from the Department of History. Students must fill out a certificate application with the Director of Public History.

Technical and Professional Writing Option

Prerequisite: ENG 333/533 Fundamentals of Technical Writing

Both

ENG 600 Topics in Computers and Professional Writing	4
ENG 602 Professional Editing	4

Either

ENG 605 Topics in Technical and Professional Writing	4
--	---

or

ENG 604 Short Topics in Technical, Business, and Professional Writing	8
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Two of the following courses

*ENG 654 Feature Story Writing (also COM 654)

*ENG 658 Editing for the Media (also COM 658)

ENG 712 Style in Writing

ENG 717 The Study of Writing

*ENG 718 The Study of Professional Writing

ENG 711 Rhetoric (if not taken as a core course)

*ENG 795 Internship

MBA 740 Legal and Ethical Decision Making

MBA 750 Leading Teams and Organizations

MGT 703 Seminar in Human Resources Management

Note: Students completing the core courses and ENG 700 or 701, or any one of the starred (*) courses, with a GPA of 3.2 or better are eligible for a Certificate in Technical and Professional Writing upon successful completion of a certificate portfolio. See Director of Writing Programs for details.

Women's Studies Option

ENG 720 Women's Studies through Literature	4
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Four or five more graduate-level courses in English or other disciplines chosen from the list of approved graduate-level courses for WMS available from the director of Women's Studies. Four to eight credit hours of ENG 799 Thesis may substitute for two to three of these courses provided the thesis is focused on topics relevant to Women's Studies. 16

Completing the option can also lead to a graduate certificate.

Contact the office of Women's Studies or visit their Web site for more information about the certificate: <http://www.cola.wright.edu/wms/WMSPRGMS.HTM/>

TESOL (Teaching English as a Second Language) Option*

ENG 681 Theory of ESL 4

ENG 682 Grammatical Structures of English 4

ENG 683 Sociolinguistics 4

ENG 684 TESOL Methods and Materials 4

ENG 687 TESOL Assessment 4

ENG 660 Practicum 2

*These 22 hours constitute a certificate in TESOL as well as an option in the English M.A. program.

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Environmental Sciences Ph.D. Program

Introduction

A new Environmental Sciences Ph.D. program greatly expands upon graduate opportunities previously available at the master's level in the departments of Biology, Chemistry, Geological Sciences, and Physics (see departmental listings for Environmental Sciences Core option at the master's level). For updated information on the Environmental Sciences Ph.D., please call the Environmental Sciences Ph.D. Program Office at (937) 775-3273, or consult our Web site at: www.wright.edu/academics/envsci/.

This program leads to the Doctor of Philosophy degree in environmental sciences. This program is unique in its focus, building on a core group of program faculty with recognized expertise. The interdisciplinary Ph.D. program consists of three areas of excellence: 1) Environmental Chemistry and Toxicology; 2) Environmental Stressors; and 3) Environmental Geophysics Hydrogeology. These areas of excellence will provide students with high-demand environmental skills that are interdisciplinary-based yet well grounded in more traditional areas of environmental biology, chemistry, toxicology, geophysics and hydrogeology.

Admission

Entrance Requirements

A student will be admitted to the Environmental Sciences Ph.D. program with a baccalaureate degree or a master's degree from a supporting discipline (e.g., biology, chemistry, geology, or physics); satisfaction of the admission requirements as set forth by the School of Graduate Studies; and a record that indicates potential for a career in environmental sciences, as evaluated by the program's Admissions Committee (consisting of program faculty from participating departments). Students should enter the program with knowledge of one of the supporting sciences and having successfully completed biology, inorganic and organic chemistry, physics, statistics, and calculus. If a student is deficient in one of these areas, the Admissions Committee may recommend the undergraduate courses that should be completed during the first year. Determining deficiencies will be dependent on the student's area of focus.

Admitted students will be expected to demonstrate strong academic ability. Submission of Graduate Record Examination (GRE) scores is required. International students must have a TOEFL score of at least 600/250.

Degree Requirements

Students are asked to master a series of core courses, advanced content courses, seminars, and laboratory rotations (see Curriculum below). These serve as an

interdisciplinary base for the development of dissertation research. The institution awards the degree when the student satisfactorily completes the required work.

Waiver of Program Requirements

Students may petition to be exempted from all or part of the core curriculum, usually by scoring a passing grade on an appropriate proficiency examination. Students with a master's degree in a relevant field of study will be exempted from appropriate course requirements and 45 credit hours. Students may also petition for waiver of credit for previous graduate courses taken in another accredited program. Advanced course credit of up to 12 credit hours may be waived providing (a) the grade attained in each course is a B or better, (b) the course was taken within four years of the actual waiver, and (c) the course relates to the area of concentration chosen in this program. Petitions for obtaining credit for laboratory experiences may be made, subject to the same credit hour limitations and time constraints as for courses.

Petitions for exemption or waiver should be submitted to the program director, who will make the final decision, and who may, if necessary, seek a recommendation from the Curriculum Committee.

Dissertation

Each student chooses a faculty member to guide and direct the dissertation research on a daily basis. In addition, a supervisory committee is formed to periodically review the student's progress. The relationship between the student, the faculty advisor, and the committee is central to the program. The committee determines when the research may be considered complete and must approve the written dissertation, as well as the student's public defense of it. The committee certifies to the program director the competency and achievement of the dissertation.

Faculty

The program is a cooperative effort among departments within the College of Science and Mathematics. Program faculty at Wright State reside in the departments of Biological Sciences, Chemistry, Geological Sciences, and Physics.

Biological Sciences Department

James P. Amon, wetland ecology, wetland microbial ecology, bioremediation, phytoremediation, wetland restoration
Larry G. Arlian, medical entomology, immunoparasitology, physiology
Hunting W. Brown, environmental management, environmental law
G. Allen Burton, aquatic toxicology, ecological risk assessment
Wayne W. Carmichael, aquatic biology/toxicology, cyanobacteria toxicology, biotechnology
Donald Cipollini, Jr., plant physiological ecology, molecular and chemical ecology
David L. Goldstein, comparative physiology of osmoregulation, physiological ecology, ornithology
Keith A. Grasman, wildlife toxicology and immunotoxicology
Dan E. Krane, molecular and genome evolution; human population substructuring
James R. Runkle, plant ecology, general ecology
Yvonne Vadeboncoeur, aquatic ecology, ecosystem ecology
Thomas Van't Hof, comparative physiology, endocrinology, physiological ecology and chronobiology
Michele G. Wheatly, crustacean physiology, calcium transport
Timothy S. Wood, invertebrate ecology, biology of freshwater bryozoans

Chemistry Department

Roger K. Gilpin, Mead Endowed Chair of Environmental Sciences, analytical chemistry
Steven R. Higgins, environmental chemistry, surface-solute interactions, contaminant transport dynamics
Audrey E. McGowin, analytical and environmental chemistry
Paul G. Seybold (chair), physical and biophysical chemistry

Geological Sciences Department

Abinash Agrawal, contaminant hydrogeology, site remediation
Cindy Carney, carbonate petrology, carbonate sedimentology, diagenesis
Songlin Cheng, hydrogeochemistry, isotope hydrology, geographic information systems
David Dominic, clastic sedimentology, stratigraphy
Ernest C. Hauser, near surface geophysics, subsurface imaging
Robert W. Ritz Jr., hydrogeology, hydrogeological modeling
Doyle Watts, seismic data acquisition and processing, astrogeology, remote sensing

Physics Department

Doug Petkie, spectroscopy, chemical physics, remote sensing

Financial Assistance

Graduate assistantship and fellowship support is available to students on a competitive basis. Students awarded support are eligible for stipends and remission of tuition fees the first two years. The Fellowship is for \$17,612 (plus tuition remission) on a 12 month basis. The first year is a Research Assistantship (12 months), the second a Teaching Assistantship (9 months), and then your major professor supports you with their research funds for the remaining time of your Ph.D.

Also available is the new YSI Environmental Sciences Ph.D. Fellowship. The Research Fellowship is for a minimum of \$20,000 plus tuition and fee waivers. This prestigious award will be given to a qualified applicant accepted into the Environmental Sciences Ph.D. program at WSU. Students may apply with either a B.S. or M.S. degree from a relevant major (e.g., biology, chemistry, geology, physics, toxicology, environmental health sciences). The program provides a strong interdisciplinary focus both in the course work and dissertation research, with a focus on contaminant fate and effects in three areas of faculty expertise: environmental toxicology and chemistry, environmental stressors, and environmental geophysics and hydrogeology. Review of applications for the 2004-2005 Academic Year will begin in January 2004 and continue until the position is filled.

Students with financial assistantships must register as a full-time student each quarter (at least 15 credit hours of relevant graduate courses).

Course of Study

Fall

Env. Resource Sustainability	3
Env. Policy & Regulation	3
Watershed Processes	3
Geological & Env. Applic. Of GIS	4
Intro. To Research	1
Env. Problem Solving	2

Winter

Subsurface Processes	3
Env. Stressor Identification	3

Intro. Environmental Statistics	4
Remote Sensing: Geological & Env. Applic.	4
Env. Management and Economics	2
Spring	
Environmental Statistics	4
Risk Assessment & Communication	4
Env. and Research Ethics	1-2
All Quarters	
Lab Rotation I	4
Lab Rotation II	4
Perspectives in Env. Sciences	1
Independent Topics & Research	1-4
Internship Option	5 max.
Advanced Electives	15-21
Dissertation Research	45-51
Total	135

*Two electives must be from outside the home department.

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Geological Sciences

Introduction

The Department of Earth and Environmental Sciences offers two master's degree programs—the Master of Science and Master of Science in Teaching (Earth Science). The Master of Science program prepares students for careers as professional geoscientists in industry, government, or education, or for continued graduate study. Current program concentrations are in geological sciences, geophysics, environmental geochemistry, environmental geology, environmental sciences, and hydrogeology. The Department of Earth and Environmental Sciences is widely recognized for its applied graduate programs and maintains a strong emphasis on practical field applications. A nonthesis M.S. degree option is available for individuals seeking to gain expertise in geological sciences who already have an M.S. or Ph.D. degree in science or engineering from an accredited university, and who have completed a research thesis or dissertation. The Master of Science in Teaching (Earth Science) program is designed for K–12 educators seeking to add content and education courses in Earth/Space Science that may lead to Ohio Early Childhood Education, Middle Childhood, or Adolescent Young Adult (AYA) licensure in Earth/Space Science; or for presently certified or licensed K–12 teachers seeking to improve their knowledge of Earth/Space Sciences. For additional information on the department and its programs, you might wish to consult our Web site at www.wright.edu/geology/.

In addition to the above programs, the department supports the Interdisciplinary Science and Mathematics Master of Science in Teaching (M.S.T.) program offered by the College of Science and Mathematics.

Admission

A candidate for the Master of Science degree (geological sciences) must possess a Bachelor of Science degree or Bachelor of Arts degree from a recognized institution. Students must have a strong background in geological sciences with appropriate courses in support sciences, mathematics, and computer science. Students not meeting these requirements may be admitted with deficiencies. A candidate for the Master of Science in Teaching degree (earth science) must possess a Bachelor of Arts or Bachelor of Science degree from a recognized institution.

Degree Requirements

Master of Science in Geological Sciences

In addition to the requirements of the School of Graduate Studies, the following requirements

of the Department of Earth and Environmental Sciences must be met:

1. Completion of 45 or more graduate credit hours apportioned in the following way: at

least nine hours of thesis credit and at least 36 additional hours of graduate credit in an instructional program approved by the candidate's graduate committee, including colloquia or seminars as required by the department

2. Submission of an approved thesis based on original research

3. Satisfactory performance in a final thesis defense near the end of the degree program
Individual programs of study tailor course work, seminars, and research guided by faculty to the professional and educational goals of each student. Each graduate student is advised by a committee of three faculty members. Ultimate responsibility for fulfilling all requirements rests with the student.

Environmental Sciences

The Environmental Sciences concentration was developed by the College of Science and Mathematics to promote interdisciplinary research. Students working toward an M.S. degree in the Department of Earth and Environmental Sciences under this concentration are required to complete 45 graduate quarter hours, including environmental sciences core courses and additional geology and supporting science courses. A student in the Department of Earth and Environmental Sciences can elect to pursue an environmental sciences concentration that combines courses and research in geology, biology, and chemistry. For students who select this option, the advisory committee includes a member from outside the department, e.g., a member of the biology or chemistry faculty. And, in addition to meeting the general requirements for the Master of Science degree in geological sciences, course requirements for the environmental core include:

- Environmental chemistry
- Geologic and environmental applications of geographic information systems
- Environmental statistics
- Risk assessment
- Environmental sciences seminar
- Two environmental sciences electives outside the geological sciences department

Environmental Sciences Ph.D. Program

In addition, students in geological sciences can pursue an interdisciplinary Ph.D., in Environmental Sciences concentrating on Environmental Geophysics and Hydrogeology. See the separate listing for that program or consult the Web site www.wright.edu/academics/ieq/.

Master of Science in Teaching (Earth Science)

In addition to the requirements of the School of Graduate Studies, the following requirements of the Department of Earth and Environmental Sciences must be met:

1. Completion of a minimum of 45 graduate credit hours apportioned in the following way: a maximum of 12 credit hours in the College of Education and Human Services, 6 credit hours of project credit, 9 hours of geology field-based courses, and additional graduate courses approved by the student's graduate committee to fulfill the credit hour requirement

2. Submission of an approved project report

3. Satisfactory presentation of an approved project

Because graduate students working toward this degree are expected to have a wide range of backgrounds, programs must be designed on an individual basis. For instance, students may choose to focus on the environment by taking a suite of environmental sciences courses combined with a related environmental project. Graduate students are guided by an advisory committee consisting of two geological sciences faculty members and one education faculty member, who are responsible for advice concerning the academic program including the project, the number of education courses, and the selection of other courses to fulfill candidacy requirements. Ultimate responsibility for fulfilling all requirements rests with the student.

Facilities

The Department of Earth and Environmental Sciences is housed in the Brehm Laboratory. Department facilities include 12 teaching and research laboratories and a wide variety of specialized facilities. The department's research facilities and equipment are outstanding and lend critical support to its applied programs. The Geological Sciences computer room provides PCs and Macs for GIS, geological, hydrological, geophysical, and remote sensing applications.

In addition to the laboratory facilities described here, the department has an exceptional array of field equipment for faculty and student use. This equipment includes truck-mounted drilling rigs, trucks, vans, and other vehicles for extensive field research. Two technicians are employed to maintain and improve equipment capability of both field and laboratory equipment.

The mineralogy/crystallography/petrology laboratories feature reference and display collections of minerals and rocks, Zeiss universal microscopes, and several student model microscopes. A Logitech thin-sectioning machine and facilities for mineral separations are available.

The sedimentology and sedimentary petrology laboratory is equipped with a Wild stereomicroscope with drawing attachment, Nuclide Cathodoluminescence Luminoscope, Zeiss Universal petrographic microscopes, Nikon 35mm macrophotography equipment, an interactive video-computer microscope system, UV luminescence equipment, complete darkroom facilities, an air abrasive unit, and the petrologic equipment listed previously. Both PC- and Macintosh-based software are available for creating maps and cross-sections and for statistical analysis. Current research projects include the study of Mississippian oolitic limestones in the central Appalachian Basin, Pleistocene and Holocene carbonate rocks and sediments in the Bahamas, facies analysis of Paleozoic fluvial sandstones as well as Pleistocene glacial sediments, and the effects of sedimentary structures and facies distributions on ground water flow.

Several laboratories serve the needs of hydrogeology and environmental geology. The field laboratory supports equipment for sampling or in situ determination of both the physical and the chemical properties of hydrogeologic systems, including drilling rigs with numerous support vehicles, sample extraction apparatus, in situ sampling probes with automated digital data acquisition systems, and downhole geophysical logging tools. Two field sites with dedicated hydrogeological monitoring equipment are maintained. Through the hydrogeochemistry laboratories, access is possible to a complete line of analytical instrumentation for the analysis of aqueous chemical parameters, including ion chromatography, VIS/UV spectrophotometry, gas chromatography, and facilities and vacuum extraction lines for stable isotope sample processing. An organic geochemistry lab is equipped with the latest Hewlett-Packard 6890 series gas chromatograph and a Hewlett-Packard 6890 series automatic sampler, managed by a HP VL3 pentium computer system and HP GC Chemstation software.

Current research includes the theory and the application of ground-water flow and pollution modeling, hydrogeochemical modeling, theory and application of environmental isotopes for ground-water age dating and for the investigation of hydrologic systems, organic contaminant fate and transport, insular water resource planning and management, ground-water buffering of acid precipitation, acid-mine drainage, hydrogeology and diagenesis of carbonates, non-point source pollution (Sycamore Farms Experimental Watershed), wetland hydrogeology and hydrogeochemistry, hydraulics of fractured rocks, and the characterization of hazardous waste repositories.

The facilities and equipment supporting the geophysics concentration include a 120-channel truck-mounted seismic reflection system, geophysical work stations for

seismic modeling, Sun stations running PROMAX for seismic data processing and Paradigm for seismic interpretation, three gravity meters (LaCoste-Romberg and Worden), a magnetic gradiometer system, a ground-penetrating radar system, a 2D/3D resistivity imaging system, a 48-channel engineering seismograph, an elastic wave generator, and a precision GPS survey system.

Research on near surface geophysical studies related to environmental and engineering problems is active. Additional research includes gravity, magnetic, and seismic refraction and reflection studies relating to the geology of Ohio and West Virginia. Field work in tectonics and structural geology is concentrated in the Appalachian Mountains, Western Ohio, and the Ohio River Region.

The Department of Earth and Environmental Sciences has a remote sensing laboratory Sun Sparc 80 and personal computers with remote sensing data processing software and has the capability to download and process a variety of satellite image formats. The lab includes a large format plotter suitable for large scale mosaics.

Excellent cooperative academic and research relationships exist with other departments on campus and with surrounding colleges and universities in southwestern Ohio. The department has wide-ranging capabilities and can accommodate through its facilities a very broad range of research ideas.

Faculty

Professors

C. Bryan Gregor, geochemical cycles, mass age distribution of sediments
Byron R. Kulander (Emeritus), structural geology, geophysics
Benjamin H. Richard (Emeritus), field geology, exploration geophysics
Paul J. Wolfe (Emeritus), exploration geophysics

Associate Professors

Abinash Agrawal, contaminant hydrogeology, site remediation
Cindy Carney (interim chair), carbonate petrology, carbonate sedimentology, diagenesis
Songlin Cheng, hydrogeochemistry, isotope hydrology, geographic information systems
David Dominic, clastic sedimentology, stratigraphy
Ernest C. Hauser, near surface geophysics, subsurface imaging
Robert W. Ritzi Jr., hydrogeology, hydrogeological modeling
William Slattery, teacher education, sequence stratigraphy
Assistant Professor
Doyle Watts, remote sensing, seismic data acquisition and processing, astrogeology

Financial Assistance

Graduate teaching assistantships and graduate assistantships carrying stipends and fee remissions are awarded. Research assistantships connected with supported research projects and research contracts are also available. Tuition scholarships are available in special cases.

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History

Introduction

The purpose of the Master of Arts program in history is to provide broad but intensive training for students who intend to pursue careers as professional historians, whether in teaching, research, or archival or historical preservation fields, or for those who desire strong historical backgrounds for other vocational or avocational objectives. The program offers opportunities for specialized study and research, but without neglecting the breadth that characterizes historical work at its best. In recognition of the fact that students' interests and goals are varied, the program provides a choice of three plans (see the following details), all of which lead to a Master of Arts degree. This program is approved by the Ohio Board of Regents.

Admission

Decisions regarding admission to the graduate program of the Department of History, continuation in the program, and dismissal from it will be made by the department's graduate studies committee. The candidate must meet the requirements of the graduate school, hold a bachelor's degree from an accredited institution, and meet a minimum grade point average (3.0 or better in history and 3.0 overall). Each candidate shall also include a statement of goals, three letters of recommendation, and a writing sample. In special cases, a candidate with a grade point average below 3.0 may be admitted on conditional status with the approval of the department's graduate studies committee. Conditional status may be granted upon a favorable committee recommendation based upon the candidate's application and interview with a director of the graduate program. A strong candidate will have substantial undergraduate course work in history, or a major in the field. An applicant without such a background may enter the program but may be required to take deficiency work as prescribed by the graduate studies committee. A graduate student in any college of the university may take up to three graduate history courses without prior approval of the Department of History. Any student desiring more than 12 credit hours of graduate history courses must secure the approval of a director of the graduate program.

Degree Requirements

The Master of Arts degree can be earned through one of three plans. The Thesis Plan is intended primarily for those students who expect to continue graduate work or who need or desire the full range of professional experience, including intensive research and writing. It assures training in research techniques and the preparation of scholarly papers, culminating in the submission of a thesis. The Course Intensive Plan is intended primarily, but not exclusively, for students not expecting to pursue doctoral studies. The Public History Plan is a program designed for graduate students who are primarily interested in careers in historical or archival administration, or in museum management. It provides

students with both theoretical and practical training in these areas.

For the purpose of planning advanced courses and seminars, each student should consult a graduate director regularly. A student receiving two Cs will be placed on academic probation and will be required to appear before the graduate studies committee to justify his or her continued participation in the program. Upon review of the student's progress, the graduate studies committee may dismiss the student from the program.

Faculty

Professors

Carl Becker (Emeritus), United States: Ohio, Civil War, World War II

Jacob H. Dorn, United States: 20th century, intellectual, religious

Edward F. Haas, United States: South, urban and public history, Civil War, 20th century

Allan Spetter (Emeritus), United States: diplomatic

Associate Professors

Martin Arbagi (Emeritus), Roman, Medieval, and Byzantine

Susan B. Carrafiello, modern Europe: Italy

Carol Engelhardt, modern Europe: Great Britain

Nancy Garner, United States: Women's, West

Barbara Green, United States: African American, South, Reconstruction

Paul D. Lockhart, early modern Europe: Scandinavia

Marjorie McLellan, United States: Public History, social

Edgar Melton, Modern Europe: Russia, World Wars

John W. Sherman, Latin America: Mexico, 20th century

Robert Sumser, modern Europe: intellectual, Germany

Roy L. Vice, early modern Europe: Reformation, Germany

Tsing Yuan (Emeritus), East Asia

Assistant Professors

Joyce Kannan, Africa: Gender and Development

Kathryn Meyer, Asia: China, Japan, India

Harvey M. Wachtell (chair), United States: colonial, revolutionary, Ohio

Visiting Assistant Professors

Robert Christman, Reformation Europe

Erika Lindgren, Ancient and Modern Europe

Financial Assistance

The Department of History awards a limited number of tuition scholarships and assistantships annually to qualified students. Assistants are usually assigned to faculty members to aid in research, class preparation, and for a variety of other services. Assistants in Public History are often assigned to Archives. Assistantships may be renewed for a second year. Ordinarily, an assistant can complete requirements for a degree in two academic years.

Course of Study

Thesis Plan Requirements

Students must meet all requirements of the School of Graduate Studies, show a reading knowledge of a foreign language when deemed necessary for thesis research as determined by their thesis advisor, and successfully defend a thesis. Students select two fields of concentration, totaling 40 credit hours. Each field of concentration will have a minimum of 16 hours of course work, with a minimum of two 700-level courses. A minimum of 20 hours must be 700-level course work, including the required HST 700 (Historical Methods). In addition, near the end of their studies, and after submitting a prospectus approved by the student's thesis committee, students will register for 4-12 hours of HST 799 (thesis). HST 799 will conclude with a successful oral defense of the thesis before a panel of three professors, chaired by the thesis advisor. Students may petition the graduate studies committee to grant exceptions to field of concentration or 700-level course requirements.

Possible fields of concentration are as follows:

1. United States to 1877
2. United States since 1877
3. Ancient World and Europe to 1600
4. Europe since 1600
5. Africa, Asia, and Latin America

History Courses Numbered 700-709	20 (minimum)
History Courses Numbered 600	20
History 799 Thesis	4-12
Total	52

Course Intensive Plan Requirements

Students must meet all requirements of the School of Graduate Studies. Students select two fields of concentration (see above), totaling 52 hours. There must be a minimum of 20 hours in each field of concentration; there should be a minimum of 12 hours of 700-level courses in each field of concentration as well as the required HST 700 (Historical Methods). Students must seek the consent of a graduate director before taking course work outside their fields of concentration. Students may petition the graduate studies committee to grant exceptions to field of concentration or 700-level course requirements. The student will present a research paper to the graduate studies committee for approval in the final quarter of enrollment. The research paper will demonstrate the student's ability to work in primary historical sources, and communicate in writing, with notes and bibliography according to departmental standards.

History Courses Numbered 700-709	28 (minimum)
History Courses Numbered 600	24
Total	52

Public History Plan Requirements

The Public History Plan Program at Wright State University integrates a traditional American history curriculum with courses taught by professionals in archives, museum studies, and historic preservation, an internship, and a project leading to a Master of Arts degree in history with a specialization in public history.

Required Academic Core Courses (24 credits)

Public historians are historians who apply their skills and knowledge outside of academic or classroom settings. Public history students are required to complete 24 hours of American history courses including at least 12 hours of seminar and 12 hours of 600-level courses in American history. Students completing a public history program must complete a course that introduces historical research methods (HST 700). Public history students will complete 56-58 credit hours.

Required Public History Courses	18
Public history students must complete the following core requirements:	
HST 687 Introduction to Public History	4
HST 710 Introduction to Archives and Manuscripts	4
HST 712 Museum Administration and Collections	4
HST 715 Historical Management Internship	5
HST 720 Project	1
 Advanced Public History Course Requirements	 8
Students must complete eight credit hours in advanced Public History courses. Students may choose breadth over specialization by taking four credits each in Museum Studies and Archives and Records Management. Students will also have the option to specialize and take eight advanced credit hours in either Archives or Museum Studies.	
HST 714 Advanced Problems in Archival Work	4
HST 730 Archival Records Technologies	2
HST 740 Information Management	2
HST 713 Museum Interpretation and Exhibits	4
HST 725 Topics in Public History: Decorative Arts	4
 Electives	 6-8
Students may select from additional public history or academic history courses including the following Public History electives. With the approval of the Public History Program director, students may take courses in an outside discipline such as art, anthropology, urban and geography, English, education, and business.	
HST 711 State and Local History	2
HST 716 Historic Preservation	4
HST 725 Topics in Public History	4
HST 717 Practica: Archives and Museums	1-2
HST 688 History and New Media	4
 Total	 56-58

Certificate in Museum Studies or Archives and Records Management

Students admitted to selected graduate programs at Wright State University and students who have received a graduate degree in history or in selected disciplines may choose to complete a certificate in either museum studies or archives and records management. Students who have previously earned a graduate degree must be admitted to the School of Graduate Studies with nondegree status. Students wishing to pursue either certificate program must fill out a certificate application with the director of public history.

Required Courses for a Certificate in Museum Studies	
HST 687 Introduction to Public History	4
HST 712 Museum Administration and Collections	4
HST 713 Museum Interpretation and Exhibits	4

HST 725 Topics in Public History: Decorative Arts	4
HST 715 Historical Management Internship	5
HST 720 Project	1
Total	22

Required Courses for a Certificate in Archives and Records Management

HST 687 Introduction to Public History	4
HST 711 Introduction to Archives and Manuscripts	4
HST 714 Advanced Problems in Archival Work	4
HST 730 Archival Records Technologies	2
HST 740 Information Management	2
HST 715 Historical Management Internship	5
HST 720 Project	1
Total	22

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Human Factors Engineering

Introduction

The Department of Biomedical, Industrial, and Human Factors Engineering offers a program of graduate study leading to a Master of Science in Engineering (M.S.E.) degree with a major in human factors engineering. The M.S.E. program is broad in scope and emphasizes portable concepts in the design and analysis of complex physical systems using modeling, synthesis, and optimization techniques, and bridges interdisciplinary engineering areas such as controls, robotics, electronics, and communications. The M.S.E. in Human Factors Engineering can also be obtained through E*Course classes. Additional information for the E*Course program can be found at www.cs.wright.edu/bie/dl. A Ph.D. in engineering with an emphasis in the human factors engineering area is also available. For details, see Engineering Ph.D. program.

Admission

To be considered for admission to the M.S.E.-Human Factors Engineering program, students must first satisfy basic requirements of the School of Graduate Studies. This includes having a bachelor's degree in engineering or a related area with an overall undergraduate grade point average of at least 2.7 (on a 4.0 scale) or an overall undergraduate grade point average of at least 2.5 with an average of 3.0 or better for the last 90 quarter hours (60 semester hours) earned toward the undergraduate degree. International students must have a TOEFL score of at least 550/213 or an IELTS score of at least six. In addition, the program requires students from non-ABET accredited undergraduate programs to submit general GRE test scores. Program admission decisions are based on complete application information including overall academic performance and standardized test scores where applicable.

Collaboration

The Dayton Area Graduate Studies Institute provides collaboration opportunities through the graduate engineering courses, faculty, and research resources of the Air Force Institute of Technology, the University of Dayton, The Ohio State University, and the University of Cincinnati.

Degree Requirements

Students should plan a program of study in consultation with a faculty advisor. The program of study should be finalized by the time the student completes 12 credit hours of graduate study.

The following requirements must be met for the Master of Science in Engineering degree:

1. Completion of 45 graduate credit hours in courses that have prior approval by a BIE graduate advisor.
2. At least 36 of the total 45 graduate credit hours must be engineering or computer engineering courses. At least 24 of these must be human factors engineering courses.
3. At least 24 of the 45 graduate credit hours must be courses numbered 700 or above.
4. At least 6 of the total 45 graduate credit hours must be courses in mathematics, statistics, or computer science.
5. Students may choose either a thesis option or a 45 credit hours graduate advanced course work option. The thesis option consists of a research project satisfying all requirements of the School of Graduate Studies. The final report (thesis) must be completed and successfully defended in an oral examination before the major committee. Up to 12 credit hours of 899, Thesis, may count toward degree requirement of 45 graduate credit hours.

Facilities

Graduate students have access to a wide range of computer systems interconnected by local and wide-area networks. Access is available to three DEC Alpha AXP 4000/610's; numerous Sun, DEC, and Silicon Graphics file servers and workstations; X-windowing terminals; and personal computers. Access is also available to the Ohio Supercomputer via the Ohio Academic and Research Network (OARNET). In addition, each graduate faculty member has a well equipped research laboratory with a network of heterogeneous computers and peripherals. Please visit <http://www.cs.wright.edu/bie/> for details. Also see section on Computing and Telecommunications Services (CaTS).

Faculty

Professors

Jennie J. Gallimore, human factors engineering, human computer interaction, virtual environments, aviation human factors, medical systems

S. Narayanan (Chair), modeling, interactive systems, simulation, decision aiding

Chandler A. Phillips, human control systems, biomechanical modeling, orthotic and ergonomic engineering

Malcolm L. Ritchie (Emeritus), human factors engineering, engineering psychology

Associate Professor

Raymond R. Hill, development and application of optimization, meta-heuristics, and simulation methodologies to problems in various domains such as pilot disorientation, logistics, and resource planning

David B. Reynolds, prosthetics/orthotics engineering, biomechanics, biomimetics, pneumatic muscle, biofluid mechanics

Assistant Professors

Frank W. Ciarallo, modeling of uncertainty in systems, vehicle traffic systems, inventory and supply chain systems

Samuel A. Lippert, orthopedic biomechanics, soft tissue biomechanics, cellular biomechanics, molecular biomechanics and biomedical device design

Xinhui Zhang, large scale linear and integer optimization in manufacturing, logistics, service management, and engineering design

Lecturer

David M. Kender, biomedical electronics, human factors engineering

Graduate Assistantship

Assistantships are available to students on a competitive basis. Students awarded assistant-ship support are eligible for stipends and remission of tuition fees. Interest in financial support should be indicated at the time of application.

Research

Faculty research interests focus on three primary areas. Typical activities within these areas include:

Human-Computer Interaction, Human Factors in Aviation, and Usability

- Design of information retrieval systems using cognitive modeling techniques
- Biologically inspired adaptive aiding
- Models and multi-model interfaces for supervisory control
- Development of a model for implementing usability early in the design process
- Modeling human performance through soft computing techniques
- Operational modeling of spatial disorientation effects in flight
- Aviation systems
- Visual information presentation
- Spatial orientation
- Virtual environments
- Adaptive displays
- Display measurement
- Human factors medical systems and processes

Ergonomics and Orthopedic Biomechanics

- Biomechanical modeling in the context of human-machine system design
- Quantitative modeling of the human task informatic transfer function, including the underlying strategy
- Design and optimization methods for industrial ergonomic tasks.

Modeling and Simulation-Based Optimization

- Interactive optimization and logistics systems analysis
- Modeling of swarms of unmanned aerial vehicles
- Modeling of uncertainty in systems
- Large scale linear and integer optimization in manufacturing
- Logistics
- Vehicle traffic management
- Applications in logistics, transportation, manufacturing and supply chain management
- Heuristic development and application for design and optimization

Research at Wright State is not limited to the laboratory facilities on campus. Several industrial companies, laboratories, and Wright-Patterson Air Force Base are involved in joint research efforts with the university and have unique facilities that are available for faculty and graduate research.

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Humanities

Introduction

The Master of Humanities program in the College of Liberal Arts provides opportunities for interdisciplinary study for students who wish to pursue individually designed curricula in the humanities. Study leads to a Master of Humanities (M.Hum.) degree.

The program's primary goal is scholarly, intellectual development, and thus serves diverse personal and professional needs. High school teachers who want a content-emphasis graduate degree, persons who seek a career change or a post-retirement graduate degree, and persons who seek a second master's degree in a complementary or even a contrasting field are among the many people who may find this program uniquely suited to their needs. Graduates of specialized undergraduate programs may welcome the breadth provided by this master's degree. Part-time study is the norm; full-time study is also possible.

At the core of the program are three seminars that introduce students to the scope and methodologies of scholarly research in the humanities. In cooperation with the program director, students design a personal program of study to meet their individual academic goals. The program thus has both a specific focus on the humanities and wide flexibility within the broad curriculum of the College of Liberal Arts. While anchored in the humanities, the program encourages selection of courses from supplemental areas of study.

The range of possible programs of study is intentionally wide. A student might choose to study the role of music in African American culture or the status of women in American religion. Another student might study the interrelations of art and philosophy in modern German (or French) culture or the politics and rhetoric of Cicero. The only expectation is that students pursue an interdisciplinary program of study having a focus in the humanities.

Students are encouraged to participate in specialized programs available at the university. For example, students may design a Master of Humanities degree in conjunction with the Women's Studies Program or the African and African American Studies Program. It is also possible for a student to receive a certificate in Women's Studies in conjunction with a Master of Humanities degree. For more information on the Women's Studies certificate, see the Women's Studies Graduate Certificate Program.

Additional information about the Master of Humanities Program and a program handbook detailing policies and requirements are available upon request in the Master of Humanities Office. For more information, see our Web site at <http://www.cola.wright.edu/hum/>

Admission

Applicants for admission to the Master of Humanities program must present a bachelor's

degree from an accredited college or university with a minimum of 30 semester or 45 quarter hours in liberal arts disciplines and a minimum grade point average of 3.0 (on a 4.0 scale) in their undergraduate work. Students who have deficiencies in their undergraduate work may be asked to take additional courses.

Additionally, all prospective students are asked to submit an essay containing the following: 1) a description of their academic background both within the humanities and beyond, 2) a description of their professional background, 3) an explanation of their reasons for pursuing a graduate degree, and 4) an explanation of why they wish to pursue graduate study in the humanities.

Students who do not meet requirements for regular admission may be admitted to the program on conditional status.

A maximum of three courses, normally not to exceed 12 quarter hours of credit, may be accepted in transfer for work completed at the master's level at other accredited institutions. Such transfer credits are subject to approval by the program as well as to the regulations of the School of Graduate Studies.

Advising

Upon admission to the program, each student is advised by the director of the program. While enrolled in the program, all students need to consult with the director at least once each term. In consultation with the director, students will select courses consistent with their programs of study, develop preliminary ideas for their capstone projects, and choose faculty to direct those projects.

Degree Requirements

The program is designed primarily for part-time students; therefore, it incorporates a minimum of prerequisites and sequences and a variety of options. As a result, it is flexible enough to accommodate students who must balance graduate education with the demands of a full-time job.

Faculty

Participating faculty are drawn from departments throughout the College of Liberal Arts. A list of affiliated faculty and their respective areas of expertise is available upon request in the Humanities Office and from the internet address <http://www.wright.edu/cola/hum/>

Director

Ava Chamberlain, associate professor of religion

Financial Assistance

The university awards a limited number of graduate assistantships annually to qualified students. Prospective students may apply to the School of Graduate Studies or to the program director.

Course of Study

The program is designed primarily for part-time students; therefore, it incorporates a minimum of prerequisites and sequences and a variety of options. As a result, it is flexible enough to accommodate students who must balance graduate education with the demands of a full-time job.

Program of Study **48**

HUM 700, 710, and 720	12
Humanities courses from at least two departments	16-28
Related courses	0-12
Project (HUM 730)	8

The culminating project for the Master of Humanities degree can be either a traditional thesis or a creative work. Those who choose to complete a creative work also write an essay that explains the humanities context of the project. Such creative works may involve the fine or performing arts, creative writing, or other appropriate creative production. Before commencing work on the project, the student must submit a prospectus to be approved by the student's project committee and by the humanities program committee. The project is the capstone of each individually tailored program; it requires students to bring together in an organized fashion the results of particular investigations related to their curriculum.

Master of Humanities with an Emphasis in Music

All students in the Master of Humanities program may take advantage of the resources of the Department of Music. Students with a primary interest in music may design a specialized program of study in consultation with the director of Graduate Studies in Music and the director of the Humanities Program. Students choosing to concentrate in music are required to follow the general parameters of the Master of Humanities degree; within these parameters they may design a program of study with a focus in music history, theory, composition, performance, or other musical specialty.

Program of Study **48**

HUM 700 and 720	8
HUM 710 or MUS 701	4
Music Theory	6
Music History and Literature	6
Other Studies in Music	8
Electives	8
Project (HUM 730)	8

The culminating project can be either a traditional thesis or a creative project. This project must follow the same general guidelines required of all Humanities projects. As a third option, students concentrating in music may give a recital as their culminating project. Those choosing the recital option must follow the guidelines specified by the Department of Music. A student handbook detailing the policies and requirements of the Master of Humanities degree with an emphasis in music is available in both the Department of Music and the Humanities Office.

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Interdisciplinary Science and Mathematics

Faculty

Associate Professors

Beth Basista, Physics Education
Ann Farrell, Mathematics Education
Susann Mathews, Mathematics Education
William Slattery, Geological Sciences Education
James Tomlin, Biological Sciences Education

Assistant Professors

Suzanne Lunsford, Chemistry Education
Michelle Reed, Mathematics Education
Tracy Rusch, Mathematics Education

Program Description

The Interdisciplinary Science and Mathematics Master of Science in Teaching (M.S.T.) program is designed for K–12 teachers who wish to increase their science and/or mathematics content and pedagogical knowledge in a program specifically designed for teachers. Program content is geared toward middle childhood (grades 4–9) topics. All of the science and mathematics courses are specially designed for teachers and are inquiry-based and integrated with pedagogical issues.

Students can choose from three emphases (Science Emphasis, Mathematics Emphasis, or Integrated Science and Mathematics Emphasis). Each emphasis requires 48 quarter credit hours of courses (36 quarter credit hours in the College of Science and Mathematics and 12 quarter credit hours in the College of Education and Human Services). The programs require a pedagogical research project which typically will involve research within a teacher's own classroom. The types of projects can involve curriculum development and piloting, assessment of student understanding, and research into new pedagogical methods among other activities.

Each student, upon admission to the program, will be assigned an advisor from the science and mathematics faculty. The Science and Mathematics Education Committee, in collaboration with the student, will develop a program of study. All Master's Projects must have prior approval of the Science and Mathematics Education Committee. With an advisor's approval, limited course substitutions may be made.

Although many of the courses in the Interdisciplinary M.S.T. program are part of Wright State University's programs in Middle Childhood Licensure, other courses may be necessary for Licensure. Students interested in obtaining Middle Childhood Licensure should contact either Dr. Beth Basista (College of Science and Mathematics, Science

Education) or Chris Murphy (College of Education and Human Services, Teacher Education) to determine which additional courses would be necessary.

Questions concerning the Interdisciplinary Science and Mathematics M.S.T. program should be referred to Dr. Beth Basista (Department of Physics) or Dr. Ann Farrell (Department of Mathematics and Statistics).

Course of Study

Interdisciplinary M.S.T. Tracks

Science Emphasis

Two Physics courses from PHY 645, 646, 647	8
Two Chemistry courses from CHM 645, CHM 650	8
Two Earth Science courses from GL 607, GL 615, SM 645	8
Two Life Science courses from BIO 699, BIO 701	8
Pedagogical Research Project (SM 899)	4
Education courses listed as 600 or above with advisor approval	12
Total	48

Integrated Science and Mathematics Emphasis

Select one integrated science and mathematics course from the following PHY 645, 646, 647, SM 645	4
Select three science courses from the following	12
Physics from PHY 645, 646, 647	4
Chemistry from CHM 645, CHM 650	4
Earth science from GL 607, GL 615, SM 645	4
Life Science from BIO 699, BIO 701	4
Select four mathematics courses from the following MTE 640, 642, 643, 644, 645, 646, 648	16
Pedagogical Research Project (SM 899)	4
Education courses listed as 600 or above with advisor approval	12
Total	48

Mathematics Emphasis

Select two integrated science and mathematics courses from the following PHY 645, 646, 647, SM 645	8
Select six mathematics courses chosen from the following MTE 640, 642, 643, 644, 645, 646, 648	24
Pedagogical Research Project (SM 899)	4

Education courses listed as 600 or above with advisor approval	12
Total	48

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Logistics Management: Supply Chain Management

Introduction

The Master of Science degree program in Logistics Management, with concentration in Supply Chain Management, is designed to provide students with graduate education that will enhance their leadership careers in the fields of logistics and supply chain management.

The program aims to enable students to craft technology-rich supply chain architectures, instill rapid innovation into supply chain design, efficiently manage the supply base, align partners through trust and common values, and create the right metrics for supply chain networks.

Admission

1. Applicants should have three years of work experience in the field of logistics, supply chain management, operations management, information technology, or a related field.
2. Those who currently hold or are on track to assume senior professional responsibility in the field of logistics and supply chain management will be given preference.
3. Applicants must have a bachelor's degree and satisfy the minimum requirements to obtain graduate status (see: <http://www.wright.edu/academics/gradcatalog/admissions/>).
4. Three professional references are required.

Degree Requirements

The MS program is a one-year, 48-credit hour, lockstep, cohort-based program. The program blends five intensive weekends in-residence with four e-learning segments. The in-residence modules are scheduled between e-learning segments and include case studies, leadership lectures, breakout sessions, and simulation assignments. E-learning segments add learning activities such as interactive cases, pedagogical discussions, and proprietary teaching material built by global subject matter experts.

Course of Study

The program consists of ten courses (4 credit hours each) and one capstone project (eight credit hours). The course descriptions are given below.

Course Descriptions

Credits

MS 788: BASICS OF SUPPLY CHAIN MANAGEMENT

4

This course explores the fundamentals of supply chain management with a special emphasis on the strategic role of the supply chain, key drivers of supply chain performance, and analytical tools and techniques for supply chain analysis. The course describes supply chain methodologies and discusses levers and strategies to improve supply chain performance.

MS 790: DEMAND MANAGEMENT AND FORECASTING 4

This course addresses current issues of demand management and forecasting as they relate to the supply chain environment. It begins with specific forecasting methodologies, their appropriateness for use with different types of data and environments, and methods for measuring accuracy. It then discusses special event forecasting and ways to integrate managerial knowledge with statistical forecasting methods in order to increase responsiveness and improve accuracy. Specific software issues in forecasting and demand management, and sales and production planning are also reviewed. Current topics such as CPFR, accurate response, and the role of data mining, POS and CRM data in improving forecast accuracy are discussed.

MS 791: BENCHMARKING & PERFORMANCE METRICS 4

This course focuses on the selection, use, and evaluation of appropriate metrics for supply chain performance, the benchmarking process, and the Baldrige Criteria for organization assessment. Sample topics include how to select appropriate performance metrics for an organization, how to develop and implement a scorecard to monitor organizational performance, how to link the scorecard to other systems within the organization, how to develop actions and initiatives to reach performance targets, how to identify "best practices," and how to apply the Baldrige Award criteria to internal operations.

MS 792: SUPPLY CHAIN NETWORK DESIGN 4

This course studies models that explore the key issues associated with the design and management of supply networks. Special attention will be given to the integration of supply chain decisions and consequential difficulties. A considerable portion of the course is devoted to models that treat uncertainty explicitly. Topics include supply network design, inventory centralization, multistage production systems, the value of information, and contracts.

MS 793: INVENTORY MANAGEMENT 4

This course explores the fundamentals of inventory management, including continuous replenishment, ordering policies, measuring global and chain inventory, inventory positioning within the chain, and risk pooling. The objectives of the course are to understand strategies for reducing inventories, factors that lead to an increase in cycle inventory, the role of safety inventory to counter supply or demand uncertainty, and factors that influence the level of safety inventory.

MS 794: LEAN SUPPLY CHAIN MANAGEMENT 4

This course focuses on the development of lean supply chains within organizations. Topics covered will include value stream mapping of processes for efficient material and information flow, the Kaizen approach to continuous improvement, and the use of quality tools for process evaluation and improvement.

MS 795: INFORMATION TECHNOLOGY AND SUPPLY CHAINS 4

This course focuses on managing material and information including product design collaboration, demand planning and forecasting, inventory deployment, distribution system design, channel management, procurement, and logistics. It explores order fulfillment strategies and the impact of IT on distribution and back-end supply chain processes. It also examines strategies for enterprise and extraprise integration.

MS 796: STRATEGIC SOURCING 4

This course explores current issues of strategic sourcing within organizations. It underscores the differences between tactical and strategic sourcing. Key issues of strategic sourcing will be addressed, including how to make sourcing decisions to support corporate strategy, outsourcing versus insourcing, supplier and vendor selection, managing a worldwide sourcing network, and negotiating and managing contracts.

MS 797: GLOBAL SUPPLY CHAIN MANAGEMENT STRATEGIES **4**

This course covers issues relating to global supply chain management and coordinating production plans across the world. Key issues of global operations and SCM will be addressed, including how to develop and manage an efficient and effective global supply chain. The course also discusses the development of a comprehensive global SCM strategy, including strategic planning for individual global operations. Also addressed are issues relating to cost/benefit analysis, transportation and physical distribution, global facility location, labor productivity differentials, tariffs and quotas, and cultural differences.

MS 798: SUPPLY CHAIN COLLABORATION **4**

This course addresses issues of managing entities in the supply chain for efficient information flow and collaborative decision-making. This includes managing cross-enterprise collaboration, developing a technology structure that enables sharing of information internally and externally, team management, intra-enterprise collaboration, building a collaborative supply chain, and dealing with issues of leadership and power.

MS 799: SUPPLY CHAIN PROJECT **8**

Students will complete a comprehensive company-based supply chain project with documented results. Each student will have an individualized project. This is the hallmark of the program. The project may be assigned by the student's employer or may be created in coordination with a faculty member.

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Materials Science and Engineering

Introduction

The Department of Mechanical and Materials Engineering offers graduate programs leading to a Master of Science in Engineering (M.S.E.) and a Ph.D. in Engineering with a major in materials science and engineering. The graduate programs are broad in scope, emphasizing the interdisciplinary nature of the field of materials science and engineering. The program is focused around processing, structure, properties, and performance of advanced lightweight and high temperature materials. For more information, see our Web site at <http://www.cs.wright.edu/mme/>.

Admission

To be considered for admission to the M.S.E.–Materials program, students must first satisfy basic requirements of the School of Graduate Studies. This includes having a bachelor's degree in engineering or a related area with an overall undergraduate grade point average of at least 2.7 (on a 4.0 scale) or an overall undergraduate grade point average of at least 2.5 with an average of 3.0 or better for the last 90 quarter hours (60 semester hours) earned toward the undergraduate degree. International students must have a TOEFL score of at least 550. In addition, the program requires students from non-ABET accredited undergraduate programs to submit general GRE test scores. Program admission decisions are based on complete application information including overall academic performance and standardized test scores where applicable.

Collaboration

The Dayton Area Graduate Studies Institute provides collaboration opportunities through the graduate engineering courses, faculty, and research resources of the Air Force Institute of Technology, the University of Dayton, The Ohio State University, and the University of Cincinnati.

Degree Requirements

Students should plan a program of study in consultation with a faculty advisor. The program of study should be finalized by the time the student completes 12 credit hours of graduate study.

The following requirements must be met for the Master of Science in Engineering degree:

1. Completion of 45 graduate credit hours in courses that have prior approval by an engineering graduate advisor.
2. At least 36 of the total 45 graduate credit hours must be engineering or computer

engineering courses. At least 24 of these must be engineering courses.

3. At least 12 of the 36 graduate credit hours of engineering and computer engineering must be courses numbered above 700, excluding ME 899, Thesis.

4. At least 6 of the total 45 graduate credit hours must be courses in mathematics, statistics, or computer science.

5. Students must choose either a thesis option or advanced course work option. Students employed as teaching or research assistants through the School of Graduate Studies at any time during their degree candidacy must choose the thesis option.

Thesis Option: A thesis satisfying all requirements of the School of Graduate Studies must be completed and successfully defended in an oral examination before the major committee. Up to 12 credit hours of ME 899, Thesis, may count toward degree requirements of 45 total graduate credit hours and 36 graduate credit hours in engineering or computer science.

Course Option: Students must complete 12 credit hours of courses numbered 700 or above in addition to the 12 hours specified in requirement 3.

Facilities

Graduate students have access to a wide range of modern facilities including classrooms, laboratories, and computer systems interconnected by local and wide area communication networks. Computational facilities include numerous Sun, DEC, and Silicon Graphics file servers and workstations; X-windowing terminals; and personal computers. Access is also available to the Ohio Super-computer via the Ohio Academic and Research Network (OARNET).

Faculty

Professors

Sharmila Mukhopadhyay, composites, surface engineering, high temperature electronic devices

Raghavan Srinivasan, materials engineering, high-temperature deformation, materials behavior modeling

Joseph F. Thomas Jr., materials engineering, mechanical behavior

Associate Professors

Maher S. Amer, Raman spectroscopy, polymers, composites, micromechanics of multi-phase materials

Richard J. Bethke (chair), signal and systems modeling, analysis and control, stochastic processes

Assistant Professor

H. Daniel Young, nanochannel materials, multimaterial fibrous materials, laser micromachining and forward transfer techniques

Graduate Assistantship

Assistantships are available to students on a competitive basis. Students awarded assistantship support are eligible for stipends and remission of tuition fees. Interest in financial support should be indicated at the time of application.

Research

Research in materials science and engineering is focused around processing, structure, properties, and performance of metals, ceramics, polymers, and composites. Current programs include studies of super conducting ceramics, polymer, ceramic, titanium, carbon matrix composites, and nickel and titanium based alloys, as well as advanced nano- and meso- systems.

The department hosts a variety of sophisticated materials and research equipment. This includes a scanning transmission electron microscope with associated specimen preparation equipment, state-of-the-art micro-Raman spectroscopy, high-resolution x-ray photoelectron spectroscopy (XPS), and unique controlled-atmosphere high temperature deformation testing facilities. The department also has standard laboratory equipment for fabrication and testing of materials such as mechanical testing machines, scanning electron microscopes, an x-ray diffractometer, furnaces, microhardness testers, and optical microscopes.

Research at Wright State University is not limited to the laboratory facilities on campus. Several industrial companies, laboratories, and Wright-Patterson Air Force Base are involved in joint research efforts, making available their unique facilities for faculty and graduate research.

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Math Education

Introduction

For graduate programs for already certified or licensed teachers, see Interdisciplinary Science and Mathematics Master of Science in Teaching (M.S.T.) offered by the College of Science and Mathematics and Master of Education (M.Ed., Classroom Teacher: Mathematics) offered by the College of Education and Human Services, Department of Teacher Education. For graduate programs leading to licensure, see Master's Degree Programs for Initial Teacher Licensure (Classroom Teacher: Middle Childhood Education and Classroom Teacher: Adolescent to Young Adult Education) offered by the College of Education and Human Services, Department of Teacher Education.

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Mathematics

Introduction

The Department of Mathematics and Statistics offers the Master of Science degree in mathematics. The graduate program is designed to provide a solid foundation for further professional training or careers in teaching, industry, or government. Degree requirements are flexible, allowing considerable latitude in tailoring the course of study to individual preferences. Two concentrations are available: mathematics and applied mathematics. The mathematics concentration is designed for students with an undergraduate degree in mathematics or the equivalent. The applied mathematics concentration is designed not only for persons with undergraduate training in mathematics, but also for those with degrees in related disciplines, such as engineering and science, who want a solid foundation in mathematics. The department makes provision for part-time degree candidates by offering all required courses in the late afternoon or evening. The department also awards the Master of Science degree in applied statistics (see Statistics). The department also supports the Interdisciplinary Science and Mathematics Master of Science in Teaching (M.S.T.) degree offered by the College of Science and Mathematics.

Graduate students are assigned an advisor from the graduate faculty on the basis of their proposed area of study. Early consultation with the advisor is recommended since the advisor works closely with the student in every phase of the program.

Admission

Applicants for admission are expected to meet the general requirements for admission to graduate study as established by the School of Graduate Studies. In addition, applicants must present postcalculus courses in mathematics, as well as related course requirements appropriate for the intended program of study. The specific undergraduate preparation required for each of the department's two degree options forms part of the description of each option. Applicants with insufficient preparation may be admitted on the condition that they complete certain prerequisite work to be specified by the department at the time of admission.

Degree Requirements

The Master of Science degree may be earned by satisfying the requirements of the mathematics or the applied mathematics option. The mathematics option is a flexible program emphasizing advanced mathematical concepts in the core areas of mathematics. Students may either complete a traditional curriculum in mathematics or develop, with a graduate advisor, a plan of study that is tailored to their individual needs. The applied mathematics option is more structured but still allows students considerable latitude in designing a course of study. This option focuses on the computational tools of modern

applied mathematics and the mathematical theory underlying these tools. Either option can provide a solid foundation for doctoral study in mathematics or for a career in teaching, industry, or government.

All master's degree candidates are required to pass a comprehensive written examination which should be taken at least one quarter before the expected date of graduation.

Mathematics Concentration

This program offers advanced mathematical training in the traditional areas of mathematics, yet is flexible enough to allow students to pursue interests in related areas of mathematics. Students may select courses in algebra, analysis, combinatorics, and geometry, as well as differential equations, graph theory, numerical analysis, probability, and statistical theory. Individual interests and future goals determine the actual course of study, within the guidelines given below.

Applicants for this program should have completed a minimum of 21 quarter hours (14 semester hours) in mathematics beyond calculus. Courses in analysis (advanced calculus), linear algebra, and modern algebra are particularly important. However, courses in other areas of mathematics may also provide the foundation needed for graduate work in mathematics.

In addition to the requirements of the School of Graduate Studies, the following departmental requirements must be met to earn a degree under this option:

1. The student must complete a minimum of 45 credit hours of courses that have prior approval of the department. Departmental approval is normally given by the student's advisor. At least 24 of these hours must be in mathematics or statistics courses numbered 701 or above and may not include MTH 792 or STT 786.
2. The 24 credit hours at the 700 level must include at least one full-year sequence in mathematics.

The writing of a thesis is optional. Students who elect a thesis may count it for not more than 10 hours of credit. The thesis must be approved by the student's advisor and must be prepared to conform to the standards established by the School of Graduate Studies. A thesis defense will be required.

Students completing a thesis must pass two 90 minute comprehensive examinations over selected coursework. Students not completing a thesis must pass three 90 minute comprehensive examinations over selected coursework.

Applied Mathematics Concentration

The applied mathematics option provides training in mathematical techniques applicable to a wide range of real-world problems. The objectives of this program are two-fold: to develop the ability to analyze and solve a variety of mathematical problems, and to increase the understanding of specific problems encountered in other fields. To this end, the curriculum includes course sequences in pure and applied mathematics, and advanced courses in related areas such as engineering, computer science, and physics. This option is designed for those who have completed a bachelor's degree in engineering, science, mathematics, or statistics, and who wish to acquire a solid foundation in applied mathematics.

Applicants for this program should have completed undergraduate courses in multivariable calculus, linear or matrix algebra equivalent to MTH 355, and ordinary differential equations. Students should also have knowledge of a high-level programming language.

Courses in complex analysis, partial differential equations, and physics are recommended.

In addition to the requirements of the School of Graduate Studies, the following departmental requirements must be met to earn a degree under this option. Students who have not, prior to admission, completed two quarters or one semester of real variables course work comparable to MTH 431 and 432 are required to take MTH 631 and 632 as program electives. Full-time students normally take two years to complete this program. For more information on the Applied Mathematics program, see <http://www.math.wright.edu/ms/appliedmath/>

Faculty

Professors

K. T. Arasu, combinatorics
Joanne M. Dombrowski, functional analysis
Anthony B. Evans, finite geometry, graph theory
Terry A. McKee, graph theory, logic
David F. Miller, optimization
Steen Pedersen, operator theory
Manley Perkel (chair), algebra, combinatorics
Thomas P. Svobodny, applied mathematics

Associate Professors

Ann M. Farrell, mathematics education
Lop-Fat Ho, optimal control, duality theory
Chaocheng Huang, partial differential equations
Alexander J. Kaplan, functional analysis
Phan Loi, operator theory
Susann Mathews, mathematics education
Richard Mercer, operator algebras, mathematical physics
Larry Turyn, differential equations, applied analysis
James T. Vance Jr., Fourier analysis

Assistant Professors

Robert Craighead, complex analysis
Michelle Reed, mathematics education
Tracy Rusch, mathematics education
Emily Tian, applied mathematics

Financial Assistance

The department awards a limited number of graduate teaching assistantships annually to qualified applicants. Assistantships may be renewed for a second year; assistants can complete the requirements for a degree in two years. The duties of an assistant normally include classroom teaching, which is a meaningful aspect of the education of graduate students in the mathematical sciences.

Applicants should inquire about the availability of tuition fellowships. (Refer to the Financial Assistance, Fees, and Tuition section).

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Mechanical Engineering

Introduction

The Department of Mechanical and Materials Engineering offers a program of graduate study leading to a Master of Science in Engineering (M.S.E.) degree with a major in mechanical engineering. The M.S.E. program is broad in scope and emphasizes portable concepts in the design and analysis of complex physical systems using modeling, synthesis, and optimization techniques, and bridges interdisciplinary engineering areas such as controls, robotics, electronics, and communications. A Ph.D. in engineering with a major in mechanical engineering is also available. For details, see Engineering Ph.D. program. For more information about the mechanical and materials engineering programs, see our Web site at <http://www.cs.wright.edu/mme/>.

Admission

To be considered for admission to the M.S.E.—Mechanical program, students must first satisfy basic requirements of the School of Graduate Studies. This includes having a bachelor's degree in engineering or a related area with an overall undergraduate grade point average of at least 2.7 (on a 4.0 scale) or an overall undergraduate grade point average of at least 2.5 with an average of 3.0 or better for the last 90 quarter hours (60 semester hours) earned toward the undergraduate degree. International students must have a TOEFL score of at least 550/213. In addition, the program requires students from non-ABET accredited undergraduate programs to submit general GRE test scores. Program admission decisions are based on complete application information including overall academic performance and standardized tests scores where applicable.

Collaboration

The Dayton Area Graduate Studies Institute provides collaboration opportunities through the graduate engineering courses, faculty, and research resources of the Air Force Institute of Technology, the University of Dayton, The Ohio State University, and the University of Cincinnati.

Degree Requirements

Students should plan a program of study in consultation with a faculty advisor. The program of study should be finalized by the time the student completes 12 credit hours of graduate study.

The following requirements must be met for the Master of Science in Engineering degree:

1. Completion of 45 graduate credit hours in courses that have prior approval by an engineering graduate advisor.

2. At least 36 of the total 45 graduate credit hours must be engineering or computer engineering courses. At least 24 of these must be engineering courses.
3. At least 12 of the 36 graduate credit hours of engineering and computer engineering must be courses numbered above 700, excluding ME 899, Thesis.
4. At least 6 of the total 45 graduate credit hours must be courses in mathematics, statistics, or computer science.
5. Students must choose either a thesis option or advanced course work option. Students employed as teaching or research assistants through the School of Graduate Studies at any time during their degree candidacy must choose the thesis option.

Thesis Option: A thesis satisfying all requirements of the School of Graduate Studies must be completed and successfully defended in an oral examination before the major committee. Up to 12 credit hours of ME 899, Thesis, may count toward degree requirements of 45 total graduate credit hours and 36 graduate credit hours in engineering or computer science.

Course Option: Students must complete 12 credit hours of courses numbered 700 or above in addition to the 12 hours specified in requirement 3.

Facilities

Graduate students have access to a wide range of modern facilities including classrooms, laboratories, and computer systems interconnected by local and wide area communication networks. Computational facilities include numerous Sun, DEC, and Silicon Graphics file servers and workstations; X-windowing terminals; and personal computers. Access is also available to the Ohio Super-computer via the Ohio Academic and Research Network (OARNET).

Faculty

Professors

Parviz Dadras (Emeritus), solid mechanics, manufacturing processes, carbon-carbon composites

Ramana V. Grandhi, structural optimization, finite element methods, uncertainty quantification

Wilbur L. Hankey (Emeritus), computational fluid dynamics, aerodynamics, aerothermodynamics

Joseph F. Thomas, Jr., materials engineering, mechanical behavior

J. Mitch Wolff, fluid mechanics, turbomachinery, computational fluid dynamics, unsteady aerodynamics, MEMS

Associate Professors

Richard J. Bethke (chair), signal and systems modeling, analysis and control, stochastic processes

Kenneth C. Cornelius, fluid mechanics, turbulent flow, aerodynamics, compressible flow

Junghsen Lih, dynamics and controls of mechanical systems

James A. Menart, thermal sciences, heat transfer

Joseph C. Slater, structure dynamics, vibration and control

Scott K. Thomas, experimental heat and mass transfer, computational fluid dynamics

Assistant Professors

Billy W. Friar (Emeritus), thermodynamics, heat transfer, fluid mechanics

Nathan W. Klingbeil, solid mechanics, fracture mechanics, fatigue of engineering materials

and structures

Ravi C. Penmetsa, robust design, multidisciplinary design optimization, uncertainty quantification

Graduate Assistantship

Assistantships are available to students on a competitive basis. Students awarded assistantship support are eligible for stipends and remission of tuition fees. Interest in financial support should be indicated at the time of application.

Research

Research in mechanical engineering spans several exciting areas. There is a large program in design optimization addressing large structures, die shapes, flight trajectories, and other applications. Work is also being done in structural dynamics areas including vehicle suspensions and turbine blades. Mechanical design studies include the characterization of carbon-carbon composites. Fluid dynamics research is being conducted both experimentally and via computer computation (CFD). Projects include study of flows in turbine engines and reciprocating compressors. There is also a large thermal science program in the analysis and application of heat pipes and related devices.

Research at Wright State is not limited to the laboratory facilities on campus. Several industrial companies, laboratories, and Wright-Patterson Air Force Base are involved in joint research efforts with the university and have unique facilities that are available for faculty and graduate research.

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Microbiology and Immunology

Introduction

The program leading to the Master of Science degree in microbiology and immunology prepares students for careers as professional microbiologists/immunologists in industry, government, education, and research organizations, or for further professional training.

Areas of specialization in the Microbiology and Immunology program include indoor allergies, basic and clinical immunology, retrovirology (retroviral variation, HIV, endogenous retroviruses), immunotoxicology, viral pathogenicity, vaccine development, immunoparasitology of ectoparasites, microbial ecology, immune modulation, algal toxins, inflammatory and immune effector cell function, cytokine signaling and apoptosis.

The M.S. degree in microbiology and immunology requires the submission and oral defense of either a research-based or literature-based thesis. Candidates are required to obtain a major advisor and an advisory committee. For the research-based thesis, the advisory committee will help formulate a study program to include a minimum of 20 quarter credits of graduate-level course work and 25 quarter credits of research (which could include journal clubs, seminars, or special topics). For the literature-based thesis, the student, with assistance of the advisory committee, will select the additional courses required to fulfill the 45 credit hour limit. The advisory committee will also provide counseling and evaluate student progress. If a student is uncertain of a major area of concentration, the program director will serve as a temporary advisor until the student selects an area and is accepted by an advisory professor.

Admission

Applicants must fulfill the requirements for admission established by the School of Graduate Studies. Preference is given to students with a grade point average of 3.0 or better on a 4.0 grading scale. Letters of recommendation and GRE scores are also considered.

Degree Requirements

1. Candidates must complete a minimum of 45 quarter credits and must participate in graduate seminars for at least six credit hours.
2. Candidates must maintain a 3.0 cumulative average with no more than nine credit hours of C grades applicable to the degree.
3. A maximum of 10 credits of graduate courses may be transferred from other institutions.

Faculty

Microbiology and Immunology

Faculty members for the Departments of Anatomy, Biological Sciences, Biochemistry and Molecular Biology, and Physiology and Biophysics with interests in microbiology and

immunology constitute the program faculty.

Professors

Larry G. Arlian, immunoparasitology, allergies
Nancy J. Bigley, immunology
G. Allen Burton, stressors in aquatic ecosystems
Wayne W. Carmichael, algal toxins
Barbara E. Hull, skin, viral pathogen protection

Associate Professors

James P. Amon, environmental microbiology
Scott E. Baird, evolution and development
Thomas L. Brown, apoptosis, cell signaling
Julian G. Cambroner, inflammation, cytokine signaling
Keith A. Grasman, immunotoxicology
Dave E. Krane, DNA, molecular evolution
Dawn P. Wooley, virology, HIV

Financial Assistance

Two graduate teaching assistantships are available on a competitive basis. These carry a waiver of most tuition and instructional fees. Appointments are made for one year and may be renewed for a second year.

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Music

Introduction

The Department of Music offers three graduate degree programs, all accredited by the National Association of Schools of Music. These include the Master of Music in Music Education, the Master of Music in Performance, and, in conjunction with the College of Liberal Arts Master of Humanities Program, the Master of Humanities with an emphasis in music.

The Master of Music in Music Education degree is a professionally oriented program. It is designed to serve music educators from primary to postsecondary levels. Though all courses are pertinent to terminal degree programs, they are equally valuable for students who plan to study at the doctoral level. A variety of program options allows students to design programs that suit their professional goals and take into account their backgrounds and experience.

The Department of Music offers three major options in program planning that lead to the Master of Music in Music Education degree. The options include the Thesis Option, the Project Option, and the Recital Option. Each contains requirements in music education, music history and literature, and music theory, as well as opportunities for performance. For the Thesis Option, the student prepares a thesis under the supervision of the thesis director; the Project Option requires one project under the supervision of a project director; and for the Recital Option, the student presents a full-length public recital and a research paper.

The Master of Music in Performance is a degree program designed to prepare graduates for professional careers as performing musicians and/or those who seek to pursue further study in music at the doctoral level. Areas of study include solo performance in the instrumental or vocal areas, and either instrumental or choral conducting. Each program of study includes requirements in music history, music research, and music theory, plus intensive study in the designated applied area. The required thesis comprises a public performance recital of approximately one hour's length, with an accompanying scholarly research document related to the recital. Requirements also include a one-year residency of three consecutive quarters of full-time enrollment, beginning in the Fall quarter (i.e., Fall-Winter-Spring quarters), and an oral comprehensive examination at the completion of the program.

The Master of Humanities degree is a flexible degree program within the College of Liberal Arts. The course of study may be designed to serve the needs of the student interested in pursuing a career in a variety of areas, including musicology, theory, composition, performance areas, and others. Courses are equally valuable for students who plan to study at the doctoral level. A variety of curricular options allows students to design programs that suit their professional goals and take into account their backgrounds and

experience. Several options are available including a thesis, recital, or creative project.

Students interested in the Master of Humanities program should also consult that program entry in the catalog.

Admission

In addition to meeting the admission requirements of the School of Graduate Studies, applicants for admission to any of the three degree programs of the Graduate Studies in Music program (Master of Music in Music Education, Master of Music in Performance, or Master of Humanities with an emphasis in music) must present an undergraduate major in music from an accredited college or university with a minimum grade point average of 3.0 (on a 4.0 scale) in undergraduate course work in music. In addition to the application and transcripts sent to the School of Graduate Studies, the applicant must submit the following to the Department of Music: resume; three recommendations from teachers, administrators, or colleagues; and other supporting material the applicant may deem appropriate.

In addition to the requirements in the preceding paragraph, applicants for the Master of Music in Performance program must complete a successful performance audition in the intended emphasis (Choral Conducting, Instrumental Conducting, Instrumental Performance, Piano Performance, or Vocal Performance), which places the student at the equivalence of an undergraduate senior recital in the intended emphasis area. Additional materials (portfolio, letters of recommendation, repertoire lists, etc.) appropriate to the specific emphasis may be required in each emphasis by the appropriate program specialist and applied committee.

The applicant must also schedule an admissions interview with the director of Graduate Studies in Music prior to admission.

Upon admission, placement examinations in Music Theory and Music History must be taken no later than the third week of the first quarter of study and passed prior to enrollment in the applicable courses.

Students admitted to the Graduate Studies Program in Music will be classified as regular, conditional, probationary, or non-degree seeking, as defined in the WSU Graduate Catalog. Moreover, any changes in status will be in accordance with policies outlined in the Graduate Catalog. In addition to the requirements of the School of Graduate Studies, removal of the conditional status requires achieving a cumulative GPA of 3.0 or better in the first 12 hours of academic study in the program. Only regularly organized academic classes at the 700 level may be included in this average. Applied music, ensembles, chamber music, workshops, and independent study of any type may not be counted in the 12 hours needed to remove conditional status.

Students who wish to apply to study applied music must audition for the appropriate Applied Music Board.

Students in the Master of Music in Music Education degree program who do not hold a standard teaching licensure at the time of admission will be required to earn Ohio licensure.

Exceptions may be made for reasonable cause; such exceptions may require action by the Department of Music Graduate Committee.

Advising

No student will take graduate work in music without departmental advising. Full- and

part-time students enrolled in the program must consult with their advisors each quarter. Students who are not candidates for the degree must have departmental permission as outlined for the particular area of study.

Each regularly enrolled student will be assigned an advisor appointed by the director of Graduate Studies in Music. The advisor will be assigned according to the student's program emphasis. Full- and part-time students enrolled in graduate courses must consult with their advisor each quarter. The advisor, the director of Graduate Studies in Music, and the student will plan the student's program. The plan will be made and filed with the School of Graduate studies no later than mid-term of the second quarter of the student's enrollment in the program.

The student will be assigned a committee of three faculty members who will design and evaluate the oral comprehensive examination.

The Department of Music publishes the Wright State University Graduate Studies in Music Handbook, which provides detailed information about all aspects of the graduate program in music. All graduate students in music should obtain a copy from the departmental office.

In addition to a Department of Music advisor, students in the Master of Humanities program will also be assigned an advisor in the Humanities Program of the College of Liberal Arts. Given the flexible nature of this degree program, it is essential that Master of Humanities students meet at the beginning of their program with both advisors. It is also critical that Master of Humanities students meet regularly (at least once per quarter) with their assigned advisors. In addition to policies and procedures outlined in the Department of Music Graduate Studies in Music Handbook, students in the Master of Humanities Program must also follow policies and procedures in the Master of Humanities Handbook provided by the Humanities Program. Students interested in the Master of Humanities program should also consult that program entry in this catalog.

Faculty

Professors

Leland D. Bland, music theory, music history and literature

Henry N. Dahlman (director), music education, music history and literature, choral conducting

Herbert Dregalla (chair), music education

Charles S. Larkowski, musicology, music history and literature, music theory

Associate Professors

David M. Booth, instrumental conducting, music education

Brenda Ellis, music education

Shelly M. Jagow, applied saxophone, music education \

Francis H. Laws, III, applied euphonium and trombone

Jackson Leung, musicology, music history and literature, applied piano

Sharon H. Nelson (associate dean, College of Liberal Arts), music education

Randall S. Paul, music education, applied clarinet/saxophone

James W. Tipps, music education

Kimberly J. Warrick, applied voice

Assistant Professors

In-Hong Cha, applied violin

Nancy Taylor, applied trumpet

Instructors

Christopher L. Chaffee, applied flute

Faculty Associates

Lucy Firlie, applied viola

Deborah Netanel, applied cello, music theory

J. Ritter Werner, applied organ, music theory, music history

Course of Study

Master of Music in Music Education

Program of Study	45
MUS 601, 602, 603, 604	15
Music Theory (600-700 level)	6
Music History and Literature (600-700 level)	6
Elective Courses in Music (600-700 level)	12-18
Thesis, Recital, or Project Option*	1-6

*For a culminating experience, the candidate may choose one of three options. These include a traditional thesis, a performance recital in the candidate's applied area with supporting written document, or a creative project. Further details are outlined below and in the Department of Music Graduate Studies in Music Handbook.

During the last quarter in the program, a candidate for a degree must pass an oral comprehensive examination covering the areas of music education, music history, and music theory. The student who elects the thesis option will also be prepared to defend the thesis. The examination will be designed and evaluated by the candidate's committee.

Thesis Option

Course work will be distributed in the areas of music education, music history and literature, music theory, performance (12 to 18 credit hours), and thesis (maximum of 6 credit hours), for a minimum total of 45 credit hours. Students will prepare a thesis under the supervision of a thesis director, who is approved by the director of Graduate Studies in Music. The thesis will be read and approved by the candidate's committee.

Recital Option

Course work will be distributed in the areas of music education (24 to 30 credit hours), music history and literature, music theory, and performance (15 to 21 credit hours), for a minimum total of 45 credit hours. If approved by the appropriate Applied Music Board for the recital option, the student will present a full-length public recital. The recital performance will be heard and judged on a pass-fail basis by the appropriate Applied Music Board. For specifications as to length, content, and procedures for the graduate recital, students should consult the departmental Applied Music Policy Statement, Section IX, "Graduate Study in Applied Music." This policy statement is available in the office of the Department of Music.

In addition, students will present a research paper related to the recital literature. The paper, equivalent in scope to a term paper, will be read and approved by a permanent member of the music history and literature or music theory faculty

Master's Project Option

Course work will be distributed in the areas of music education (24 to 30 credit hours), music history and literature, music theory, and performance (15 to 21 credit hours), for a minimum total of 45 credit hours. In addition, students will present a project. Students may revise, refine, and extend a paper written for a course, or may elect to present a new paper. The project paper will be read and approved by the student's project director and a

second reader.

Note: In any of the options the student may, with the approval of the director of Graduate Studies in Music and the advisor, elect a maximum of two courses outside the Department of Music. The courses may be substituted for music electives if the student can show the courses are in cognate areas that contribute substantially to the preparation of a teacher in the arts.

Master of Music in Performance

Program of Study	48
MUS 601	4
Music Theory (600-700 level)	6
Music History and Literature (600-700 level)	6
Other Courses in Music (600-700 level)	6-9
Applied Study in Area of Specialization*(700 level)	12
Performance Requirement (Ensemble)**	3-6
Approved Electives (600-700 level)	2-6
Thesis (MUS 799)	3

*Choral Conducting, Instrumental Conducting, Instrumental Performance, Piano Performance, or Vocal Performance.

**Ensemble related to area of specialization, assigned by program advisor.

Thesis

The thesis is comprised of a full-length public performance recital in the area of specialization and an accompanying scholarly research paper related to the recital literature. The recital will be heard and judged on a pass-fail basis by the appropriate Applied Music Board. For specifications as to length, content, and procedures for the graduate recital, students should consult the departmental Applied Music Policy Statement, Section IX, "Graduate Study in Applied Music," available in the Department of Music office.

In addition, students will present a scholarly research paper related to the recital literature. The paper will be read and approved by a permanent member of the music history and literature or music theory faculty.

During the last quarter in the program, a candidate for a degree must pass an oral comprehensive examination covering the areas of the applied performance specialization, music history, and music theory.

Further details are outlined in the Department of Music Graduate Studies in Music Handbook which may be found at www.wright.edu/music/grad/handbook/.

Master of Humanities with an Emphasis in Music

All students in the Master of Humanities program may take advantage of the resources of the Department of Music. Students with a primary interest in music may design a specialized program of study in consultation with the director of Graduate Studies in Music and the director of the Humanities Program. Students choosing to concentrate in music are required to follow the general parameters of the Master of Humanities degree; within these parameters they may design a program of study with a focus in music history, theory, composition, performance, or other musical specialty.

Program of Study	48
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HUM 700 and 720	8
HUM 710 or MUS 601	4
Music Theory (600-700 level)	6
Music History and Literature (600-700 level)	6
Other Studies in Music (600-700 level)	8
Electives	8
Project (HUM 730)	8

The culminating project may be either a traditional thesis or a creative project. This project must follow the same general guidelines required of all Humanities projects. As a third option, students concentrating in music may give a recital as their culminating project. Those choosing the recital option must follow the guidelines specified by the Department of Music. Further details are outlined below, in the Department of Music Graduate Studies in Music Handbook, and in the Master of Humanities Handbook.

During the last quarter in the program, a candidate for a degree must pass an oral comprehensive examination covering the areas of music history, music theory, and the student's area of musical emphasis. The student who elects the thesis option will also be prepared to defend the thesis. The examination will be designed and evaluated by the candidate's committee.

A student handbook detailing the policies and requirements of the Master of Humanities degree with an emphasis in music is available in both the Department of Music and the Humanities Office.

Thesis Option

Course work will be distributed in the areas of music theory, music history and literature, research in music, the humanities, performance, and thesis (maximum of eight credit hours) for a minimum total of 48 credit hours. Students will prepare a thesis under the supervision of a thesis director, who is approved by the director of Graduate Studies in Music and the director of the Humanities program. The thesis will be read and approved by the candidate's committee.

Recital Option

Course work will be distributed in the areas of music theory, music history and literature, research in music, the humanities, and performance for a minimum total of 40 credit hours. In the case of the recital option, the final recital and paper described below fulfills the thesis requirement (maximum of eight credit hours) of the Master of Humanities curriculum.

If approved by the appropriate Applied Music Board for the recital option, the student will present a full-length public recital. The recital performance will be heard and judged on a pass-fail basis by the appropriate Applied Music Board. For specifications as to length, content, and procedures for the graduate recital, students should consult the Music Department's Applied Music Policy Statement, Section IX, "Graduate Study in Applied Music." This policy statement is available in the office of the Department of Music.

In addition, students will present a research paper related to the recital literature. The paper, equivalent in scope to a term paper, will be read and approved by a permanent member of the music history and literature or music theory faculty. **Master's Project**

Option

Course work will be distributed in the areas of music theory, music history and literature, research in music, the humanities, and performance for a minimum total of 40 credit hours. In the case of the master's project option, the final project described below fulfills the thesis requirement (maximum of eight credit hours) of the Master of Humanities curriculum.

For the project, students may revise, refine, and extend research done during the course of study or may elect to present a new paper. Projects may also be approved in creative activity such as musical composition, conducting, and other areas. In such cases the student will present a research paper related to the project. The paper, equivalent in scope to a term paper, will be read and approved by the student's committee, including one full-time member of the music faculty.

Students Not Enrolled in the M.Mus. Program

A graduate student enrolled in another degree program (e.g., Master of Arts, Master of Humanities, or Master of Education) or a nondegree graduate student may, with the approval of his or her department, elect certain graduate courses in music. The requirements for courses in each area of music are listed below.

Music Education

All courses in music education require an undergraduate degree in music. Permission of the director of Graduate Studies in Music and permission of the instructor are required.

Theory of Music, Music History and Literature

All courses in music theory, and music history and literature require a substantial background in music. Permission of the director of Graduate Studies in Music and permission of the instructor are required.

Performance

Ensembles require an audition and approval of the instructor. Private study in any area of applied music requires a successful audition before the appropriate Applied Music Board.

For further information, consult the departmental Applied Music Policy Statement, Section IX, "Graduate Study in Applied Music." This policy statement is available in the office of the Department of Music.

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Neuroscience, Cell Biology, and Physiology

Introduction

The Department of Anatomy and Physiology offers two tracks of graduate study leading to the Master of Science degree (M.S.) in (1) anatomy and (2) physiology and biophysics. A continuation of graduate studies with faculty in the Department of Anatomy and Physiology leading to a Doctor of Philosophy (Ph.D.) degree is available through the Biomedical Sciences Ph.D. Program.

Certificate Program in Anatomy

The anatomy track certificate program is a three-quarter, post-baccalaureate program. The program provides graduate-level education in three of the four human anatomy core courses – microanatomy, gross anatomy, embryology, and neurobiology. The program is applicable to physical therapists, occupational therapists, physician assistants, athletic trainers, health and physical education majors, and others in allied health disciplines.

Admission

Admission–Anatomy

Minimum requirements include an overall undergraduate grade point average of 3.0-plus. Although there are no uniform prerequisites, it is recommended that applicants have completed at least two years of biology, including vertebrate anatomy, and two years of chemistry, including organic chemistry. Letters of recommendation are an important admission consideration.

Students who do not plan to complete the degree program or who do not meet the admission requirements of the School of Graduate Studies may be admitted on a non-degree basis in order to take selected anatomy courses. Written permission by the appropriate course director is required to enroll in each anatomy course. Contact the Anatomy Department for information concerning enrollment procedures.

Admission Requirements–Physiology & Biophysics

The requirements for admission are:

1. B.A., B.S., or equivalent degree
2. Overall GPA of 3.00-plus or GRE total of 1100 (minimum 500 verbal; 500 mathematics)
3. The following prerequisite courses: general biology (one year), general chemistry (one

year), general physics (one year), mathematics (one year through introductory calculus), and one year of advanced study in biology, chemistry, physics, or computer science

Degree Requirements

Degree Requirements—Anatomy

In addition to the requirements of the School of Graduate Studies, the following requirements of the Department of Anatomy must be met:

1. Completion of a minimum of 45 or 50 graduate credit hours (see number 4) in courses that have prior approval of the department. Approval is normally given through the student's faculty advisor.
2. The graduate credits must include 33 credit hours of core courses in anatomy.
3. Required courses are human gross anatomy, human microanatomy, advanced human embryology, human neurobiology, and four seminars.
4. There are two program-of-study options leading to a master's degree:
 - a. Course Option (50 credits): In addition to the 33 credits listed above, students are required to take an oral comprehensive examination covering the core anatomy courses listed above, assist with teaching an anatomy department course, learn a research technique, and write a scholarly paper. The remaining 3 credits include elective graduate courses in the anatomy or other science department.
 - b. Thesis Option (45 credits): Requires the submission and oral defense of a thesis based on original research performed while enrolled as a graduate student at the university. Two major research interests in the department are neuroscience and immunology. Students interested in pathobiology research may substitute courses in immunobiology and pathogenic mechanisms for human gross anatomy.

Degree Requirements--Physiology & Biophysics

In order to qualify for the Master of Science degree, students must satisfy the requirements of the School of Graduate Studies as well as program requirements. The first four quarters involve 35–37 credit hours which include required departmental and other courses determined in consultation with the student's advisor. Research activities begin in the summer of the first year. The second program year involves 18–30 credit hours with emphasis on research. Completed research is presented in written thesis form at the end of the second year, with a public oral defense.

Faculty

Professors—Anatomy

Nancy Bigley, microbiology and immunology
Robert Fyffe, neuroscience
Gary L. Nieder, information technology in anatomy education
John C. Pearson, neuroscience

Associate Professors—Anatomy

Francisco J. Alvarez, neuroscience
Frank Nagy, information technology in anatomy education
Larry J. Ream, neuroscience
Dawn Wooley, virology

Professors–Physiology & Biophysics

Jay B. Dean, neural control of respiration, effects of gases on the CNS, hyperbaric neurophysiology

Robert W. Putnam, regulation of intracellular pH, cell volume regulation, neuroscience and neural control of respiration

Julian G. Cambrono, physiology/biochemistry of signal transduction in normal neutrophils and leukemic cells

Associate Professors–Physiology & Biophysics

Adrian Corbett, sodium channel subtypes and subcellular targeting

Melvyn D. Goldfinger, neuroscience and biophysics of somatosensory afferents and relay nuclei

Dan R. Halm, epithelial physiology

Noel S. Nussbaum, endocrinology, medical informatics

Assistant Professor–Physiology & Biophysics

Thomas L. Brown, physiology, apoptosis, and immunology

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Nursing

Introduction

The College of Nursing and Health offers a graduate program leading to a Master of Science degree with a major in nursing and a dual degree program leading to a Master of Science and a Master of Business Administration in administration of nursing and health care systems. Students may complete the requirements for two concentrations while pursuing a nursing Master's degree. A third program enables the registered nurse student with a bachelor's degree in a traditional discipline outside of nursing to enroll in a bridge program leading to a master's degree. The program prepares nurses for advanced leadership roles in practice and administration, as well as for doctoral study in nursing. The curriculum offers students the opportunity to individualize the nursing major by selecting from areas of clinical specialization and roles (clinical specialist, nurse practitioner, nurse administrator, or school nurse). Nurses already possessing a master's degree with a major in nursing may earn a second M.S. degree in nursing. The programs accommodate both full-time and part-time students, with most classes offered in the late afternoon and evening. The sequence of course offerings is flexible. Full-time students may complete the program within one or two calendar years, depending on the major. Part-time students must complete all requirements for the degree within five years.

Admission

The College of Nursing and Health has several admission requirements in addition to the minimum requirements of the School of Graduate Studies. All prospective students must have:

- a baccalaureate degree in nursing from a school of nursing that is accredited by a nationally recognized body for nursing education accreditation. Alternately, the prospective student may be a registered nurse with a bachelor's degree in a traditional discipline other than nursing, which will require selected support and professional nursing bridge courses in addition to regular graduate curriculum requirements.
- an overall grade point average in undergraduate work of 3.0, or 2.7 with 3.0 or better in the upper division course work in the major.
- submission of a goal statement with application to the program.
- within five years, complete a statistics course prior to enrollment in NUR 707.
- documented expertise in physical/health assessment or completed course.
- computer literacy.

- evidence of registered nurse licensure in Ohio.
- evidence of liability insurance, health insurance, CPR certification, and other necessary health information as required by clinical agencies, prior to clinical courses and practica.

All students are required to adhere to the policies and procedures set forth in the Wright State University Graduate Catalog and the College of Nursing and Health Graduate Student Handbook.

The college has a rolling admission policy to provide flexibility for students wishing to start in any quarter. Please note that some concentrations have specific deadlines. Please contact the college for details.

Degree Requirements

The program is divided into core and advanced practice options. The core includes courses in theoretical foundations, research, concepts of advanced practice and research sequence. To Complete the research sequence, the student has a choice of thesis, scholarly project, supervised research roject or research utilization courses.

Advanced practice specialty options include the choice of clinical or organizational systems. Students interested in administration of nursing and health care systems would select organizational systems. Students who select clinical systems choose a client focus with individuals or community. Current available clinical specialties include adult health, child/adolescent health, community health nursing, school nursing, the family nurse practitioner program, and the acute care nurse practitioner program.

Candidates for the master's degree must meet all of the following requirements:

1. Completion of a minimum of 50 credit hours
2. Completion of the program within five years
3. Maintenance of a 3.0 cumulative grade point average with no more than nine hours of C grades applicable to the degree
4. Successful completion of a research sequence.

School Nurse Licensure

In addition to the Master of Science nursing major with a concentration in School Nursing, the College of Nursing and Health collaborates with the College of Education and Human Services to provide a postbaccalaureate program of study leading to Professional Pupil Services School Nurse Licensure though the Ohio Department of Education. Interested individuals must first complete a baccalaureate degree with course work in growth and development, psychology, sociology, and/or anthropology. Each candidate must also have course work in community health and a current license to practice as a registered nurse issued by the Ohio Board of Nursing.

Facilities

The College of Nursing and Health is located in Wright State's newest building, University Hall—a state-of-the-art educational facility. Clinical instructional facilities are abundant and varied. Since June 1984, the school has had a collaborative agreement with the Division of Nursing at Miami Valley Hospital to form a Center for Excellence in Nursing. This agreement affords opportunities for research, clinical practice, and education for students and faculty. In addition, the school has contracts with over 200 agencies in the area including hospitals, rehabilitation centers, county health departments, nursing homes, school systems, senior citizen centers, and day care centers—all of which can be used for

clinical experiences and/or research.

For research, the Paul Laurence Dunbar Library and the Fordham Health Sciences Library are available. The Dunbar Library provides media production services and facilities. The university's Statistical Consulting Center provides support for data analysis.

Faculty

Professors

Barbara Fowler, community health, adolescent health, nursing education, health policy, cultural diversity, vulnerable populations

Margaret Clark Graham, community health, issues in advanced practice, primary care, prevention, nurse practitioner education, health policy, adolescent issues, families, outcome research, evidenced-based practice

Patricia Martin, maternal/child, community health, organizational behavior, research environments, evaluation

Susan G. Praeger, school nursing, adolescent health, nursing education, maternal-child nursing

Associate Professors

Janice Belcher, nursing administration, nursing informatics, psychiatric nursing

Donna Miles Curry, children and families, developmental screening, pain in children, pediatric critical care, separation anxiety, infancy

Virginia Nehring, clinical nursing practice, community/public health, spirituality, clinical instruction, psychiatric nursing practice

Kristine Scordo, adult cardiology, acute care, MVPS, health promotion, cardiac rehabilitation, informatics

Assistant Professors

Candace Cherrington, cardiac nursing, critical/intensive care, nursing research, research methods

Cynthia Gibbons, chemical dependency, community health, evaluation research, informatics and technology, mother/baby care, nursing research, parenting, pediatrics, research/utilization, research methods, teaching strategies, vulnerable populations

Bobbe Gray, cognitive models, design/methods, high-risk pregnancy, hope, maternal childbearing, mother/baby care, nursing research, teen pregnancy, parenting, stress and coping

Carol Holdcraft, stress and coping, subjective experience, cognitive models, recovery from MI, psychiatric nursing practice, hope, hardiness, informatics and technology

Mary Lynd, transitions for the aged, computerized teaching strategies

Gina Maiocco, adult health, nursing administration, critical care

Gail Moddeman, gerontology, adult health, pain management

Beth Sorensen, medical-surgical, gerontology, women's health

Patricia Vermeersch, clinical studies, dementia, gerontology, instrument development

Joyce Zurmehly, medical-surgical, obstetrics, psychiatric nursing

Clinical Assistant Professors

Lynne Kelley, pediatric health policy, injury prevention, advanced practice nursing issues, trans-cultural nursing

Martha Teter, diabetes

Alice Teall, adolescent health, genetics, menopause, informatics

Clinical Instructor

Latanya Davis, women's health, adolescent primary care

Course of Study

Program of Study

Summary of Requirements	50*
Core Courses	21
Thesis, scholarly project, supervised research experience or research utilization	3
Advanced Practice Options	29-44
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*Some concentrations require additional credit hours.

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Pharmacology and Toxicology

Introduction

The program leading to the Master of Science degree in the Department of Pharmacology and Toxicology will prepare students for careers in industry, government, education, and research organizations or for further professional training. It is offered in close cooperation with the U.S. Air Force and Navy Toxicology Laboratories located at Wright-Patterson Air Force Base.

This program differs from other undergraduate major or master's-level programs currently offered at Wright State University, both conceptually and with respect to employment and career options. It provides a comprehensive introduction to the broad range of theoretical concepts that comprise these disciplines, providing both historical context and state-of-the-art technical approaches to solving pharmacological and toxicological problems. This goal of providing students with a career-oriented yet theoretically based education will be accomplished within the core curriculum through the combination of text and literature-based lectures, complemented by laboratory instruction and journal club type seminars, and culminating with a thesis research project.

Admission

Applicants must fulfill the requirements for admission established by the School of Graduate Studies. A baccalaureate degree in physical, chemical, or life sciences with undergraduate level courses in biochemistry, molecular biology, molecular genetics, and cell biology is generally required. Preference is given to applicants with a GPA of 3.0 or greater. The Graduate Record Examination scores, a personal goals statement and three letters of recommendation are required. For international students, a TOEFL score of at least 600/250 will also be required.

Degree Requirements

To qualify for the Master of Science degree, students must satisfy the requirements of the School of Graduate Studies, as well as the program requirements. During the first three quarters, students will be required to enroll in 26–30 hours of didactic course work supplemented by laboratory rotations and research activities. During the second year, students will focus on developing a research-based thesis culminating with an oral thesis defense. PTX 990 (Seminar) is required each academic year quarter.

Administrative Organization of the Program

Responsibility for program administration lies within the Department of Pharmacology and Toxicology, School of Medicine. The program director will coordinate all aspects of the M.S. program and serve as ex-officio member of all committees. A program advisor will initially

advise new program entrants until such time as a research advisor is selected by the student and approved by the program director. A thesis committee consisting of two graduate faculty members in addition to the research advisor will be selected by the student in consultation with the research advisor.

Facilities

The Department of Pharmacology and Toxicology occupies the second floor of the Health Sciences Building on the main campus of Wright State University. Resources include seven well-equipped biomedical research laboratories and common equipment facilities. Wright-Patterson Air Force Base (WPAFB) is located immediately adjacent to Wright State University, where the facilities of the Air Force and Naval Toxicology laboratories are available to students in the program. In addition to providing a training site for thesis research, these sites also serve as a window to potential career opportunities for graduates of this program. The laboratories at WPAFB conduct research on the health effects of a wide variety of agents for military and other government agencies including the National Institute of Occupational Safety and Health (NIOSH), the U.S. Environmental Protection Agency (USEPA), and the Agency for Toxic Substances and Disease Registry (ATSDR). The university has an agreement of cooperation with WPAFB promoting educational and research interactions applicable to this M.S. program.

Molecular Biology and Imaging Research Facilities

Students will have the opportunity to utilize state-of-the-art equipment in this core facility maintained within the Department of Pharmacology and Toxicology. The core facility contains a sophisticated protein SELDI-TOF mass spectrometer, a laser scanning confocal microscope (Leica SP-2), an epifluorescence microscope (Leica DM-5), a phosphorimager (Fuji FLA-2000), and a multi-functional microplate reader (Packard Fusion). Computer workstations for storage, quantification, and analysis of data, and high-resolution printers for making images are available.

Integrative Pharmacology Facility

Students will also have the opportunity to utilize computerized behavioral and cardiovascular monitoring equipment to monitor the effects of stress, drugs, and toxicants on these physiological parameters in mice.

Faculty

Professors

Norma C. Adragna, regulation of endothelial cell ion transport
James N. McDougal, dermal toxicology, pharmacokinetic modeling
Mariana Morris (chair), neuroendocrinology, hypertension

Associate Professors

David R. Cool, neuroendocrinology, intracellular protein sorting
Robert D. Grubbs, signal transduction, neuropharmacology
John M. Frazier, predictive toxicokinetics
James B. Lucot, neuro/behavioral pharmacology, stress-toxicity interactions
Thomas D. Lockwood, regulation of cellular proteolysis, control of cardiac blood flow
Javier E. Stern, neurophysiology/neuroanatomy, peptidergic regulation of ion channels

Assistant Professor

Courtney E. W. Sulentic, cellular and molecular immunotoxicology

Research

Faculty Research Areas

The program faculty have active research projects in overlapping areas, reflecting a multidisciplinary approach to investigating cardiovascular, toxicological, behavioral, and neuroscience problems. Specific areas of research include: cellular ion transport, prohormone processing and sorting in neurodegeneration, predictive toxicokinetics/hepatic toxicology, protein degradation/myocardial blood flow regulation, neurochemical/behavioral response to toxins, dermal toxicokinetics, molecular and cellular immunotoxicology, neuroendocrinology/cardiovascular function, and electrophysiological studies on peptide control of neuroendocrine/autonomic system.

Course of Study

Program of study	62-78
<hr/>	
Common core course requirements are:	
PTX 700 Research Techniques	3
CMH 601 Biostatistics	4
PTX 710 Principles of Biokinetics	4
PTX 750 Principles of Biodynamics	4
PTX 751 Molecular Toxicology	4
PTS 990 Seminar	3
Total	22
Electives	3-9

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Physics

Introduction

The Department of Physics offers two programs of graduate study leading either to the Master of Science or to the Master of Science in Teaching degrees. The program leading to the Master of Science degree is a research master's program with a required thesis and prepares graduates for employment in private or government laboratories or for further graduate work. This program includes a medical physics concentration, which deals with diagnostic radiology and magnetic resonance aspects. The Master of Science in Teaching program is designed to enable high school physics teachers to upgrade their knowledge of physics by providing a thorough treatment of those areas of physics that form the basis of our modern knowledge.

In addition to the above programs, the department supports the Interdisciplinary Science and Mathematics Master of Science in Teaching (M.S.T.) program offered by the College of Science and Mathematics.

Admission

For admission to graduate study in physics leading to the M.S. degree, candidates must:

1. meet the requirements of the School of Graduate Studies.
2. hold a B.S. or B.A. in physics from an accredited institution in the United States, or hold a B.S. or B.A. in an allied field and provide scores from the GRE-Physics or other comprehensive exam in physics.
3. be recommended for admission by the graduate studies committee of the physics department.
4. complete an orientation exam administered by the physics department for use in determining the program of study.

Degree Requirements

To be awarded the M.S. degree in physics, candidates for the degree must:

1. meet the degree requirements of the School of Graduate Studies.
2. complete 45 credit hours of course work listed as available for graduate credit; 36 hours must be physics courses numbered 680 and above, including PHY 680, 681, 682, 710, 711, and 712, and no more than 15 hours of PHY 899 (Research).
3. for the medical physics option, complete at least 45 credit hours, including PHY 681, 682, 710, 711, 712; BMS 762; BME 670; and no more than 15 hours of PHY 899

(Research). Suggested electives include BME 671, 732, 734, and BMS 958. In addition, the university radiation safety course is required.

4. complete EGR 153 or demonstrate equivalent computer experience and ability.
5. pass a thesis defense administered by the advisory committee over research work and any topics in the core physics curriculum the committee may deem appropriate.
6. present an approved thesis to the graduate school.

Details concerning program selection, student evaluation, thesis requirements, and orientation examination may be obtained from the Department of Physics.

Performance Standards

Graduate students in good standing in physics must maintain a cumulative average of 3.0. A grade of C is considered a minimum passing grade. Candidates whose average is below 3.0 after 12 hours of graduate work will be placed on probationary status; they will be removed from this status when the average of 3.0 is earned. Students whose average is below a 3.0 after 18 hours of graduate work may be asked to withdraw from the program.

Master of Science in Teaching

This program allows secondary teachers to increase their physics background so that they may capitalize on a diversified exposure to physics in their own teaching of students at the secondary school level. Further, it provides an opportunity for optional courses in the area of professional education so that proficiency in the presentation of scientific materials can be augmented.

Admission

For admission to graduate study leading to the M.S.T. degree, candidates must:

1. meet the requirements of the graduate school.
2. present evidence of completion of an introductory physics sequence equivalent to the PHY 240, 242, 244, and 260 sequence at Wright State.
3. have received certification or provisional licensure to teach.

Prior teaching experience is not required but is strongly recommended.

Degree Requirements

To be awarded the M.S.T. degree in physics, the candidate must:

1. meet the requirements of the graduate school for award of a degree.
2. complete 45 credit hours of course work listed for graduate credit; 36 hours must be for physics courses numbered 620 and above, including PHY 646, 647, 746, 747, and no more than nine hours of 899.
3. submit a report on a research project that was approved by an advisory committee.
4. successfully complete an examination on the research project administered by an advisory committee.

Research Project

Each student, under the direction of the advisory committee and an advisor approved by this committee, is responsible for planning and satisfactorily completing a research project in the areas of physics or the teaching of physics. This project may consist of one of the following:

1. Research into more effective means for the presentation of physics in the classroom

2. Development of groups of classroom experiments or demonstrations
3. Writing texts or other classroom materials
4. Original experimental or theoretical research in an area of physics

Faculty

Professors

Gust Bambakidis (chair), theoretical physics, solid state
Thomas N. Hangartner, medical physics
Thomas E. Skinner, nuclear magnetic resonance

Research Professors

Jane L. Fox, atmospheric physics
David C. Look, semiconductor and device physics
Associate Professors
Beth Basista, physics education
Jerry D. Clark, atomic physics, quantum electronics
Gary C. Farlow, solid state, ion implantation
Brent D. Foy, biomedical physics
Allen G. Hunt, geophysics
Nicholas V. Reo, biomedical physics

Research Associate Professors

Zhaoqiang Fang, semiconductor and device physics
Naum I. Gershenzon, geophysics and mathematical physics

Assistant Professors

Gregory Kozlowski, superconductivity and nanostructures
Douglas T. Petkie, molecular spectroscopy

Research

The Department of Physics is involved in four major areas of research: solid state physics and materials, spectroscopy (optical, laser, molecular, and nuclear magnetic resonance), geophysics and atmospheric physics, and biomedical physics.

Research interests in solid state/materials physics include semiconductors, superconductors and nanostructures. The work on semiconductors involves defects in GaN, ZnO and SiC. Among typical phenomena of interest are the effects of radiation damage on electrical properties. Radiation damage and annealing treatments are characterized by Deep Level Transient Spectroscopy, Photo-Luminescence, Hall Conductivity, and Rutherford Backscattering techniques.

The research in superconductors is centered on the processing and preparation of high-temperature superconducting materials. It involves the enhancement of the critical current density and the study of pinning mechanisms and relaxation effects and their dependence on the microstructure of the material. This work is done in collaboration with researchers at Wright-Patterson Air Force Base.

The work in nanostructures involves fabrication of metallic nanoparticles using the solution-phase method, electrochemical deposition, and condensation techniques. Physical characterization of the properties is currently based on the optical behavior of the nanoparticles. In particular the relationship between size and shape of the nanoparticles and their absorption spectra is studied theoretically and experimentally.

Research in the Optical and Laser Spectroscopy Laboratory focuses on temporal and wavelength resolved spectroscopy. Specific research areas include study of high band gap semiconductor materials with techniques of photoreflectance, photoabsorption, and photoluminescence. In addition theoretical and computational studies are directed toward the understanding of energy and particle flow in gas discharge plasmas.

Research in the Molecular Spectroscopy Laboratory includes high-resolution spectroscopy, chemical physics, remote and in-situ sensing and molecular collisions. Experimental studies are in the millimeter-wave region of the electromagnetic spectrum on molecules related to the ozone chemistry of the upper atmosphere and astrophysics-related molecules found in the interstellar medium.

Nuclear magnetic resonance (NMR) research covers a broad range of topics with applications in chemistry, biochemistry, and medicine. Nuclear spin interactions can be used as powerful probes of atomic and molecular structure and dynamics, making NMR one of the most important techniques available for obtaining information on the spatial structure, mobility, and interaction of molecules in aqueous solutions. Theoretical and computational studies of nuclear spin dynamics yield new methods for increasing the information yield of NMR experiments. Experimental work in areas of metabolic profiling and phospholipid biochemistry is performed on shared instrumentation at the Cox Institute of Kettering Medical Center.

Research in physics of the earth is conducted in cooperation with the department of Geological Sciences as well as through the Institute for Environmental Quality. Subjects addressed include seismoelectromagnetism, geodynamics, multi-phase flow in porous media, optical and transport properties of red media, sediment transport in turbulent flow, and coupled ocean-atmospheric phenomena. Much of this work is related to petroleum and water resources and earthquake precursors. In a broader sense this research addresses the questions of the relative roles of non-linear physics, stochastic forcing, and heterogeneous surroundings in fundamental natural phenomena.

Research in atmospheric physics includes the physics, chemistry, and evolution of planetary atmospheres. Mathematical and computational methods are used, utilizing data from satellites and planetary probes to construct models of planetary atmospheres, including the earth's atmosphere.

The program in biomedical physics is in association with researchers at the Cox Institute of Kettering Medical Center and at Miami Valley Hospital. It includes radiological and magnetic resonance diagnostics. Related research in computational biology includes quantitative modeling of biological processes at the molecular, cellular, and organ level. Bioinformatics research on cellular genomic, proteomic, and metabolomic responses to interventions is done in association with scientists at Wright- Patterson Air Force base and other departments at Wright State University.

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Professional Psychology

Course of Study

Doctor of Psychology/Psy.D.

The School of Professional Psychology educates professional psychologists, offering a four- or five-year postbaccalaureate program leading to the Doctor of Psychology (Psy.D.) degree. Students may enter the program with either a bachelor's or master's degree, and provisions are available for transfer of some graduate credit.

The school was among the first doctoral programs in the country to open a practitioner model of training in which the primary emphasis in training is on application of psychology rather than on research. The program accepted its first students in 1978, and has been continuously accredited by the American Psychological Association.

The primary goal of the program is to train students broadly as general practitioners to allow students to prepare for an initial focus in a number of established and emerging areas of practice. Students receive training in each of the following areas: Intervention/psychotherapy, relationship skills, psychological assessment, research/evaluation/basic science, consultation/education, and management/supervision.

The program is dedicated to recognizing and infusing diversity throughout its curriculum. The interest in diversity is reflected in the student body, about half of whom are minorities and international students. Faculty and staff respect and reflect diversity.

The school maintains two training clinics-the university's counseling service and the Ellis Institute for Human Development, which is a training, service, and research center located near downtown Dayton. Each student is assigned for at least one year of practicum training to one of these sites. In addition, the program has contracts with a large number of community human service agencies that provide off-campus practicum training.

Extensive financial aid is available to students in the form of tuition waivers and stipends. Information about the program and materials for admission can be obtained from the school's admissions office at 117 Health Sciences Building, Wright State University, 3640 Colonel Glenn Hwy., Dayton, OH 45435-0001, or by visiting our Web site at <http://www.wright.edu/sopp/>. The telephone number is (937) 775-3492.

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Psychology

Introduction

The Department of Psychology offers programs of graduate study leading to the Master of Science (M.S.) degrees and the Doctor of Philosophy (Ph.D.) degrees in human factors and industrial/organizational psychology. Human factors, also called ergonomics or engineering psychology, deals with human-machine or human-computer interactions or with the design of specific tasks. It focuses on improving system performance and developing effective interfaces through the application of knowledge of the operator's perceptual and cognitive processes. It emphasizes the technical aspects of a situation, looking for ways to modify the physical environment in order to improve performance. Aerospace-related applications are common at Wright State University because it is adjacent to Wright-Patterson Air Force Base, a major center of human factors research and development. Applications in consumer products, training, computer systems, and command/control are also investigated. Industrial/organizational psychology is primarily concerned with individual, group, and organizational behavior in work settings. It deals with "interfaces" of people with people (either individuals or groups). It focuses on improving system performance and improving organizational design and staffing through the application of knowledge of human personality structure and social-motivational processes. It emphasizes the social side of an environment, looking for ways to modify the set of people who interact in and with a system by selecting people who fit an environment, by training, or by designing organizational structures to motivate performance.

Students may enter a terminal M.S. degree program, specializing in either human factors or industrial/organizational psychology.

Students may also enter the Ph.D. program, specializing in either human factors or industrial/organizational psychology, but the program will foster an understanding of both areas and the importance of considering both aspects in the design of industrial, aerospace, and other systems. The area of specialization will be considered the major focus area while the other area will serve as a minor focus area.

Admission

Students may be admitted into either the terminal M.S. program or the Ph.D. program. Students admitted to the Ph.D. program should have a baccalaureate degree from an accredited institution with a major in psychology or at least 24 quarter credit hours of psychology. Students should have completed courses in cognition or human learning, sensation and perception, social or organizational psychology, personality or test and measures, or abnormal, experimental design/statistics, and experimental methods. Ideally, students should also have completed a year of physical or biological science, courses in mathematics, and computer science. Students who are missing one or more prerequisite courses will be expected to complete appropriate remedial course work at the onset of the

program, in addition to degree requirements. Students admitted to the terminal M.S. program should have a baccalaureate degree from an accredited institution and must have completed most of the specified course work.

All prospective students must submit an official transcript from each institution attended. Scores on the Graduate Record Examination (verbal, quantitative) also must be submitted. Three letters of recommendation must be received from previous university professors or relevant professionals. Applicants also must submit an essay describing their professional goals and current academic interests in human factors or industrial/organizational psychology.

All admissions are competitive. Applications will be evaluated to determine the likelihood of success in the program and potential for a career in human factors or industrial/organizational psychology. Evaluation criteria will include: cumulative grade point average, verbal and quantitative Graduate Record Examination scores, performance in relevant course work, letters of recommendation, previous research experience, relevant job experience, and other information about writing and quantitative skills. Applications are due by January 1 for fall consideration.

Degree Requirements

Master of Science

In order to qualify for a Master of Science degree, students must complete all of the following requirements, in addition to satisfying requirements of the School of Graduate Studies.

1. Complete a minimum of 55 quarter-hours of course work
2. Complete course work in the following areas:
Eight credit hours of core psychology courses
Eight credit hours of major focus courses
Four credit hours of minor focus courses
Three-course sequence in research design, methods, and statistics
3. Complete first-year research requirement
4. Complete an acceptable research-based thesis, including a written proposal and thesis, and oral defense of both

All course work and program options may be used to satisfy requirements only if officially approved on the Program of Study. Students must declare either human factors or industrial/organizational as their major focus. Additional information may be obtained from the Department of Psychology.

Doctor of Philosophy

In order to qualify for a Doctor of Philosophy degree, students must complete all of the following requirements, in addition to satisfying requirements of the School of Graduate Studies.

1. Complete a minimum of 136 quarter-hours of course work
2. Complete course work in the following areas:
At least three core science psychology courses
Twenty-four credit hours of major focus courses
Twelve hours of minor focus courses
Three-course sequence in research design, methods and statistics
One advanced course in research design, methods and statistics
Course in history and systems in psychology

3. Complete first-year research requirement
4. Complete an acceptable M.S. thesis, including a written proposal and thesis, and oral defense of both
5. Pass the qualifying exam
6. Meet residency requirements
7. Meet practical experience requirements
8. Complete a Ph.D. dissertation and successfully defend the dissertation in an oral exam conducted by a dissertation committee

All course work and program options may be used to satisfy requirements only if officially approved on the Program of Study. Students must declare either human factors or industrial/organizational as their major focus. Additional information may be obtained from the Department of Psychology.

Facilities

The programs in human factors and industrial/organizational psychology are a major focus of departmental activity; two-thirds of the faculty in the department specialize in one of the two program areas. Students enter a program with a critical mass of faculty and students and a wide variety of research opportunities.

In addition to individual faculty research laboratories, the Department of Psychology maintains general laboratories to support teaching and research. The two PC laboratories each contain 17 dual processor computers with 17-inch LCD color monitors, and an additional six dual processor PCs for make-up labs. The two Macintosh laboratories contain 17 Macintosh G3 and 17 dual G4 computers with high resolution 16-inch CRT and 17-inch LCD color monitors, as well as a Macintosh LaserWriter and two Xerox 21 ppm network printers. A laboratory facility has eight optical benches including optics, monochromators, electric shutters, etc. used for visual experiments. Special purpose equipment such as a Prichard Photometer, Kay Sound Spectrum Analyzer, and Hewlett-Packard Color Scanner are available. The department has a variety of other general-purpose facilities for individual and small group testing. These include audiovisual equipment for taping or presenting information to groups, observation rooms with one-way windows, and laptop computers for field research.

The department has extensive facilities for virtual environment generation, including 3-D visual displays, 3-D auditory displays, and tactile/haptic displays. The Virtual Environment Research, Interactive Technology, and Simulation (VERITAS) facility, which is owned and operated by Wright State University but housed at Wright-Patterson Air Force Base, is unique in the world. The facility includes a room-size display that surrounds the user with interactive 3-D auditory and visual images. The department also has four alien wave high-end 3-D stereoscopic systems with VEGA (Virtual 3-D Developer Environment) software and Multigen creator (3-D Environment Geometry Tool). The department is a member of The Ohio Consortium for Virtual Environment, which includes five other universities in Ohio.

The department of Psychology maintains a Psychology Computer Services (PCS) facility to support research and teaching. The PCS has two computer engineers and undergraduate student assistants. The PCS provides software, hardware, and network support.

Research is also conducted in off-campus facilities. Dayton is a major center for human factors research. The Department of Psychology has a Memorandum of Agreement with the U.S. Air Force Armstrong Laboratory, which facilitates use of its sophisticated behavioral laboratories such as flight simulators and the Auditory Localization Facility for free field binaural research. Dayton is also an area of considerable industrial and corporate strength. Industrial/organizational research is conducted in conjunction with local firms. Faculty and students interact with many colleagues in government and the private sector.

Faculty

Professors

Kevin B. Bennett, human-computer interaction, training, graphic display design
John Flach, perceptual-motor skill, ecological psychology, human-machine systems
Helen Altman Klein, developmental, applied psychology, home design for aged
Allen L. Nagy, color displays, visual science
Wayne L. Shebilske (chair), training complex skills, spatial orientation

Associate Professors

Herbert A. Colle, mental workload, keyboard interfaces, working memory
Jean M. Edwards, personality assessment, stress
Robert H. Gilkey, binaural displays, masking, psychoacoustics, virtual environments
Debra Steele Johnson, training systems and feedback, intelligent tutoring
Valerie Shalin, workplace expertise and learning, aiding and training technology
Pamela S. Tsang, time sharing performance, aviation, aging
Scott Watamaniuk, visual motion, eye movements
Daniel L. Weber, psychoacoustics, auditory warnings

Assistant Professors

Dragana Claflin, developmental neuroscience, learning and memory in humans and other mammals
David M. LaHuis, personnel/organizational psychology
Corey E. Miller, personnel psychology, legal issues, diversity management
Tamera Schneider, stress and physiology, persuading healthy behaviors

Financial Assistance

The department awards both graduate teaching assistantships and graduate research assistantships. These appointments carry a waiver of tuition and instructional fees for both residents and nonresidents. Incoming students should express their interest as a part of the application process. Appointments are made for one academic year and may be renewed. Teaching assistants will have instructional responsibilities, and research assistants will be responsible for supporting research under the supervision of a faculty member. For additional information on financial aid, see the "Financial Assistance, Fees, and Tuition" section.

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Please send comments to [Denise Thomas-Hoskins](mailto:Denise.Thomas-Hoskins).

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Public Administration

Introduction

The Department of Urban Affairs & Geography offers the Master of Public Administration (M.P.A.) degree. The National Association of Schools of Public Affairs and Administration accredited Wright State University's M.P.A. program (2008-09); it is the only accredited M.P.A. program in southwest Ohio.

The primary mission of the M.P.A. degree program is to prepare students to be public and nonprofit administrators in a complex political, cultural, economic and global environment. The program is composed of both part-time and full-time students. Classes are offered by full-time faculty and distinguished practitioners from the greater Dayton region who serve as affiliated faculty. The M.P.A. also offers a certificate in American Humanics Nonprofit Administration (AH).

Admission

Students interested in the M.P.A. program must first present a baccalaureate degree, preferably in the social or behavioral sciences, with an overall undergraduate grade point average of 3.0 or better on a 4.0 scale. Students who cannot meet this grade point average requirement should review the policies of the School of Graduate Studies and the department of Urban Affairs and Geography for other options.

Public Administration applicants submit three letters of recommendation from individuals familiar with their academic achievements and/or ability to meet the rigorous requirements of graduate studies. The department also requires applicants to write a 400-word essay outlining personal goals and how the M.P.A. degree will help them achieve their goals.

Advising

Upon gaining acceptance into the program, students must complete a program of study with their advisor and attend the department's fall orientation. Students are encouraged to begin their studies in the fall quarter (see core courses listed below).

Degree Requirements

The M.P.A. curriculum consists of 52 credit hours of approved course work. The curriculum requires: (1) 28 credit hours of core courses, (2) 8 credit hours of thesis (URS 799) or 4 credit hours of a research or capstone project (URS 724), (3) 4 to 8 credit hours of internship (URS 723), and (4) elective courses that are approved by an advisor for the remainder of the credit hours.

Internships are designed to meet the needs of students with no prior experience in the public or nonprofit sectors. In-service students may substitute an elective course for the internship requirement.

Students completing the URS 724 requirement have the option of completing an applied research paper focusing on a public administration issue or participating in a capstone project. The capstone creates teams that use research methods to analyze and solve an administrative issue for a local public or nonprofit organization.

Faculty

The teaching philosophy of the faculty emphasizes analytical thinking and critical administrative skills. M.P.A. faculty are experienced in current public administration and urban management issues, and they require students to apply their coursework to problem solving cases within the region and beyond. In addition to extensive traditional and basic scholarship, the faculty also serve on governing and advisory boards both in the metropolitan area and on behalf of national associations.

Professors

Mary Ellen Mazey (dean, College of Liberal Arts), urban and regional leadership/ planning, international urban development

William J. Pammer, Jr., public and international affairs, finance/budgeting, conflict management theory and practice, research methods and evaluation

Associate Professors

Jack Dustin (chair and director of the Center for Urban and Public Affairs), city and regional administration, organizational development, technology and environmental policy

Jerri Killian, (M.P.A. Director) administrative ethics, organizational theory, human resources,

education policy, management change and reform

Mary V. Wenning (AH Executive Director), human resources, housing and land use policy, urban/regional planning, research methods

Assistant Professors

Jennifer Subban, urban/international administration, nonprofit management, social/welfare policy, research and evaluation, race/ethnicity and gender theory

Financial Assistance

The department awards graduate research assistantships (GRAs) annually to qualified students, based on the availability of funds and grants. Students in degree status and not employed in a public/nonprofit administrative position are encouraged to apply for a GRA position. Applications are available from the department.

The department grants a tuition waiver and pays a stipend to each GRA. GRAs are required to work 20 hours per week during the academic year. The department's chair assigns GRAs to projects that will develop their analytical and problem solving skills, and knowledge of public policy and administration.

Course of Study

Program of Study Courses

Core Courses

28

URS 710 Environment of Public Administration

4

URS 711 Urban Organizational Theory/Management Behavior

4

URS 712 Research Methods in Public Administration	4
URS 713 Public Planning	4
URS 715 Public and Non-Profit Budgeting	4
URS 716 Public Human Resources Administration	4
URS 720 Quantitative Analysis for Public Managers	4

Additional Requirements **4-12**

URS 723 Urban Internship	4-8
URS 724 Research or Capstone Project or	4
URS 799 Thesis	8

Elective Course Options **12-20**

The following course options are offered by the department. Students may select courses from other graduate programs with approval from their advisor.

URS 612 Cities and Technology	4
URS 614 Urban Fiscal Administration	4
URS 615 Community Development I	4
URS 616 Community Development II	4
URS 617 Urban Labor Relations	4
URS 620 Public Safety Administration	4
URS 623 Issues in Urban Administration (varied topics)	4
URS 624 Issues in Urban Planning (varied topics)	4
URS 625 Issues in Urban Development (varied topics)	4
URS 627 Urban Policy Analysis	4
URS 650 Ethics in Public Service	4
URS 670 Urban Leadership	4
URS 675 Management of Urban Nonprofits	4
URS 722 Directed Studies in Urban Administration	4
GEO 647 Geographic Information System Principles	5
GEO 648 Geographic Information System Applications	5

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Public Health

Introduction

Wright State University School of Medicine is pleased to offer the Master of Public Health (M.P.H.) degree, a graduate program for leaders in public health. Four concentrations are available including: Public Health Management, Health Promotion & Education, Emergency Preparedness and Public Health Nursing. The M.P.H. program is founded on the principles of community-academic partnership, with the strength of seven Colleges/Schools at Wright State University, collaboration with the University of Cincinnati, and participation with 24 health districts throughout a sixteen county region.

The program is the first in the nation to incorporate a community-based, interdisciplinary educational program in public health with this particular combination of colleges and schools. While grounded in traditional classroom instruction, distance learning plays a key role in the program. The program is responsive to the educational needs of working professionals in southwestern Ohio who serve over 2.8 million residents.

Admission

Graduate School Admissions

Applicants must fulfill the requirements for admission established by the School of Graduate Studies. Minimum graduate school requirements include an earned bachelor's degree from an accredited college or university and a minimum undergraduate grade point average of 2.7 (based on a 4.0 grading scale). Official Graduate Record Examinations (GRE) test scores must be submitted, except for applicants with an earned graduate or advanced professional degree.

MPH Requirements for Admissions

Students must submit: (1) a personal statement of interest addressing career goals and objectives; (2) three letters of recommendation, preferably from a public health or other healthcare or community professional, (3) a completed MPH application form, and (4) official GRE test scores, as indicated above. An on-site interview is required prior to a final admission determination.

Degree Requirements

Seven core courses will be offered and must be completed by all students admitted to the program. Each student will select one concentration area of study and complete a minimum of 12 hours of study in that area. A field placement is completed during the summer quarter between the first and second year of study. Each student will work with a

faculty representative and a community preceptor. The second component of the applied learning is the intensive culminating project. Each student will work with his or her faculty advisor to develop an appropriate applied project. The applied project will include elements from the core courses as well as mastery of the concentration area of study. The student will have a primary program committee including an academic advisor, one additional university faculty member, and a field practicum representative. Program committee members will work closely with students in the development and completion of the project. The culminating experience has three primary components: a proposal, a written applied project paper, and an oral presentation.

Faculty

Program Administration

Richard J. Schuster, M.D., M.M.M. – Program Director
William A. Mase, M.A. – Associate Director
James Ebert, M.D. – Public Health Management Director
Marietta A. Langlois, Ph.D. - Health Promotion and Education Director
Barbara A. Fowler, Ed.D., D.N.Sc., - Public Health Nursing Director
Mark Gebhart, M.D. – Emergency Preparedness Director
Petra Weaver, Program Coordinator

Core Faculty

Harry J. Khamis, Ph.D., - Biostatistics
Marietta A. Langlois, Ph.D. – Social & Behavioral Sciences
William A. Mase, M.A. – Introduction to Public Health & Policy
John S. McAlearney, Ph.D. – Health Economics
Sara J. Paton, Ph.D. – Epidemiology
Richard J. Schuster, M.D., M.M.M. – Health Systems Management
TBA – Environmental Health

Health Promotion & Education Faculty

Marietta A. Langlois, Ph.D., Director
Katherine L. Cauley, Ph.D.
Dan DeStephen, Ph.D.
Charlotte Harris, Ph.D.
Bonnie R. Mathies, Ph.D.
Drew Pringle, Ed.D.
Norma J. Shepelak, Ph.D.

Public Health Management Faculty

James Ebert, M.D., Director
Christopher J. Barde, M.D.
Gerald E. Crites, M.D.
Jack L. Dustin, Ph.D.
Robert E. Hickey, Jr., J.D.
Jeri Killian, Ph.D.
Michael R. Kriner, B.S.
Douglas A. Magenheimer, M.D., M.B.A.
William A. Mase, M.A.
John S. McAlearney, Ph.D.
Daniel D. Mefford, C.P.A., M.B.A.
Thomas F. Murphy, M.D., M.P.H.
William J. Pammer, Jr., Ph.D.

Arthur Pickoff, M.D.
 Craig Self, C.H.E., M.B.A.
 Charles A. Stemple, D.O., M.B.A.
 Jennifer E. Subban, Ph.D.
 Marianne L. Weber, M.Arch., M.H.S.A.
 Mary V. Wenning, Ph.D.
 Kathleen M. Wolner, M.D.
 Peter K. Wong, Ph.D., M.B.A., R.Ph.
 Richard Wyderski, M.D., M.M.M.

Public Health Nursing Faculty

Barbara A. Fowler, Ed.D., D.N.Sc., Director
 Annette S. Canfield, M.S.N.
 Carol A. Holdcraft, D.N.S.
 Lynne M. Kelley, M.S.N., M.P.H.
 Donna Miles-Curry, Ph.D.
 Virginia N. Nehring, Ph.D.
 Kristine A. Scordo, Ph.D., R.N.

Public Health Clinical Faculty

Gary Crum, Ph.D., M.P.H.
 James Luken, R.S., M.P.H.
 Mark McDonnell, M.S.
 Morton Nelson, M.D.
 Charles Patterson, M.B.A.

Course of Study

Core Curriculum	Credit Hours (Quarter)
Introduction to Public Health and Health Policy	4
Health Systems Management	4
Biostatistics for Health Professionals	4
Public Health Epidemiology	4
Environmental Health	4
Social and Behavioral Determinants of Health	4
Economics of Health and Health Policy	4
Sub Total	28 credit hours
Concentration course (12 hours)	
Concentration Course	4
Concentration Course	4
Concentration Course	4
Subtotal	12 credit hours
Practice Placement	4
Culminating Experience	8
Subtotal	12 credit hours
<hr/> Total Hours	<hr/> 52 credit hours <hr/>

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Selected Graduate Studies

Introduction

Under a carefully administered program, students may develop a proposal for a master's degree that is not available in any one existing program, but combines elements of two or more existing master's degree programs. One-of-a-kind programs are possible in certain circumstances, and may be pursued in one of the following ways:

- A new student may develop a proposal for a master's degree that is not available in any one existing program. The proposal must be approved by an Advisory Committee comprised of three or more members of the graduate faculty from two or more programs. The proposal must be presented to the dean of the School of Graduate Studies, who will forward it to the Policies Committee of the Graduate Council for review and approval. The proposal must be signed by the student and the faculty member who is to serve as chair of the student's Advisory Committee; it must also be countersigned by the other faculty members of the Advisory Committee. The members of the Advisory Committee must be graduate faculty from programs that currently offer master's degrees.
- A student in an existing Wright State University master's program may, before having completed 24 credit hours of work, develop a proposal and follow the procedure as indicated above.

Degree Requirements

To guarantee the integrity of one-of-a-kind programs, the School of Graduate Studies will require that proposals follow these general guidelines:

1. All School of Graduate Studies requirements for degrees must be observed, such as the minimum number of credits to be earned, time limits and deadlines, the necessity of graduate faculty status for all Advisory Committee members, etc. The proposal must indicate whether the degree will be a Master of Arts or a Master of Science degree.
2. The written proposal must include three essential elements: a definition of the program, its rationale, and a list of required courses and additional suggested courses.
3. The proposed program may not be a patent device for escaping either the rigor or the specific requirements of already existing programs. The proposed program must have its own integrity and focus; it is not to be merely a survey of general knowledge in several fields of learning.
4. 500-level courses for graduate credit will be permitted in one-of-a-kind programs only in exceptional cases. If a substantial amount of lower-level work is required, it must be taken without graduate credit.

5. The program of study will contain a reasonable number of formal courses other than independent readings or independent studies from one or several departments. All required independent study courses must be outlined in the proposal.
6. A one-of-a-kind program will be approved only when the same objective cannot be accomplished by adding 12 or fewer credit hours to an existing degree program.
7. A proposal for a one-of-a-kind program that has been approved by the School of Graduate Studies will constitute the student's graduate program from which departures will be permitted only with the approval of the chair of the student's Advisory Committee. Those courses designated by the student's Advisory Committee as required in the program can be altered only with the approval of the Policies Committee of the Graduate Council. Upon application for admission to candidacy for the degree, the School of Graduate Studies will monitor the courses completed against those in the approved program. Departures from the required program of courses that have not had prior approval in writing cannot be credited toward the degree.
8. All one-of-a-kind master's degree programs must have a thesis or exit examination requirement. A School of Graduate Studies representative shall be appointed on all one-of-a-kind master's degree thesis defenses or exit examinations. This person shall be a member of the Policies Committee of the Graduate Council. The Policies Committee serves as the graduate program committee for one-of-a-kind degree programs.
9. The student's Advisory Committee shall meet no less than once each quarter.
10. Students pursuing these degrees will have "Selected Graduate Studies" listed on their transcripts as their major. Upon completion of the degree, the student may add a subtitle following "Selected Graduate Studies" which specifies the exact nature or title of the program undertaken.

Students interested in such a one-of-a-kind degree should contact the School of Graduate Studies for further information.

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Statistics

Introduction

The Department of Mathematics and Statistics offers the Master of Science degree in applied statistics. The graduate program is designed primarily to prepare graduates for careers in business, industry, or government, but can be tailored to provide a solid foundation for doctoral studies in statistics. The graduate program in applied statistics is open to persons with bachelor's degrees in a variety of fields besides mathematics and statistics. The prior mathematical training needed for entrance into the program has been kept to a minimum to accommodate students with undergraduate majors in fields such as biology, business, or one of the social sciences. The department makes provision for part-time degree candidates by offering all required courses in the late afternoon or evening.

Early consultation with the statistics graduate advisor is recommended, since the advisor works closely with the student in every phase of the program.

Admission

Applicants for admission are expected to meet the general requirements for admission to graduate study as established by the School of Graduate Studies. Applicants should have completed a calculus sequence that includes multivariable calculus and a course in linear or matrix algebra. Some experience in computer programming and enough background in probability and statistics to begin basic graduate courses in statistics is also required. This normally means one or two prior courses in probability and statistics, depending on content and level. Applicants with insufficient preparation may be admitted on the condition that they complete certain prerequisite work to be specified by the department at the time of admission. Because of course sequencing, it is best to enter the program at the beginning of fall quarter.

Degree Requirements

The Master of Science degree in applied statistics may be earned by satisfying the degree requirements described below. The applied statistics program allows students considerable latitude in designing a course of study. This program is primarily intended to prepare students for professional employment in business, industry, or government; however, it can also form a solid foundation for doctoral study.

All master's degree candidates are required to pass a comprehensive written examination which must be taken at least one quarter before the expected date of graduation. The examination is ordinarily offered during fall quarter.

In addition to the requirements of the School of Graduate Studies, the following

departmental requirements must be met to earn a degree in applied statistics. Full-time students normally take two years to complete this program.

Faculty

Professors

Harry J. Khamis, contingency table analysis, goodness of fit tests
Makarand V. Ratnaparkhi, mathematical statistics, biostatistics
Munshup Seoh, nonparametric statistics and computational statistics
Daniel T. Voss (program director), design and analysis of experiments

Associate Professors

Kimberly Kinatader, stochastic processes and exit times
Thaddeus Tarpey, multivariate statistics, mathematical statistics
Weizhen Wang, testing hypotheses, biostatistics

Financial Assistance

The department awards a limited number of graduate teaching assistantships annually to qualified applicants. Assistantships may be renewed for a second year; assistants can complete the requirements for a degree in two years. An assistant's duties include classroom teaching, which is a meaningful aspect of the education of graduate students in the mathematical sciences. Other assistantships are sometimes available through research grants and contracts.

Course of Study

Required Courses

27

STT 661, 662 Theory of Statistics I and II*
STT 666, 667 Statistical Methods I and II*
STT 669 Introduction to Experimental Design*
STT 761 Theory of Linear Models
STT 791 Statistical Consulting

Elective Courses†

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STT 601 Nonparametric Methods
STT 611 Applied Time Series
STT 624 Statistical Control Methods
STT 626 Survival Analysis
STT 664 Computational Statistics
MTH 606 Mathematical Modelling
MTH 607 Optimization Techniques
MTH 631-633 Real Variables I-III
CS 670 Systems Simulation
STT 702 Applied Stochastic Processes
STT 721 Sampling Design
STT 740 Categorical Data Analysis
STT 744 Applied Multivariate Analysis
STT 762 Topics in Linear Models
STT 764 Topics in Experimental Design
STT 767 Applied Regression Analysis

Note: With the prior approval of the statistics advisor, other appropriate courses, including courses from outside the department, may be used as electives. Credit will be allowed for STT 686 or STT 786, Independent Reading in Statistics and Probability, and STT 696 or STT 796, Topics in Probability and Statistics, only if approved in advance.

*Students who have taken STT 661, 662, 666, 667, or 669 or equivalent prior to entering the program will be required to take additional elective hours in lieu of the courses taken.

†From the 18 hours of elective courses, at least 12 hours must be chosen from among the 700-level electives.

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Women's Studies

Introduction

The Women's Studies Program offers a 20-credit graduate certificate in Women's Studies that can be pursued in the contexts of the Master of Humanities and the Master of Arts in English Programs, as a complement to any graduate or professional degree program, or by nondegree graduate students. As an interdisciplinary program of women's studies—designated undergraduate and graduate courses across much of the curriculum—Women's Studies enables students to develop a specialty or subspecialty in gender analysis. For a list of approved courses and more information on the Women's Studies Program, visit the Women's Studies Web site: <http://www.cola.wright.edu/wms/wmsprgms.htm/>. See also Humanities, English Language and Literatures, and Selected Graduate Studies.

Admission

As a requirement for admission, individuals must have a baccalaureate degree in any field with a 3.0 average, or a graduate degree in any field, or be enrolled in any graduate degree program at Wright State University. Nondegree students must be admitted to the School of Graduate Studies with nondegree status. Students wishing to pursue the Women's Studies graduate certificate must fill out a certificate application with the director of Women's Studies.

Course of Study

Certificate Requirements

Core Course 4

PLS 650 Feminist Thought or ENG 720 Women's Studies Through Literature or an approved equivalent feminist theory course

Electives 16

Four electives are chosen from the list of graduate courses approved for Women's Studies, including one of the courses designated as international or cross-cultural. Students pursuing the Master of Arts in English or the Master of Humanities can substitute one elective from approved Women's Studies courses with four credit hours of ENG 799 or HUM 730 provided the focus of these are Women's Studies oriented.

Other Requirements

1. No more than three courses in the same discipline can be counted toward the certificate.
2. No more than two 500-level courses can count toward the certificate.
3. A minimum grade of "B" is required for each course counted toward the certificate.

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