



## 2004-2006

## GRADUATE CATALOG ONLINE

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### UAB Graduate Catalog

The online Graduate Catalog always reflects the most recent requirements and information pertaining to UAB's graduate programs. Previous years' catalogs are housed in the UAB libraries.

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## Catalog: Graduate Programs at UAB

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## UAB Graduate School

### Accounting (M.Ac.)

Graduate program director: *Turpen*

## Faculty

**Nell Adkins**, Associate Professor (Accounting); Tax

**Lowell S. Broom**, Professor (Accounting) and Associate Dean;  
Governmental and Not-for-Profit Accounting

**William D. Burg**, Assistant Professor (Information Systems)

**Cindy D. Edmonds**, Associate Professor (Accounting);  
Financial Accounting, Managerial Accounting

**Thomas P. Edmonds**, Professor (Accounting); Managerial  
Accounting, Financial Accounting

**L. Buky Folami**, Assistant Professor (Accounting); Financial  
Accounting, Managerial Accounting

**Michael K. McAlister**, Professor (Information Systems)

**Frank M. Messina**, Professor (Accounting); Accounting  
Information Systems, Tax

**Julio C. Rivera**, Associate Professor (Information Systems)

**Sanjay K. Singh**, Associate Professor (Information Systems)

**Deborah W. Tanju**, Professor (Accounting); Financial  
Accounting, Internal Auditing

**Murat N. Tanju**, Professor (Accounting); Financial Accounting,  
Managerial Accounting

**Bor-Yi Tsay**, Professor (Accounting); Accounting Information  
Systems, Managerial Accounting

**Richard A. Turpen**, Associate Professor (Accounting);  
Auditing, Financial Accounting

**Frank E. Watkins**, Associate Professor (Accounting); Legal



Studies

## Mission and Objective

The mission statement of the Department of Accounting and Information Systems is as follows: "The Department of Accounting and Information Systems is committed to providing a high-quality, practice-oriented educational experience to a largely urban population. The Department will offer, through its accounting programs, an educational foundation that will prepare students for professional careers in business and accounting or enable them to pursue graduate studies. The Department will contribute to the understanding and application of accounting and business knowledge through the scholarship activities of the faculty. The Department will maintain a continuing relationship with the professional community while supporting the internal activities of the University."

The objective of the Master of Accounting Program is to further develop in students the skills required for success in the accounting profession. Offered primarily in an evening format, it is designed for those individuals with a knowledge base in accounting and business who desire to broaden their communication, interpersonal, technological, and applied research skills. The Master of Accounting Program is accredited by the AACSB International-The Association to Advance Collegiate Schools of Business (AACSB International, [www.aacsb.edu](http://www.aacsb.edu)).

## Admission Requirements

Requirements for admission to the program include the following:

1. A bachelor's degree in accounting from an institution accredited by AACSB International received within the five-year period immediately preceding the desired term of enrollment (or a bachelor's degree from a regionally accredited institution and coursework equivalent to a UAB accounting degree).
2. A satisfactory score on the Graduate Management Admission Test (GMAT) administered by the Graduate

Management Admission Council (GMAC, [www.mba.com](http://www.mba.com)) within the five-year period immediately preceding the desired term of enrollment.

3. Satisfactory academic performance as measured by the undergraduate grade point average and particularly strong performance in the undergraduate accounting major.

The following additional admission requirements may apply to international applicants:

4. A satisfactory score on the Test of English as a Foreign Language (TOEFL) administered by the Educational Testing Service (ETS, [www.toefl.org](http://www.toefl.org)) within the five-year period immediately preceding the desired term of enrollment.
5. A "catalog match" transcript evaluation report prepared by Educational Credential Evaluators, Inc. (ECE, [www.ece.org](http://www.ece.org)).

Admission to the program is competitive. The number of qualified applicants admitted may be limited as deemed appropriate by the Master of Accounting Program Committee.

## Program Description

The program consists of 30 semester hours of graduate credit—21 hours of required courses and 9 hours of electives:

*Required courses (7):*

LS 557 Business Law for Accountants

AC 514 Governmental and Not-for-Profit Accounting

AC 600 Financial Reporting Strategy

AC 606 Advanced Topics in Auditing and Attestation

AC 620 Tax Entities

MBA 611 Management Information Systems

## MBA 617 Enterprise Application Implementation

### *Elective courses (3):*

Students may select any 500-level course designated by a School of Business departmental prefix or any 600-level MBA course except those in the core, i.e., students may not select any of these foundation ("core") courses-MBA 609, 610, 620, 632, 633, 640, 650, 660.

### ***Uniform CPA Examination***

The state of Alabama, through its Accountancy Laws and the Alabama State Board of Public Accountancy (ASBPA, [www.asbpa.state.al.us](http://www.asbpa.state.al.us)), requires that applicants for the Uniform CPA Examination hold a baccalaureate degree from an accredited institution and possess a total of 150 semester hours of postsecondary education, including at least 33 semester hours of accounting in specified areas at the upper-division or graduate level. UAB students can meet these requirements in several ways:

(1) *By obtaining an undergraduate accounting degree (or its equivalent) and completing certain additional course work as specified under the Board's Accountancy Rules.* Students interested in this option should contact an undergraduate advisor in the Office of Undergraduate Programs and Student Services in the School of Business for specific guidance. Those interested in this option who already hold degrees from other institutions should also contact an undergraduate advisor.

(2) *By obtaining a Master of Accounting degree.* Those who already hold an undergraduate accounting degree (or its equivalent) and who desire a graduate degree in accounting may establish their academic eligibility under the Board's Accountancy Rules by obtaining a Master of Accounting degree. Under these Rules, those who hold graduate degrees from accounting programs accredited by AACSB International (as is UAB's) meet the academic requirements for taking the Uniform CPA Examination.

(3) *By obtaining a Master of Business Administration degree.* Those who already hold an undergraduate accounting degree (or its equivalent) and who desire a graduate degree in business may establish their academic eligibility under the Board's Accountancy Rules by completing as part of their

M.B.A. requirements certain graduate accounting course work as determined by the Master of Accounting Program Director. Students interested in this option should first contact the Admissions Counselor in the Graduate School of Management.

### **Other Professional Accounting Certifications**

Other examinations leading to professional certification (CMA, CIA, etc.) generally do not require academic course work beyond the baccalaureate degree. Students interested in other accounting certifications should contact an undergraduate advisor or any member of the accounting faculty for further information.

## **Additional Information**

For detailed information contact the Graduate School of Management:

School of Business, BEC 219

1150 Tenth Avenue South

Birmingham, AL 35294-4460

Telephone 205-934-8817

FAX 205-934-9200

E-mail, M.Ac. [raturpen@uab.edu](mailto:raturpen@uab.edu)

E-mail, M.B.A. [gkinstler@uab.edu](mailto:gkinstler@uab.edu)

Web [www.business.uab.edu](http://www.business.uab.edu)

## **Course Descriptions**

Unless otherwise noted, all courses are for three semester hours of credit. For M.B.A. and other courses offered through the Graduate School of Management, see the M.B.A. information. The general enrollment requirement for Master of Accounting courses is graduate standing and an undergraduate accounting major or its equivalent. Graduate accounting courses are not open to nondegree students.

## **Accounting (AC)**

514. **Governmental and Not-for-Profit Accounting.** Special features of budgetary and fund accounting as applied to municipalities, other government units, and to other non-profit entities.

572. **Forensic Accounting and Information Technology Auditing.** Introduction to the practice of forensic accounting and its relationship to auditing in settings characterized by extensive reliance on information technology. An emphasis on audit methodology as applied to accounting information systems.

573. **Fraud Examination.** Advanced forensic accounting concepts with a primary focus on occupational fraud and abuse—its origins, perpetration, prevention, and detection. Prerequisite: AC 572.

574. **Forensic Accounting Practicum.** Work experience requiring the application of forensic accounting concepts and methods. One to three hours. Prerequisites: AC 573, LS 571, and permission of the instructor.

600. **Financial Reporting Strategy.** Consideration of recent pronouncements of various authoritative bodies such as the FASB and SEC through research projects and case discussions.

606. **Advanced Topics in Auditing and Attestation.** Study of professional standards and their application to external audits and other service engagements, with an emphasis on practical research and analysis.

620. **Tax Entities.** Basic research tools in taxation; selected parts of Internal Revenue Code and Regulations; tax planning techniques.

## ***Legal Studies (LS)***

557. **Business Law for Accountants.** The mechanics and application of the Uniform Commercial Code with emphasis on sales, commercial paper, and secured transactions; legal principles regarding trusts and estates, insurance, and business organization; and expanded treatment of the law of contracts.

571. **Legal Elements of Fraud Investigation.** Key legal

principles and courtroom procedures relevant to forensic accounting, and survey of related topics-criminology theories, evidence management, and litigation services.

Last modified 10/01/04

## UAB Graduate School

### Administration—Health Services (Ph.D.)

Graduate program directors: *Hernandez*

#### Faculty

**Nell Adkins**, Associate Professor (Accounting); Corporate Taxation, Market Effects of Taxation, Mergers and Acquisitions, Valuation of Intangible Assets

**Doug Ayers**, Associate Professor (Marketing); Business to Business Marketing, New Product Development

**Eta Berner**, Professor (Health Informatics); Evaluation of Clinical Decision Support Systems and Other Health Information Technologies

**Ted Bos**, Professor (Quantitative Methods); Economic Forecasting, International Business and Finance, Pacific Basin Financial Markets

**Janet M. Bronstein**, Associate Professor (Health Care Organization and Policy); Public Health Policy, Social and Ethical Issues in Health Care, Medicaid

**Lowell S. Broom**, Professor (Accounting); Alternative Dispute Resolution, Professional Ethics, Fraud Detection and Deterrence

**William Burg**, Assistant Professor (Information Systems); Database Management and Systems Analysis and Design

**Jeffrey Burkhardt**, Associate Professor (Health Services Administration); Health Care Finance, Applied Health Economics

**Richard Burns**, Professor (Finance); Corporate Finance, Firm Valuation, Small Business Finance

**Adrian Cowen**, Assistant Professor (Finance); Commercial Lending, Portfolio Risk Management, Capital Markets

**Vicki Cox-Edmondson**, Assistant Professor (Management); Strategy, Entrepreneurship, Corporate Social Responsibility and Business Ethics, Organizational Behavior, and Constraints Management

**Sarah Culver**, Associate Professor (Economics); Macro Economic Analysis, International Monetary Theory, and Exchange Rate Theory

**Manabendra DasGupta**, Associate Professor (Economics); Game Theory, Strategic Decision Making

**W. Jack Duncan**, University Scholar and Professor (Management, Health Care Organization and Policy); Administrative Theory, Strategic Management of Health Care Organizations, Organizational Internal Analysis

**Cindy D. Edmonds**, Associate Professor (Accounting); Financial and Managerial Accounting, Educational Delivery Issues

**Thomas P. Edmonds**, Professor (Accounting); Accounting Education and Instructional Development

**Thomas A. Fetherston**, Professor (Finance); Investments, International Finance, Pacific Basin Financial Markets

**Buky Folami**, Assistant Professor (Accounting): Cost and Financial Accounting, Risk Management, Business Analysis and Valuation

**Peter M. Ginter**, Professor (Health Care Organization and Policy, Management); Strategic Management of Health Care Organizations and Government Agencies, Macroenvironmental Analysis

**Gerald L. Glandon**, Professor (Health Services Administration); Health Economics, Technology Evaluation, Policy Analysis

**David C. Grabowski**, Assistant Professor (Health Care Organization and Policy); Financing and Delivery of Long-Term Care Services, Economics of Aging, Regulation and Health Care, Health Insurance

**S. Robert Hernandez**, Professor (Health Services Administration); Strategic Planning for Health Care Organizations, Health Care Organization Theory, Human Resources Management

**Tee H. Hiatt**, Professor Emeritus (Health Services Administration); Health Care Computer Applications, Data Processing in Health Care

**Vivian Ho**, Associate Professor (Health Care Organization and Policy); Health Economics and Management, Aging, Applied Microeconomics, Cost Effectiveness, Health Care Technology

**Robert E. Holmes**, Professor (Management); Business Education and Reform, Entrepreneurship, Strategic Management

**Howard W. Houser**, Professor (Health Services Administration); History of Health Care Systems, General Administration, Comparative Health Systems

**Eric Jack**, Assistant Professor (Operations Management); Project Management, Operations Planning and Management

**Kyungho Jang**, Assistant Professor (Economics); Time-Series Econometrics and Money-Macroeconomics



**Karen Kennedy**, Associate Professor (Marketing); Cognitive Research, Diversity, Services Marketing, Organizational Culture, Interpersonal Trust Development, Qualitative Research Methods

**Susan Key**, Associate Professor (Management); Business and Society, Ethics, Business Law, Business Policy and Strategy, International Policy

**Joshua C. Klapow**, Assistant Professor (Health Care Organization and Policy); Outcome Evaluation, Health Related Quality of Life, Health Care Delivery Systems, Behavioral Medicine, Chronic Illness, Provider Behavior

**Seung-Dong Lee**, Professor (Economics); Microeconomics in Nonprofit Organizations, Econometric Studies in Health Care, International Economics

**Warren S. Martin**, Professor (Marketing); Survey Research, Marketing Strategy, Professional Sales Strategy, Decision Making

**M. Khris McAlister**, Professor (Accounting); Management Information Systems, Data Processing for Health Care Organizations

**Stephen Mennemeyer**, Associate Professor (Health Care Organization and Policy); Health Economics, Competitive Bidding, Cost-Effectiveness, Outcomes Research

**Frank M. Messina**, Professor (Accounting); Taxation, Fraud Detection and Deterrence, Professional Ethics

**Michael A. Morrisey**, Professor (Health Care Organization and Policy); Health Economics, Health Care Markets, Health Insurance, Managed Care

**George M. Munchus**, Professor (Management); Human Resources Management, Labor Relations, Arbitration and Mediation

**Philip Musa**, Assistant Professor (Information Systems); Knowledge Management; Systems Thinking

**Lance Nail**, Associate Professor (Finance); Wealth and Value Creation, Mergers and Acquisitions

**Steven J. O'Conner**, Associate Professor (Health Services Administration); Health Care Policy and Management, Service Quality and Orientation, Stakeholder Analysis

**Helmuth Orthner**, Professor (Health Informatics); Next Generation Networks; Very High-Speed Communications Systems; Web-Based Informatics for Emergency Medical Care

**Thomas L. Powers**, Professor (Marketing); International Product Innovation, Marketing Strategy, Services Marketing, Industrial Marketing

**Julio C. Rivera**, Associate Professor (Information Systems); Telecommunications and Systems Analysis, Student and Faculty Computing Resources

**Robert Robicheaux**, Professor (Marketing); Marketing Strategy and Retailing

**Bisakha Sen** , Assistant Professor (Health Care Organization and Policy); Health Economics, Labor Economics, Applied Microeconomics

**Richard M. Shewchuk**, Professor (Health Services Administration); Community-Based Intervention Development, Health and Long-Term Care Issues in Aging, Quantitative Methods

**Sanjay Singh**, Associate Professor (Management); Operations Management, Computer Applications

**Tommie Singleton** , Assistant Professor (Information Systems); Systems Analysis and Design, Forensic Auditing and Systems Structure

**Detlev H. Smaltz** , Associate Professor (Health Informatics); Health Informatics, Knowledge Management

**Jay Smith**, Professor (Industrial Distribution); Transportation Policy, Cost Information Systems, Labor-Management Relations, Computer Decision-Making Systems

**Robert E. Stanford**, Professor (Economics); Operations Research, Quantitative Methods and Decision Technology in Health Service Organizations

**Bryce Sutton** , Assistant Professor (Economics); Macro Economic Theory, Healthcare Economics, and Biostatistics

**Deborah W. Tanju**, Professor (Accounting); Internal Auditing, Financial Accounting

**Murat H. Tanju**, Professor (Accounting); Financial Accounting, Managerial Accounting

**Bor-Yi Tsay**, Professor (Accounting); Accounting Information Systems, Cost Management

**Richard A. Turpen**, Associate Professor (Accounting); Auditing, Financial Accounting, Professional Ethics

**Robert Underwood**, Assistant Professor (Marketing); Brand Image, Brand Equity, Quality of Life Marketing, International Marketing, Purchase Behavior

**Joseph Van Matre**, Professor (Economics); Total Quality Management, Health Care Quality Improvement, Statistics

**Joe Walker**, Associate Professor (Finance); Corporate Finance, Investments, Small Firm Finance

**Frank E. Watkins**, Associate Professor (Accounting); Tax and Business Law, Stockholder Basis in S Corporations, Capital Gains

**Barbara Wech**, Assistant Professor (Organizational Behavior); Teams, Organizational Commitment

## **Program Information**

The Ph.D. program in Administration–Health Services is a degree program offered jointly and cooperatively by the Department of Health Services Administration in the School of Health Related Professions and the Graduate School of Management in the School of Business. Faculty associated with the School of Public Health, School of Medicine, Lister Hill Center for Health Policy, Center for Outcomes and Effectiveness Research and Education, and Center on Aging also contribute to student learning.

The Ph.D. program is for those who wish to pursue the conceptual, philosophical, and applied aspects of administrative processes in health services, health policy, and outcomes research in health care. It provides doctoral-level study and research in administration with specific application to health services.

The pedagogical focus is on developing a strong research orientation through course work, research seminars, and development of mentoring relationships. Students may choose a specialization in either strategic management or health services research. Students who are interested in pursuing academic careers are also afforded the opportunity to develop their teaching skills through course work and teaching opportunities. Job placement occurs in regional, national, and international markets. To date, over 50 graduates have taken positions in academic institutions as well as health service delivery, governmental, and consulting organizations.

## **Admission Requirements**

An applicant should already possess a master's degree in a relevant discipline or have completed an undergraduate program with an outstanding record. The application deadline is April 15. Completed applications of well-qualified candidates received by February 15 may be considered for early admission. Although applications may be considered after April 15, admission and financial aid priority is given to those applicants whose materials are complete as of the deadline. Admission recommendations are made by the Admissions and Policy Committee after examination of the candidate's qualifications, which should include a minimum GRE General Test score of 1,100 (verbal plus quantitative) or a GMAT test score of 550. All applicants whose first language is not English are also required to submit a TOEFL score of 550 or above. Consideration will also be given to the quality of the applicant's academic record, previous research experience and productivity, and estimated research potential as indicated by references.

Various forms of financial aid are available to students. Departmental research assistantships are awarded on a competitive basis and carry an obligation of 20 hours of work per week. Assistantships are awarded to incoming students for a period of one year, and may be renewable for a second year based on satisfactory work and academic progress, depending on the availability of funds. Some students are able to secure funding for additional years in the program through research assistant positions or other part-time jobs funded by faculty members' grants and contract activities. Other forms of financial assistance include minority fellowships offered through the UAB Graduate School, paid teaching opportunities in selected undergraduate programs, and federal student loans.

## **Prerequisites**

Prerequisite requirements include one graduate-level statistics course with computer usage and one graduate-level course on the U.S. health care system. Incoming students who have

not met these prerequisites during a master's program may take courses prior to entering the program or during their first year of study in the program.

## **Program of Study**

The program of study consists of five components (1) courses in administration and health systems, (2) courses in research methodology and statistics, (3) specialization courses, (4) comprehensive examinations, and (5) the doctoral dissertation. Specializations are currently available in strategic management and health services research. Students must complete all coursework in the first three areas and pass a comprehensive examination in each before work can officially begin on the dissertation. The investigation and other special work leading to the dissertation must be performed directly under the guidance and supervision of a five-person committee of the UAB graduate faculty. The normal minimum period in which the doctoral degree can be earned is three to four years of full-time study.

## **Degree Completion**

The granting of the Ph.D. degree is based on completion of all required coursework, residency requirements, comprehensive examinations, dissertation requirements, and the recommendation of the Administration–Health Services graduate program director and the dissertation committee.

## **Mission, Vision, and Values Statements**

Because outstanding teaching and research are essential to the future of health care delivery in our nation and abroad, the Ph.D. program in Administration–Health Services provides doctoral-level training to individuals who will be our future health care leaders in academic and nonacademic research organizations.

We seek to recruit a diverse and talented group of national and international students who are attracted to careers in research and teaching. The educational experience in the Ph.D. program is characterized by exposure to the various disciplines relevant to health administration and policy from across the university, as well as one-on-one mentorship relationships with faculty. These experiences are expected to serve as a foundation for future research throughout the graduate careers.

## **Additional Information**

For detailed information, contact the Program Office of the Doctoral Program in Administration–Health Services Program, UAB School of Health Related Professions, Webb Building, Room 564, 1675 University Boulevard, Birmingham, AL 35294-3361.

Telephone 205-934-3113

Fax 205-975-6608

E-mail [phdha@uab.edu](mailto:phdha@uab.edu)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Courses numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Administration–Health Services (AH)

700. **Health Economics.** Economic concepts and their relevance to health care industry; financing and delivery arrangements employed in the U.S. health care system; role of economic factors in the development of public policy and implications of changes in public policy.

701. **Administrative Theory.** Covers the history of administrative theory and management as well as recent contributions and current issues in administrative theory and management; focus is on understanding the evolution of management thought and research and on developing areas of research interest that will contribute to the field.

702. **Growth and Development of the U.S. Health Care System.** Historical development of U.S. health care system; implications for solutions of current problems.

703. **Philosophy of Science.** Systems of thought and activities in the theory-building process, deriving hypotheses from the literature, understanding scientific theory, philosophy of science; applications to health services administration.

704. **Multivariate Analysis.** Survey course on the application of multivariate statistical techniques; emphasis on application to health-related research questions and interpretation.

705. **Health Care Finance.** Financial management functions, third-party reimbursement, determination of costs and charges, analysis of financial positions, working capital management, budgeting, capital expenditure analysis, and case studies.

706. **Strategic Management Theory and Research.** Overview of current and historically important research in field of strategic management, including major streams of research, role of strategic management in management disciplines, relationships to other disciplines, and pedagogical approaches used in graduate and undergraduate strategy courses.

707. **Research Methods.** Issues of research design and research methods for organizational studies and health services research; integrates knowledge from quantitative courses with areas of research interest in the students' chosen fields.

712. **Research in Organizational Behavior.** Examination of topics and empirical research in organizational behavior; emphasis on important issues in the field, including areas of controversy and contemporary interest.

714. **Marketing Strategy and Research.** Examination of development of marketing strategy and strategic management process; research topics and implications of literature are explored.

715. **Research in Organizational Theory.** Topics and research in organization and management theory applied to health services organizations, including organization-environment relations, population ecology, interorganization relations, and strategic alliances.

716. **Macroenvironmental Analysis.** Examination of research literature that addresses external and internal environmental factors affecting strategic management.

718. **Strategic Information Systems.** Examination of current research on role of information systems in strategic management.

\*720. **Doctoral Seminar.** Presentations by faculty and Ph.D. candidates concerning current issues in particular areas of specialization. 1 hour.

722. **Regression Analysis.** Various approaches to regression analysis, including ordinary least squares and probability models such as logit and probit.

775. **Strategic Planning and Management in Health Services.** Assessment of strategic management literature applied to health services organizations; exploration of strategy formulation, strategic content, and implementation and evaluation topics for health care organizations.

\*790. **Independent Study and Research.** 1-12 hours.

\*798. **Nondissertation Research.** 1-6 hours.

\*799. **Dissertation Research.** Prerequisite: Admission to candidacy. 1-6 hours.

Last modified 09/15/04

## UAB Graduate School

### Anthropology (M.A.\*)

\*Degree awarded by the University of Alabama, UAB's partner in the cooperative degree program

Graduate program director at UAB: *Cormier*

## Faculty

**Steven Becker**, Assistant Professor (Environmental Health Sciences); Public Health

**Ksenija Borjevic**, Assistant Professor (Anthropology); Archaeology and Paleoethnobotany

**Scott Brande**, Associate Professor (Geology); Geoarchaeology

**Raymond Cashman**, Assistant Professor (Anthropology); Folklore, Linguistic and Cultural Anthropology, Northern Ireland

**Loretta A. Cormier**, Assistant Professor (Anthropology); Cultural Anthropology, Ecological, Ethnoprimateology, Lowland South America

**Akhlaque Haque**, Associate Professor (Government and Public Services); Geographic Information System

**Brian C. Hesse**, Professor (Anthropology); Historical Archaeology, Old World Archaeology; Zooarchaeology, Middle East

**Chris Kyle**, Assistant Professor (Anthropology); Political Anthropology, Cultural Ecology, Social Organization, Latin America, Mesoamerica

**Christopher C. Taylor**, Professor (Anthropology); Symbolic Anthropology, Medical Anthropology, Ethnohistory, Africa

**Bruce P. Wheatley**, Professor (Anthropology); Physical Anthropology, Primatology, Forensic Anthropology, Indonesia

## Degree Requirements

The M.A. degree program includes the basic course requirements, a foreign language or research skill requirement, and fulfillment of either Plan I (Thesis) or Plan II (Nonthesis).

## Basic Course Requirements

**Course Work:** Each student must complete a minimum of 30 credit hours of courses numbered 500 or above. Without special prior approval of the student's advisor, committee, and the director of graduate studies neither ANTH 691, 692, 693, or 694 (Special Problems Courses) nor ANTH 699 (Thesis Research) will count towards the minimum 30 hours. (Note that there are additional course requirements for two of the three options).

**Core Curriculum:** All students are required to complete satisfactorily a core curriculum composed of one graduate course in at least three of the four fields of anthropology. These three should be chosen from among: 1) linguistics - ANTH 608 (Advanced Linguistic Anthropology), 2) archeology - ANTH 609 (Advanced Archaeological Anthropology), 3) socio-cultural anthropology - either ANTH 607 (Social Structure) or ANTH 605 (Advanced Cultural Anthropology), and 4) physical anthropology - ANTH 610 (Advanced Physical Anthropology). Additionally, a seminar in Research Methodology (ANTH 510 at UA or ANTH 615 at UAB) is required.

Entering students must provide evidence of having passed introductory level courses in each of the four fields before taking the graduate courses. A student who has not had an introductory course may be required to take or audit the appropriate undergraduate course before enrolling in the graduate course. Credits earned from such preparatory course work may not be applied to the 30 credit hour requirement.

**Language/Research Skill Competency:** Each student is required to demonstrate competency in a foreign language or research skill. This requirement may be satisfied in several ways including:

- successful completion (meaning a grade of B or better) of at least the second course in a language course sequence such as FR 101/102, GN 101/102, or SPA 101/102;
- certification of competency by examination from the appropriate language department;
- successful completion of a graduate level statistics course such as Sociology 701 or another statistics course subject to the approval of the chair and the program director.
- Students must get the approval of their advisor before undertaking any of these options. The student will be responsible for furnishing evidence of completion of this requirement to the director of graduate studies and the department chairman.

**M.A. Committee:** By the start of the second semester of academic work each graduate student will be required to have identified a faculty member willing to serve as permanent advisor and at least three additional faculty members to comprise an M.A. jury. This committee is subject to final approval by the chair and program director and functions as the principal advisory and research project approval board. The committee may include an external member of the Graduate Faculty.

**Comprehensive Examinations:** All students must take and pass



comprehensive examinations on their knowledge of the field of anthropology. The student will take three-hour written exams in at least three of the four subdisciplines. The selection of the three areas will be made in collaboration with the faculty advisor. The entire anthropology faculty will participate in composing the exam questions and evaluating each student's responses.

The student must take the comprehensive exams before 20 credit hours of course work are completed. The faculty's evaluations will be communicated to the director of graduate studies and to the chairman of the department.

## **Interinstitutional Requirement**

Students must take at least 6 hours of graduate credit at the University of Alabama (Tuscaloosa) as required by the Interinstitutional MA.

## **Three Plans of Study for the Master's Degree**

In addition to choosing one of the two program options outlined above, the student must satisfy the requirements for one of the following three plans of study. Choice of the plan of study must be made by the student in consultation with the M.A. Committee and the faculty advisor.

**Thesis Option:** Thirty (30) hours of non-thesis course work, successful completion of the comprehensive examinations, plus a master's thesis. A student electing this plan of study will be required to conceive and execute a research project under the direction of his or her M.A. committee. A student should present a research project plan to the committee before twenty hours of course work have been completed. The student's advisor will convene the committee as necessary to discuss, refine, and approve this plan. After twenty hours of course work are completed, the student may enroll in ANTH 699 (Thesis Research). The purpose of this coursework is to provide a structure for supervised contact hours with the student's faculty advisor. Such coursework, including the decision as to the number of contact hours required, must be pre-arranged in consultation with the faculty advisor. Hours completed in ANTH 699 must be over and above the 30-hour minimum.

In preparing a thesis, the student should consult the booklet, *A Manual for Students Preparing Theses and Dissertations* available from the Graduate School.

Students who take the thesis option will present a departmental colloquium based on the results of their research in the final semester in residence. Students should consult their faculty advisor and the director of graduate studies in scheduling and posting advance notice of their colloquia.

**Non-thesis Research Project Option:** Thirty-six (36) hours of non-thesis

course work plus successful completion of one of the following:

- Presentation of a research paper at a national meeting which has been approved in advance by the student's M.A. Committee;
- Acceptance for publication of a research paper submitted to a refereed journal which has been approved in advance by the student's M.A. Committee.

In either case, it will be the responsibility of the student's committee to approve a written draft of the research paper. Approval of the paper will be conveyed in writing to the director of graduate studies and to the department chairman by the student's advisor. Final approval of the research project requirement is at the discretion of the M.A. committee.

Students who elect the thesis option will be required to defend their thesis before a departmental committee in the final semester of residence.

Non-thesis Option by Examination: Thirty-six (36) hours of non-thesis course work and successful completion of written and oral examinations.

## Additional Information

For detailed information, contact Dr. Brian Hesse, Graduate Program Director, UAB Department of Anthropology, U 338, 1530 3rd Avenue South, Birmingham, Alabama 35294-3350.

Telephone 205-934-3508

E-mail [ctaylor@uab.edu](mailto:ctaylor@uab.edu)

Web [www.sbs.uab.edu/anthro.htm](http://www.sbs.uab.edu/anthro.htm)

## Course Descriptions

For courses at the University of Alabama (Tuscaloosa), see the graduate catalog of that university.

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Anthropology (ANTH)

**600. Medical Anthropology.** Seminar addressing health care systems and theories cross-culturally; including historical changes and examination of wide variety of simpler and more complex systems. (Taylor, Wheatley)

601. **Forensic Approaches to Osteology.** Applied human osteology, emphasizing ability to identify age, sex, and population type of skeletal material. Effects of disease and behavior on bones. (Wheatley)

602. **Classics in Anthropology.** Close reading of major classics in anthropological literature; to include one each from the four main subfields of anthropology.

603. **As Others See Us.** Jointly offered with American Studies and International Studies, this seminar surveys international perceptions of U.S. culture. (Hesse)

605. **Advanced Cultural Anthropology.** Critical review of theoretical approaches in cultural anthropology. (Taylor, Kyle)

606. **World Ethnography.** Kinship, economy, social control, religion, and ritual for peoples in North America, South America, Africa, or Asia. Focus on one area. (McKenna, Taylor)

607. **Social Structure.** Theoretical works in political anthropology, economic anthropology, or kinship. Emphasis varies according to instructor. (Kyle)

609. **Advanced Archaeological Anthropology.** Principal theoretical approaches in 19th- and 20th-century archaeology; historical, processual, and postprocessual. (Hesse)

610. **Advanced Physical Anthropology.** Human evolution, primatology, race, human genetics. Tasks performed by physical anthropologists. (Wheatley)

611. **Field Archaeology.** Archaeological field and laboratory techniques, including excavation, surveying, and artifact analysis and description; general problems of archaeological interpretation. 1-6 hours. (Bergstresser, Hesse)

612. **Talking About Plants: Alabama Folk Botany.** Theory, methods, and techniques of ethnosience applied to local ethnographic field work in ethnobotany. (Cormier, Wapnish)

614. **Geoarchaeology.** Survey of geological methods as applied to archaeological questions. Practicum in geoarchaeological laboratory and analytic methods using samples from archaeological sites in Alabama and the Middle East. (Brande)

615. **Ethnographic Field Methods.** Classroom instruction and practical experience in techniques of ethnographic fieldwork, including participant observation, household surveys, structured and unstructured interviewing, and genealogies. 3-6 hours.

616. **Guerrilla Filmmaking.** This course will teach anthropology students to

document and analyze aspects of human social life using film and video. The camera can be a very effective ethnographic tool, but it is a transparent window into the world. Rather it is highly mediated and powerfully convincing. As in an essay writing course, students will develop an understanding of the visual syntax and narrative structure of successful ethnographic and documentary films through discussion and criticism in the classroom as through short film projects of their own. As the students begin to work on their own projects, some class item will be devoted to viewing and analyzing works in progress. (Cormier)

**617. Origins of Agriculture.** Survey of evidence for animal and plant domestication and reasons for spread of food production. (Borojevic)

**625. African American Archaeology.** African American archaeology is one of the better established research interests within U.S. historical archaeology. This course will examine the development of "the archaeology of the African diaspora" from its beginnings in the 1960s to the present day. Its principal focus will be the plantation of the Southern United States. The course will include an examination of history of the plantation economy as well as an exploration of issues currently of interest to archaeologists studying the archaeological record of African American life. (Bergstresser)

**630. Animal Bone Archaeology.** Introduction to methods and theories of zooarchaeological research. Practical experience in processing, identification, and interpretation of animal bone remains from archaeological sites. 3-6 hours. (Hesse)

**631. Palaeoethnobotany.** Survey of the plant-human relationships in the past and present. Practical field and laboratory experience in processing, identification, and interpretation of the plants from archaeological sites. (Borojevic)

**635. Ethnomedicine and Ethnopsychiatry.** Approaches and contributions of anthropology to study of health, sickness, and healing. Physical environment and human adaptations as key determinants of health systems; culturally defined concepts of sickness, health, and healing; healing as social, as well as physiological, activity. Topics may include life stages, medical knowledge among different human groups, impact of culture contact on medical systems, ecological balance and population control, cultural definitions and treatment of abnormal behavior, healers, health and supernatural, social roles of sick, and illness and social control. (Taylor)

**650. Nationalism, Ethnicity and Violence.** Social and cultural analysis of ethnicity and nationalist ideologies particularly where these have led to violent confrontations within modern nation-states. Considers primordialist versus constructionist theories of difference; the varying weight to be attributed to political, historical and cultural factors in the study of nationalism; and the politics of culture vs. the culture of politics. (Taylor)

653. **Primatology.** Biology, behavior, and distribution of living nonhuman primates with emphasis on field studies of old-world monkeys and apes. (Wheatley)

655. **Archaeology of Alabama.** Archaeology of Alabama.

664. **Political Anthropology.** The comparative analysis of political structures and process throughout the world, focusing especially on non-Western forms; a survey of anthropological attempts to understand the complex interplay of culture and power in human societies. (McKenna)

669. **Surviving Development: The Case of Mexico.** Comparative and historical analysis of rural Mexican communities, emphasizing the impact of recent NAFTA-related economic policies and democratic political reforms. (Kyle)

675. **Human Adaptability.** Introduction to study of how humans adapt to their physical, biological, and social environment. Reviews ecological, demographic, nutritional, physiological and health-related concepts and considers applications to case studies. (Wheatley)

691. **Special Problems in Cultural Anthropology.** Supervised study of specified topic area; defined problem explored in depth. Topics determined by student and instructor interest in cultural anthropology. 2-6 hours.

692. **Special Problems in Archaeology.** Supervised study of specified topic area; defined problem explored in depth. Topics determined by student and instructor interest in archaeology. 2-6 hours.

693. **Special Problems in Linguistics.** Supervised study of specified topic area; defined problem explored in depth. Topics determined by student and instructor interest in linguistics. 2-6 hours.

694. **Special Problems in Physical Anthropology.** Supervised study of specified topic area; defined problem explored in depth. Topics determined by student and instructor interest in special topics in physical anthropology. 2-6 hours.

699. **Thesis Research.** Independent development of research project. Prerequisite: Admission to candidacy. 1-3 hours.

Last modified 10/08/04

## UAB Graduate School

### Art History (M.A.)

Graduate program director: *McPherson*

## UAB Faculty

**Jessica Dallow**, Assistant Professor (Art History); American Art; Nineteenth- and Twentieth-Century and Contemporary

**Katherine McIver**, Associate Professor (Art History); Renaissance Art, Baroque Art

**Heather McPherson**, Professor (Art History); Eighteenth-, Nineteenth- and Twentieth-Century and Contemporary Art

A program leading to the Master of Arts degree in art history is offered jointly by UAB and the University of Alabama (Tuscaloosa).

## Tuscaloosa Faculty

**Robert Mellow**, Associate Professor (Art History); Nineteenth-Century American Art and Architecture

**Mindy Nancarrow**, Associate Professor (Art History); Baroque Art

**Catherine Pagani**, Associate Professor (Art History); Asian Art

## Admission Requirements

Applicants may seek admission to either UAB or the University of Alabama (Tuscaloosa), but admission is upon recommendation of the joint art history faculty of the two institutions. For admission in good standing, applicants to UAB must meet Graduate School requirements for scholarship and GRE General Test scores. The applicant should have completed (with a B average) 24 semester hours in art history and related areas such as history, aesthetics, archaeology, and anthropology. With the concurrence of the joint faculty, this requirement may be reduced. It is desirable that an applicant be able to read a foreign language related to the proposed field of study. Students may apply for admission for either the fall or spring semester.

## Degree Requirements

### Courses

Students must complete 24 semester hours in art history; 6 of these hours may be taken in a related field with the concurrence of the joint faculty. Students must take courses in three of the following six general areas: Medieval Art, Renaissance Art, Baroque Art, Nineteenth-Century Art, Twentieth-Century Art, and Asian Art. A maximum of 3 semester hours of independent study will be permitted. Each student must take ARH 680 (Literature of Art). Each student must take at least 6 semester hours of coursework at the University of Alabama (Tuscaloosa).

## **Foreign Language Requirement**

Each student must demonstrate a reading knowledge of French or German. This is tested by examination by the Department of Foreign Languages or by passing French 201 or 202 or German 201 or 202 with a grade of B or better. This requirement should be satisfied in or before the term in which the student has passed 15 semester hours of coursework. A reading knowledge of a second foreign language is strongly recommended.

## **Comprehensive Examination**

For admission to candidacy, the student must pass a comprehensive examination prepared and graded by the joint art history faculty.

## **Thesis**

The student must present a thesis under the direction of a member of the joint art history faculty. Each student will register for ARH 699 for 6 semester hours of credit.

## **Additional Information**

For detailed information, contact Dr. Heather McPherson, Graduate Program Director, UAB Department of Art and Art History, Humanities Building, Room 113, 900 13th Street South, Birmingham, AL 35294-1260.

Telephone 205-934-4942

E-mail [hmcphers@uab.edu](mailto:hmcphers@uab.edu)

## **Course Descriptions**

For courses at the University of Alabama (Tuscaloosa), see the graduate catalog of that university.

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be

repeated for credit, with stated stipulations.

## **Art History (ARH)**

A student may take any seminar twice for credit (see UAB Class Schedule for announcement of subjects). Prerequisite for admission to a seminar is permission of the instructor.

516. **Gothic Architecture.** Origins and development of Gothic style in architecture of Western Europe and British Isles.

519. **Medieval Manuscript Painting.** Hiberno Saxon to late Gothic, emphasizing function of image in books.

521. **Renaissance Art in Italy:** 1300-1490. Painting, sculpture, and architecture from major artistic centers of Siena, Florence, Venice, and Rome. (Mclver)

522 **Renaissance Art in Italy:** 1490-1600. Painting, sculpture, and architecture from major artistic centers of Florence, Venice, Rome, and Milan. (Mclver)

523. **Study Abroad: Renaissance and Baroque Art in Italy:** On-site study of architecture in Italy, 1300-1650. (Mclver)

524. **Renaissance Art in Northern Europe.** Painting and sculpture in Holland, Belgium, France, and Germany, 1350-1550. (Mclver)

530. **Eighteenth-Century Art in Europe** Visual culture in Eighteenth Century Britain and France including study of Eighteenth Century holdings in the Birmingham Museum of Art. (McPherson)

531. **Northern Baroque Art.** Painting and sculpture in Holland and Belgium, 1580-1700. (Mclver)

535. **Italian Baroque Art.** Painting, sculpture, and architecture from major artistic centers of Rome, Florence, and Venice, 1500-1700. (Mclver)

540. **Nineteenth-Century Art I:** Neoclassicism, Romanticism, and Realism. Painting, sculpture, and architecture in Europe, emphasizing France, 1860-1900. (McPherson)

541. **Nineteenth-Century Art II:** Impressionism, Post-Impressionism, and Symbolism. (McPherson)

560. **Twentieth-Century Art to 1945.** Painting, sculpture, and architecture in Europe and the United States, 1900-1945. (McPherson, Dallow)



564. **Art Since 1945.** Painting, sculpture, and architecture, primarily in the United States, 1945 to the present. (McPherson, Dallow)

567. **Modern Architecture.** Chiefly twentieth century, emphasizing the United States.

569. **Architecture of Birmingham.** Architectural history from founding in 1871 in relation to American architecture. Physical study of buildings and local archival research.

573. **Japanese Prints and Printmakers.** History of Japanese wood-block prints and printmakers, 17th-20th centuries.

574. **Chinese Painting.** Painting and painting theory through the eighteenth century.

575. **Japanese Art.** Art and culture of Neolithic era through 19th century.

576. **Oriental Ceramics.** History and connoisseurship of ceramics of China, Korea, and Japan using originals in Birmingham Museum of Art.

580. **Art Criticism.** Critical theory and contemporary issues focusing on art from 1960s to present. (McPherson, Dallow)

\*582. **Great Masters.** Lives and works of selected outstanding artists. May be repeated if focus is different.

585. **Museum Studies.** Museum operation; organization and preparation of exhibitions; cataloging objects in collection; experience with UAB Visual Arts Gallery and Birmingham Museum of Art.

\*590. **Seminar Art History:** May be repeated if focus is different.

610. **Seminar:** Medieval Art.

620. **Seminar:** Renaissance Art. (Mclver)

630. **Seminar:** Baroque and Rococo Art. (McPherson, Mclver)

640. **Seminar:** Nineteenth-Century Art. (McPherson, Dallow)

660. **Seminar:** Twentieth-Century Art. (McPherson, Dallow)

670. **Seminar:** Asian Art.

680. **Literature of Art.** Principles and methodology of literature of art as described in writing of founders and chief makers; bibliographical research methods and mastery. (McPherson, Mclver)

**698. Independent Study.**

\*699. **Thesis Research.** Prerequisite: Admission to candidacy. 3 or 6 hours.

**Art Studio**

Although UAB does not offer a graduate degree in studio art, courses in this area are available to interested graduate students. For additional information, contact Gary Chapman, Chair, UAB Department of Art and Art History, Humanities Building, Room 113, 900 13th Street South, Birmingham, AL 35294-1260 (telephone 205-934-4941).

**Faculty**

**James R. Alexander**, Professor (Art); Sculpture, Ceramic Sculpture

**Bert Brouwer**, Professor (Art); Painting, Drawing

**Gary Chapman**, Associate Professor (Art); Painting, Drawing

**Derek Cracco**, Assistant Professor (Art); Printmaking

**Janice Kluge**, Professor (Art); Drawing, Sculpture

**Sonja O. Rieger**, Professor (Art); Photography, Drawing

**Marie Weaver**, Associate Professor (Art); Graphic Design, Two-Dimensional Design

**Erin Wright**, Associate Professor (Art); Graphic Design

Last modified 10/06/04

## UAB Graduate School

### Biochemistry and Molecular Genetics (Ph.D.)

Graduate program director: *Ryan*

## Faculty

**Anupam Agarwal**, Associate Professor (Medicine)

**G. M. Anantharamaiah**, Professor (Medicine); Apolipoprotein Structure and Function

**John R. Baker**, Professor Emeritus (Biochemistry and Molecular Genetics); Structural Functions of Connective Proteoglycans

**Stephen Barnes**, Professor (Pharmacology); Hormonal Regulation of Hepatic Bile Salts Sulfation

**Scott Blume**, Research Assistant Professor (Medicine/Hematology Oncology); 5'-Untranslated RNA and Cell Proliferation/Survival

**David Borhani**, Adjunct Professor (BASF Bioresearch Corp.); X-ray Crystallography; Protein Function Integrating; Biophysical & Structural Data and Its Use Toward Drug Design

**Thomas R. Broker**, Professor (Biochemistry and Molecular Genetics); Human Papillomavirus, Transcription Regulation, DNA Triplexes, Epithelial Cells

**Christie G. Brouillette**, Research Professor (Optometry); Mutagenesis, Protein Folding and Interactions, Membrane Protein Structure

**Debasish Chattopadhyay**, Assistant Professor (Medicine/Geographic); Nucleic Acid Related Enzymes

**Cheng-Yi Chen**, Assistant Professor (Biochemistry and Molecular Genetics); Post-transcriptional Regulation of Gene Expression, mRNA Turnover, RNA Binding proteins

**Igor Chesnokov**, Assistant Professor (Biochemistry and Molecular Genetics); DNA Replication, Cell Division, Cell Cycle Regulation

**Herbert C. Cheung**, Professor (Biochemistry and Molecular Genetics); Mechanism of Contraction, Fluorescence Spectroscopy, Proteins

**Louise T. Chow**, Professor (Biochemistry and Molecular Genetics); Human Papillomavirus, Genetics, Keratinocytes, DNA Replication,

## Electron Microscopy

**David Crawford**, Assistant Professor (Hematology/Oncology); Cell Cycle Regulation, DNA damage checkpoints, Ubiquitin mediated protein degradation

**Lawrence J. DeLucas**, Professor (Optometry); Protein Crystal Growth

**Peter J. Detloff**, Associate Professor (Biochemistry and Molecular Genetics); Mouse Models of Human Genetic Diseases

**Peter Emanuel**, Professor (Medicine/Hematology Oncology); Abnormal Signal Transduction in Leukemia Cells

**Gabriel A. Elgavish**, Professor (Biochemistry and Molecular Genetics); Paramagnetic Probes for NMR Investigation of Membrane Transport

**Jeffrey A. Engler**, Professor (Biochemistry and Molecular Genetics); Gene Cloning, DNA Sequencing, Virology

**Bruce A. Freeman**, Professor (Anesthesiology); Biochemical and Pharmacological Studies of Basic Metabolic, Toxic, and Disease States

**Stephen L. Hajduk**, Adjunct Professor (Biochemistry and Molecular Genetics)

**Leo M. Hall**, Professor Emeritus (Biochemistry and Molecular Genetics)

**Stephen C. Harvey**, Adjunct Professor (Biochemistry and Molecular Genetics)

**N. Patrick Higgins**, Professor (Biochemistry and Molecular Genetics); DNA Topology, Genetic Transposition, DNA Enzymology

**Jamila I. Horabin**, Assistant Professor (Biochemistry and Molecular Genetics); Drosophila Sex Determination

**Colleen Johnson**, Associate Professor (Southern Research Institute); Hantavirus, HIV, Ebola virus, drug discovery, molecular and biochemical virology

**Natalia Kedishvili**, Assistant Professor (Biochemistry and Molecular Genetics); Regulation of intracellular levels of bioactive retinoids and steroids in human tissues in health and disease

**Christopher A. Klug**, Assistant Professor (Microbiology); Hematopoietic Stem Cell Development

**N. Rama Krishna**, Professor (Biochemistry and Molecular Genetics);

NMR of Biomolecules, Molecular Endocrinology of Peptide Hormones

**James C. Lacey Jr.**, Professor Emeritus (Biochemistry and Molecular Genetics)

**Ming Luo**, Professor (Microbiology); Viral Protein Structure

**Richard Mayne**, Professor (Cell Biology); Structure and Function of Extracellular Matrices, Biosynthesis and Structure of Collagens

**Joseph L. Messina**, Associate Professor (Pathology)

**Edward J. Miller**, Professor Emeritus (Biochemistry and Molecular Genetics); Structure and Biosynthesis of the Animal Tissue Collagens

**Kirill Popov**, Associate Professor (Biochemistry and Molecular Genetics); Multienzyme complexes, Protein kinases, Protein phosphatases, Metabolic control

**Peter E. Prevelige, Jr.**, Professor (Microbiology); Viral Capsid Self-Assembly: Defining the Underlying Subunit-Subunit Interactions and Their Potential as Therapeutic Targets

**Charles W. Prince**, Professor (Nutrition Sciences); Bone Metabolism; Osteopontin Structure, Function and Regulation of Expression; Orthopedic/Dental Implant Biocompatibility

**David G. Pritchard**, Professor (Biochemistry and Molecular Genetics); Molecular Basis for the Pathogenicity of Gram-Positive Bacteria

**Kenneth M. Pruitt**, Professor Emeritus (Biochemistry and Molecular Genetics); Chemistry of Non-Immunoglobulin Defense Mechanisms

**Lennart Roden**, Professor Emeritus (Biochemistry and Molecular Genetics); Structure, Biosynthesis, and Catabolism of Connective Tissue Polysaccharides

**Thomas M. Ryan**, Assistant Professor (Biochemistry and Molecular Genetics); Gene Regulation, Stem Cells, Mouse Models, Mutagenesis, Cell therapies

**Jere P. Segrest**, Professor (Pathology); Plasma Lipoprotein Structure and Function

**Narayana Sthanam**, Associate Professor (Optometry); Structure-Based Inhibitor Design for Human Complement Activating Serine Proteases

**Theresa V. Strong**, Associate Professor (Medicine); Gene Therapy for Cancer and Inherited Disease

**Kenneth B. Taylor**, Professor Emeritus (Biochemistry and Molecular

Genetics); Fermentation Technology

**J. Anthony Thompson**, Associate Professor (Surgery); Regulation of Eukaryotic Gene Expression

**Tim M. Townes**, Professor and Chair (Biochemistry and Molecular Genetics); Regulation of Gene Expression During Development

**Patrick K. Umeda**, Associate Professor (Medicine); Regulation of Contractile Protein Gene Expression

**Mark R. Walter**, Associate Professor (Pharmacology); X-ray Crystallography; Molecular Recognition; Signal Transduction; Cytokine Structure and Function

**Hengbin Wang**, Assistant Professor (Biochemistry and Molecular Genetics)

**Scott M. Wilson**, Assistant Professor (Neurobiology)

## Objective of the Graduate Program

The biochemistry and molecular genetics graduate program's primary objective is to provide high-quality, multidisciplinary training leading to the Ph.D. degree. Students who complete this program are expected to make significant future contributions in research in the basic biomedical sciences and to teach future generations of competent and productive research scientists.

The program consists of a core curriculum that emphasizes (a) the multidisciplinary and quantitative aspects of modern biomedical sciences; (b) a diversity of laboratory research training experiences; and (c) the development of skills in reading, writing, and speaking. Advanced students take courses and tutorials in specialized areas of interest, participate in seminars, and have opportunities to gain teaching experience while satisfying other requirements for their doctoral programs.

Areas of specialization for Ph.D. dissertation research include general and intermediary metabolism; molecular biology; virology; medical genetics; physical biochemistry; endocrinology; biosynthesis, structure, and assembly of biological macromolecules, membranes, and organelles; developmental and molecular cell biology; host-parasite relationships and host defense; X-ray crystallography of proteins and nucleic acids; and connective tissue biochemistry.

## Admission Requirements and Financial Aid

There are two avenues for entry into graduate study in the Department of Biochemistry and Molecular Genetics. The department participates in the multidisciplinary Cellular and Molecular Biology (CMB) Program, which is designed to provide a first-year curriculum to graduate students interested in the broad area of cellular and molecular biology. At the end of the first year, each CMB student chooses a mentor and elects to pursue a degree in biochemistry, in cell biology, in microbiology or in neurobiology. Alternatively, prospective students with a specific interest in biochemistry may choose to apply directly to faculty in the Department of Biochemistry and Molecular Genetics for admission to graduate study. The first-year curriculum provides students with a comprehensive experience in biochemistry, cell biology, microbiology, neurobiology, virology, and immunology.

Both the CMB and the biochemistry admissions committee consider applications for admission to the Ph.D. program from prospective graduate students who present evidence of superior scholarship and who have completed courses in general, organic, and physical chemistry; mathematics, including calculus; and physics. Completion of courses in biology, including genetics and biochemistry, is also recommended. Students with M.S., M.D., D.D.S., and D.V.M. degrees are also encouraged to apply.

Admission criteria for the Ph.D. program are those of the Graduate School, plus a personal interview. Students accepted into the program during the last several years have had an average score of greater than 600 on the quantitative section of the GRE General Test and 1,200 on the combined verbal and quantitative sections. These students also have had average undergraduate grade point averages of at least 3.0 on a 4.0 scale. All students accepted into the program are provided fellowships or traineeships. Fellows and trainees are required to undertake full-time studies and are not permitted to do any other remunerative work. Financial support will be continued for up to five years, provided that the student's performance is satisfactory. During the 2004-2005 academic year, entering students will be provided with stipends of \$21,000 per year, single health coverage and funds for tuition and fees. These amounts are reviewed yearly.

## **Additional Information**

For detailed information, contact Dr. Thomas Ryan, Graduate Program Director, UAB Department of Biochemistry and Molecular Genetics, MCLM 572, 1918 University Blvd., Birmingham, Alabama 35294-0005.

Telephone 205-996-2175

E-mail [tryan@uab.edu](mailto:tryan@uab.edu)

Web [www.uab.edu/biochem](http://www.uab.edu/biochem)

## Course Descriptions

Courses are for three semester hours of credit unless otherwise noted.

### Cellular and Molecular Biology (CMB)

Request CMB information for complete course descriptions.

712. **Methods and Logic in Biology.** 1 hr.

713. **Cellular and Molecular Biology I.** Biomolecules. 4 hours.

720. **Cellular and Molecular Biology II.** Genes. 4 hours.

730. **Cellular and Molecular Biology III.** Cells. 3 hours.

790. **Laboratory Methods.** 1 hr. OR (Choose CMB 790 or CMB 712)

**Check Spring Class Schedule for course and call numbers to be out in the Fall.** Choose one course from each module.

**CMB IV – Module 1.** *Structural Bio. And Enzyme Kinetics.* Dr. Kirill Popov.

**CMB V – Module 2.** *Structural Cell. & Molec. Neurosci.* Dr. Lucas Pozzo-Miller.

*Cell & Molec. Aspects of Dev. Bio.* Dr. Brad Yoder.

*Virology.* Dr. Gail Wertz

**CMB VI – Module 3.** *Eukaryotic Genetics.* Dr. Tim Townes.

**CMB VII - Module 4.** *Structural Bacterial Pathogenesis.* Dr. David Briles.

*Diseases of The Nervous System.* Dr. Harry Sontheimer.

*Protein folding diseases.* Dr. Peter Prevelige

*Stem cell Biology.* Dr. Lin Mei

*Lymphocyte Biology.* Dr. Allen Zajac

*From Molecules to Behavior.* Dr. Paul Gamlin

*Molec. Recognition & 3-D Graphics.* Dr. Mark Walter

790-792. **Introduction to Seminar.** Skills necessary for reading and analysis of scientific literature and for giving oral presentations. 1 hour each.

### Biochemistry and Molecular Genetics (BMG)

704. **Structural Biology and Enzyme Kinetics.** Spring. (Popov)  
Permission of instructor. 3 hours.

705. **Eukaryotic Genetics.** Spring. (Townes) Permission of instructor. 3



hours.

726. **BMG Seminar.** 1 hour.

734. **Protein Structure.** Emphasis on structural results derived from X-ray crystallographic analyses. Prerequisite: CMB 700:701 and permission of instructor. Spring. (Chattopadhyay)

741. **Advanced Molecular Genetics.** Mechanisms of gene regulation and rearrangement in bacteria, yeast, and higher eukaryotes. Prerequisite: CMB 700-701 and permission of instructor. Fall. (Higgins)

742. **Biophysical Aspects of Molecular Structure and Function.** Major modern biophysical methods used in the elucidation of the structure-function relationship of biologically important macromolecules. Prerequisite: CMB 700-701 and permission of instructor. Fall. (Elgavish)

744. **Protein Spectrometry.** Prerequisite: Permission of instructor. Spring. (Barnes)

751. **Advanced Virology.** Advanced studies of selected aspects of virology. Prerequisite: CMB 702 or permission of the instructor. (Broker, Chow)

753. **Protein Crystallography.** Theoretical and experimental aspects of protein crystallography. Applications of X-ray diffraction techniques to studying three-dimensional structures of proteins. Prerequisite: CMB 700-701 or permission of instructor. Fall. (Narayana)

757. **Physical Biochemistry.** Physical methods for investigating structures of biological molecules. Prerequisite: Calculus and physical chemistry and permission of instructor. Spring. (Cheung)

760. **Nuclear Magnetic Resonance.** Fall. (Krishna)

761. **Advanced Eukaryotic Molecular Biology.** Spring. (Townes)

762. **Human Biochemistry and Genetics.** General mammalian biochemistry for medical students and graduate students only. Prerequisite: Permission of instructor. Fall. 7 hours. (Townes)

771. **Dental Biochemistry.** Survey of human biochemistry, emphasis on areas of interest to dentists. Prerequisite: Permission of instructor. Fall. 9 hours. (Pritchard)

774. **Cell Signaling Journal Club.** 1 hour. (Thompson)

775. **Special Topics in Biochemistry.** 2 hours.

776-780. **Special Topics in Biochemistry.** 1-5 hours.

781-785. **Advanced Special Topics.** 1-5 hours.

786. **Journal Club in Free Radicals and Biology Oxidations.** 1 hour.  
(Freeman)

791. **Journal Club in Gene Therapy.** 1 hour. (Strong)

792. **Journal Club in Physical Biochemistry.** 1 hour. (Cheung)

795. **Journal Club in Molecular Biology.** 1 hour. (Higgins)

796. **Journal Club in Advanced Eukaryotic Molecular Biology.** 1  
hour. (Townes)

798. **Doctoral-Level Nondissertation Research.** 1-14 hours.

799. **Doctoral-Level Dissertation Research. Prerequisite: Admission  
to candidacy.** 1-14 hours.

Last modified 10/01/04

## UAB Graduate School

### Biology (Ph.D., M.S.)

Graduate program director: *Watts*

## Faculty

Charles D. Amsler, Professor (Biology); Ecophysiology and Chemical Interactions

Robert A. Angus, Professor (Biology); Population Biology, Genetics of Fish, Environmental Biology

**Richard B. Aronson**, Adjunct Professor (DISL); Marine Communities and Dynamics

Asim K. Bej, Professor (Biology); Microbial Ecology, Molecular Genetics

**Larry R. Boots**, Adjunct Professor; Reproductive Endocrinology

**George F. Crozier, Jr.**, Adjunct Professor (Biology); Physiology and Biochemistry of Marine Organisms

Jeannette E. Doeller, Research Associate Professor (Biology); Ecophysiology of Invertebrates

Joseph J. Gauthier, Associate Professor (Biology); Applied and Environmental Microbiology

Vithal K. Ghanta, Professor (Biology); Tumor Immunology, Aging and Immune System

**Thomas S. Hopkins**, Adjunct Professor (Biology); Marine Biology

David T. Jenkins, Associate Professor (Biology); Taxonomy, Nomenclature, and Cultural Studies of Basidiomycetes

Daniel D. Jones, Professor Emeritus (Biology); Microbial Ecology, Plant Physiology

David W. Kraus, Associate Professor (Biology); Comparative Invertebrate Physiology

Ken R. Marion, Professor (Biology); Population Dynamics, Reproductive Cycles, Environmental Cues for Reproduction

James B. McClintock, Professor (Biology); Invertebrate Reproduction,

## Ecology

**Timothy R. Nagy**, Associate Professor (Nutrition Sciences);  
Ecophysiology, Energetics, and Body Composition

**Robert W. Thacker**, Assistant Professor (Biology); Community and  
Behavioral Ecology, Molecular Systematics

**Trygve Tollefsbol**, Associate Professor (Biology); Developmental  
Biology and Molecular Biology of DNA Methylation

**R. Douglas Watson**, Professor (Biology); Endocrinology,  
Neuroendocrinology, Insect Development

**Stephen A. Watts**, Professor (Biology); Endocrinology, Physiology and  
Growth of Aquatic Organisms; Aquaculture

**Thane Wibbels**, Associate Professor (Biology); Comparative  
Reproductive Physiology of Vertebrates

## Program Information

### Areas of Specialization

Graduate students in the M.S. and Ph.D. programs in biology may specialize in research activities at all levels of biological organization, with emphases on ecophysiology, cellular and molecular biology, endocrinology, and ecology of aquatic organisms, or on models related to human disease.

### Admission

For admission in good standing, applicants must meet the following requirements, in addition to the Graduate School's standards: an undergraduate degree in a biological science, B-level scholarship in all biology courses, two semesters of organic chemistry, two semesters of physics, mathematics through calculus, and minimum combined verbal and quantitative score of 1150 on the GRE General Test, and a personal statement of career goals. The graduate program director in biology must approve admission on probation or with deficiencies in one of the above requirements. Three letters of evaluation from individuals who have a thorough knowledge of the applicant's academic abilities and potential are also required. Students may enter at the beginning of any semester.

### Coursework, Thesis, and Dissertation

A dissertation embodying the results and analysis of an original experimental investigation is required for Ph.D. candidates. Students in the M.S. program may write a thesis based on a research project (Plan I) or, alternatively, may elect to submit a nonresearch project incorporating

a review and analysis of one or more topics of current or historical interest in biology (Plan II).

Since scientific problems encountered today are multifaceted and require multidisciplinary approaches, students are expected to acquire a broad background in the physical and life sciences. Doctoral students must complete formal course work in or have equivalent training related to six of the following seven areas: ecology, physiology, cell biology, developmental biology, genetics, microbiology, and molecular biology. Master's students must have competency in five of these life-science areas. Each student is also expected to satisfactorily complete a course or sequence in biometry and any advanced courses designated by the student's graduate study committee consistent with the chosen area of specialization.

Each student must also enroll in three seminar courses approved by his or her graduate study committee, and one of the seminars must be outside the student's primary area of specialization. Also, each student is required to demonstrate proficiency in teaching by delivering formal course lectures or by conducting instructional laboratories.

## **Examinations**

To qualify for candidacy, a student in the master's program must satisfactorily complete either a written or an oral comprehensive examination. A doctoral student must take both written and oral comprehensive examinations. As part of a student's final defense of his or her dissertation, thesis or comprehensive review paper (Plan II), a public departmental seminar must be presented.

## **Class A Teaching Certification**

Under the Alabama Department of Education's "Strengthened Subject Matter Option," students who complete requirements for the master's degree in biology can also receive class A teaching certification, providing that certain prerequisites and requirements are met. Complete details are available from the School of Education Certification Office, EB 100, 1530 3rd Avenue South, Birmingham, Alabama 35294-1250 (Telephone 205-934-5423).

## **Additional Information & Mailing Address**

For detailed information contact Dr. Stephen A. Watts, Graduate Program Director, UAB Department of Biology, CH 375, 1530 3rd Avenue South, Birmingham, Alabama 35294-1170.

Telephone 205-934-8308

Fax 205.975.6097

E-mail [sawatts@uab.edu](mailto:sawatts@uab.edu)

Web [www.uab.edu/uabbio](http://www.uab.edu/uabbio)

## Physical Address

UAB Department of Biology, Campbell Hall, Room 109, 1300 University Blvd., Birmingham, Alabama 35294-1170

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Biology (BY)

501. **Advanced Biology for Teachers I.** Basic genetic principles; recent research developments. Prerequisite: Permission of instructor.

502. **Advanced Biology for Teachers II.** Provides understanding of human structural and functional relationships essential in modern biology. Corequisite: BY 503.

503. **Advanced Biology for Teachers III.** Laboratory supplementing lecture (BY 502) through use of human specimens, models, and demonstrations. Corequisite: BY 502. 1 hour.

507. **Microbial Ecology.** Microorganisms in nature; interactions with each other and with environment. Independent project required. Prerequisite: BY 271.

511. **Molecular Genetics.** Prokaryotic and eukaryotic gene structure and function. Prerequisites: BY 271 and 330, and CH 232. Independent project required.

520. **General Endocrinology.** Principles of chemical communication in animals. Use of invertebrate and vertebrate systems. Prerequisite: BY 309 or permission of instructor.

531. **Advanced Recombinant DNA Technology.** Manipulation of genes and their regulations, and techniques used in recombinant DNA technology. Independent project required. Prerequisites: BY 311 and 330, and CH 233 and 461. Lectures and laboratories.

535. **Natural History of the Vertebrates.** Adaptations of vertebrates for survival in particular environments. Survey and classification of local

vertebrates. Two lectures, one laboratory or field trip per week. Independent project required. 4 hours.

540. **Biology and Aging.** Current understanding of aging, measuring aging changes, theories of aging and aging changes in various human systems. Prerequisite: BY 103 or permission of instructor.

552. **Field Botany.** Principles and techniques of plant identification and classification; consideration of phylogenetic systems. Lecture and field trips. Independent project required. 4 hours.

560. **Advanced Invertebrate Zoology.** Selected topics. Lecture and student projects. Prerequisite: BY 255 or permission of instructor.

565. **Limnology.** Biology of freshwater and estuarine organisms. Lecture, laboratory, and field trips. Prerequisites: BY 104 and 370 or permission of instructor. 4 hours.

567. **Tropical Ecology.** An overview of the major tropical ecotypes with emphasis on ecology of terrestrial, aquatic, and marine tropical organisms. Prerequisite: BY 255 or 370 or permission of instructor. Major portion of course taught at a tropical field station in the Caribbean. Lectures, laboratory, and field trips. Library research paper required.

569. **Rain Forest Ecology.** Overview of physical and environmental factors that structure the rainforest, biodiversity of life, and interactions of its organisms. A survey of prominent biota will be conducted. Prerequisites: BY 255 or 256 or 370 and permission of instructor. Major portion of course taught in Costa Rica. Lectures and field trips. Library research paper required.

570. **Ecology.** Ecosystems and population biology. Lectures, laboratories, and field trips. Independent project required. Prerequisite: BY 255 or 256.

571. **Biochemical Adaptations to Environment.** Examination of physiological and biochemical adaptations of organisms to physical environment. Prerequisites: BY 309 and 330 and CH 460, or permission of instructor.

\*595. **Special Topics in Biology I.** Lecture, laboratory, or both. 1-2 hours.

\*596. **Special Topics in Biology II.** Lecture, laboratory, or both. 1-2 hours.

605. **Microbial Physiology.** Microbial structure and function, growth, metabolism, and regulation of cellular activity. Independent project required. Prerequisites: BY 271 and 3 semester hours of organic chemistry.

607. **Microbial Ecology.** Microorganisms in nature; interactions with each other and with the environment. Independent project required. Prerequisite: BY 271.

610. **Comparative Animal Physiology.** Special physical and chemical processes occurring at cell tissue, and organ levels. Independent projects required. Prerequisite: BY 309 or permission of instructor.

616. **Cellular Physiology.** Structure and function of cells and their components at the molecular level. Laboratory experience using modern equipment and biochemical methods. Independent project required. Prerequisites: BY 309 or 330 and CH 232. 4 hours.

619. **Reproductive Physiology.** Comparative reproductive physiology in animals with emphasis on mammals. Independent project required. Prerequisites: BY 256 and 3 semester hours of organic chemistry.

628. **Biology Laboratory Teaching Techniques.** Student will assist in instruction of an introductory biology laboratory. Responsibilities will also include preparation of quizzes and practicals and designing and conducting an instructional laboratory exercise. Prerequisites: Permission of instructor.

633. **Advanced Molecular Genetics.** Examination of the molecular genetics of eukaryotic organisms, including genomes, nucleosomes, chromosomes, transcription, splicing, transposition and signal transduction. The role of molecular biology in immune diversity and cell growth will also be studied. Prerequisites: BY 311 and 431.

640. **Immunology.** Immune system and functions of host humoral and cellular immune responses. Mechanisms of antigen and antibody reactions and basic immunological methods. Independent project required. Prerequisites: BY 271, BY 330, and CH 231.

642. **Experimental Phycology.** Introduction to algae. Experimental approaches to productivity. Algae as model systems. Independent project required. Prerequisites: BY 104 and either BY 330, BY 450, and CH 462, or permission of instructor. Lecture and laboratory. 4 hours.

646. **Techniques in Biological Research I.** Concepts and practical application of techniques pertinent to biological research. Prerequisites: Permission of instructor. Lecture and laboratory.

648. **Psychoneuroimmunology.** Explores communication between neuroendocrine and immune systems. Prerequisite: Permission of instructor. 3 hours

652. **Field Botany for Teachers.** Principles and techniques of plant identification and classification; consideration of phylogenetic systems. Lectures and field trips. Independent project required. Prerequisite: BY



260 or permission of instructor. 4 hours.

653. **Mycology.** Fungi, including morphology, development, physiology, taxonomy, and phylogeny. Independent project required. Prerequisites: BY 260 or 271 and 3 semester hours of organic chemistry. Lecture and laboratory. Offered at irregular intervals. 4 hours.

662. **Introductory Neurobiology.** Introduction to biological basis of nervous system function. Comparative approach applying molecular, cellular, and systems' concepts to nervous system function is used to examine electrical and chemical signaling, neural circuitry, and cellular basis of behavior and neural development. Independent project required. Prerequisites: BY 309, CH 231, and PH 101.

665. **Limnology.** Introduction to ecology of inland waters and estuaries. Lectures and field trips. Prerequisite: BY 255 or 256. 4 hours.

671. **Biochemical Adaptations to Environment.** Examination of physiological and biochemical adaptations of organisms to physical environment. Prerequisites: BY 309 and 330 and CH 460, or permission of instructor.

675. **Mammalian Embryology.** Examination of control mechanisms of embryonic development at molecular level and differentiation from fertilization through gestation. Mechanisms of abnormal embryonic development. Prerequisite: BY 314.

\*681. **Seminar in Physiological Ecology.** Current research. 1 hour.

\*682. **Seminar in Immunology.** Current research. 1 hour.

\*683. **Seminar in Physiology.** Current research. 1 hour.

\*684. **Seminar in Microbial Ecology.** Current research. 1 hour.

\*685. **Seminar in Cell Biology.** Current research. 1 hour.

\*686. **Seminar in Mammalian Development.** Current research. 1 hour.

\*687. **Seminar in Endocrinology.** Current research. 1 hour.

\*688. **Seminar in Algal Ecophysiology.** Current research in specific areas. 1 hour.

\*689. **Seminar in Genetics.** Current research. 1 hour.

\*690. **Seminar in Cellular Physiology.** Current research in specific areas. 1 hour.

\*691. **Seminar in Botany.** Current research developments. 1 hour.

\*692. **Seminar in Ecology.** Current research. 1 hour.

\*693. **Seminar in Embryology.** Current research. 1 hour.

\*694. **Seminar in Microbiology.** Current research in microbial ecology and microbial physiology. 1 hour.

\*695. **Special Topics in Biology I.** Lecture, laboratory, or both. 1-2 hours.

\*696. **Special Topics in Biology II.** Lecture, laboratory, or both. 1-2 hours.

\*697. **Investigative Techniques.** Application of modern experimental techniques in solving research problems. 1-2 hours.

\*698. **Nonthesis Research.** 1-10 hours.

\*699. **Thesis Research.** Prerequisite: Admission to candidacy. Pass/Fail. 1-10 hours.

746. **Techniques in Biological Research I.** Concepts and practical application of techniques pertinent to biological research. Prerequisites: Permission of instructor. Lecture and laboratory.

771. **Biochemical Adaptations to Environment.** Examination of physiological and biochemical adaptations of organisms to physical environment. Independent project required. Prerequisites: BY 309 and 330, and CH 461, or permission of instructor.

\*781. **Seminar in Physiological Ecology.** Current research. 1 hour.

\*782. **Seminar in Immunology.** Current research. 1 hour.

\*783. **Seminar in Physiology.** Current research. 1 hour.

\*784. **Seminar in Microbial Ecology.** Current research. 1 hour.

\*785. **Seminar in Cell Biology.** Current research. 1 hour.

\*786. **Seminar in Mammalian Development.** Current research. 1 hour.

\*787. **Seminar in Endocrinology.** Current research. 1 hour.

\*788. **Seminar in Algal Ecophysiology.** Current research in specific areas. 1 hour.

- \*789. **Seminar in Genetics.** Current research. 1 hour.
- \*790. **Seminar in Cellular Physiology.** Current research in specific areas. 1 hour.
- \*791. **Seminar in Botany.** Current research developments. 1 hour.
- \*792. **Seminar in Ecology.** Current research. 1 hour.
- \*793. **Seminar in Embryology.** Current research. 1 hour.
- \*794. **Seminar in Microbiology.** Current research in microbial ecology and microbial physiology. 1 hour.
- \*795. **Special Topics in Biology I.** Lecture, laboratory, or both. 1-2 hours.
- \*796. **Special Topics in Biology II.** Lecture, Laboratory, or both. 1-2 hours.
- \*797. **Investigative Techniques.** Application of modern experimental techniques in solving research problems. 1-2 hours.
- \*798. **Nondissertation Research.** 1-10 hours.
- \*799. **Dissertation Research.** Prerequisite: Admission to candidacy. Pass/Fail. 1-10 hours.

## **Marine Science (MESc)**

In addition to the course offerings listed below, certain courses given through the Marine Environmental Sciences Consortium at Dauphin Island, Alabama, may be taken for graduate credit. For detailed information, contact Dr. Ken R. Marion, Department of Biology, Campbell Hall, Room 173, 1300 University Boulevard, Birmingham, Alabama 35294-1170.

Telephone 205-934-3582

E-mail [kmarion@uab.edu](mailto:kmarion@uab.edu)

611. **Marsh Ecology.** Habitat analysis, natural history studies, and population dynamics of selected marsh organisms. Lecture, laboratory, and fieldwork. 4 hours.

612. **Marine Ecology.** Bioenergetics, community structure, population dynamics, predation, completion, and speciation in marine ecosystems. Lecture, laboratory, and fieldwork. 4 hours.

614. **Advanced Marine Ecology.** Mechanisms controlling the

distribution of marine organisms. Major concepts in marine ecological theory. 2 hours.

615. **Coastal Ornithology.** Coastal and pelagic birds, with emphasis on ecology, taxonomy, and distribution. Lecture, laboratory and field trips. 4 hours.

618. **Benthic Ecology.** Factors controlling life cycles of marine benthic organisms and organization of their communities. 2 hours.

619. **Marine Microbial Ecology.** Survey of the types of microorganisms found in the marine environment and their interactions with each other and their environment. Lecture and laboratory.

620. **Coastal Ecosystems Dynamics.** Investigation of the structure and function of a variety of coastal ecosystems and evaluation of energy and nutrient processing in disparate ecosystems. 2 hours.

621. **Marine Plankton.** Taxonomy and biology of marine phytoplankton, bacterioplankton and zooplankton. Lecture and laboratory.

622. **Chemical Oceanography.** An in-depth examination of the chemistry of seawater and its relationship with biological, geological and physical processes in the oceans.

623. **Geological Oceanography.** Historic and current consequences of both geophysical and classic geological processes as they relate to the marine environment. Tectonic theory, sedimentary processes, stratigraphy, micropaleontology, erosion, and the formation of hydrocarbons. Lecture and laboratory.

625. **Physical Oceanography.** Physical properties of the world's oceans. Waves, tides, circulations, fluctuations, and interactions of the sea with the atmosphere and landmasses.

626. **Biological Oceanography.** Chemical, physical, and geological patterns and processes important in the interaction of organisms and the sea.

627. **Fisheries Oceanography.** Examination of the relationships between fish life history, recruitment dynamics and harvest potential, and local-, meso-, and global-scale oceanography processes. 2 hours.

629. **Fisheries Techniques.** Current biological and technological methodologies for studying fishes and aquatic habitats, with emphasis on study design and integration across subdisciplines.

630. **Marine Biogeochemical Processes.** Understanding how biogeochemical processes regulate ecosystem function in the marine environment. 2 hours.

631. **Sediment Biogeochemistry.** Sediment biogeochemical processes and their effects on nutrient cycles, plant production, and animal distribution. Lecture and laboratory.
632. **Ocean Variability and Global Change.** Examination of large-scale, spatial and temporal variability in the earth/ocean system. 2 hours.
633. **Marine Biogeography and Paleobiology.** Overview of the time course of evolutionary changes in marine ecosystems and the role of historical factors influencing the distribution of marine organisms. Lecture and field trip.
634. **Marine Resource Management.** Management of marine resources, development of legislation, and impacts of management on human resources. 2 hours.
635. **Marine Analytical Instrumentation.** Overview of the major analytical tools available to marine scientists. Lecture and laboratory.
636. **Oceanographic Experiences.** Participation in an oceanographic research cruise. Research project report. 1-3 hours.
670. **Field Marine Science.** Two-week field exercise at selected sites along the Gulf of Mexico and Atlantic shoreline of North America. Pretrip lectures and readings. 2 hours.
692. **Seagrass Ecosystem Ecology.** Ecology of seagrass systems of estuarine environments. 2 hours.
693. **Seminar in Marine Science.** Current research. 1 hour.
694. **Directed Studies on Marine Topics.** Research on marine topics. 1-6 hours.
696. **Special Topics in Marine Science.** Lecture, laboratory, or both. 1-6 hours.
714. **Advanced Marine Ecology.** Mechanisms controlling the distribution of marine organisms. Major concepts in marine ecological theory. 2 hours.
718. **Benthic Ecology.** Factors controlling life cycles of marine benthic organisms and organization of their communities. 2 hours.
719. **Marine Microbial Ecology.** Summary of the types of micro-organisms found in the marine environment and their interactions with each other and their environment. Lecture and laboratory.
720. **Coastal Ecosystems Dynamics.** Investigation of the structure and function of a variety of coastal ecosystems and evaluation of energy and

nutrient processing in disparate ecosystems. 2 hours.

721. **Marine Plankton.** Taxonomy and biology of marine phytoplankton, bacterioplankton and zooplankton. Lecture and laboratory.

722. **Chemical Oceanography.** An in-depth examination of the chemistry of seawater and its relationship with biological, geological and physical processes in the oceans.

723. **Geological Oceanography.** Historic and current consequences of both geophysical and classic geological processes as they relate to the marine environment. Tectonic theory, sedimentary processes, stratigraphy, micropaleontology, erosion, and the formation of hydrocarbons. Lecture and laboratory.

725. **Physical Oceanography.** Physical properties of the world's oceans. Waves, tides, circulations, fluctuations and interactions of the sea with the atmosphere and landmasses.

726. **Biological Oceanography.** Chemical, physical and geological patterns and processes important in the interaction of organisms and the sea.

727. **Fisheries Oceanography.** Examination of the relationships between fish life history, recruitment dynamics and harvest potential and local-, meso-, and global-scale oceanographic processes. 2 hours.

729. **Fisheries Techniques.** Current biological and technological methodologies for studying fishes and aquatic habitats, with emphasis on study design and integration across sub-disciplines.

730. **Marine Biogeochemical Processes.** Understanding how biogeochemical processes regulate ecosystem function in the marine environment. 2 hours.

731. **Sediment Biogeochemistry.** Sediment biogeochemical processes and their effects on nutrient cycles, plant production and animal distribution. Lecture and laboratory.

732. **Ocean Variability and Global Change.** Examination of large-scale, spatial and temporal variability in the earth/ocean system. 2 hours.

733. **Marine Biogeography and Paleobiology.** Overview of the time course of evolutionary changes in marine ecosystems and the role of historical factors influencing the distribution of marine organisms. Lecture and field trip.

734. **Marine Resource Management.** Management of marine resources, development of legislation, and impacts of management on human resources. 2 hours.

735. **Marine Analytical Instrumentation.** Overview of the major analytical tools available to marine scientists. Lecture and laboratory.

736. **Oceanographic Experiences.** Participation in an oceanographic research cruise. Research project report. 1-3 hours.

770. **Field Marine Science.** Two-week field exercise at selected sites along the Gulf of Mexico and Atlantic shorelines of North America. Pre-trip lectures and readings. 2 hours.

792. **Seagrass Ecosystem Ecology.** Ecology of seagrass systems of estuarine environments. 2 hours.

793. **Seminar in Marine Science.** Current research. 1 hour.

794. **Directed Studies on Marine Topics.** Research on marine topics. 1-6 hours.

796. **Special Topics in Marine Science.** Lecture, laboratory, or both. 1-6 hours.

Last modified 10/13/04

## UAB Graduate School

### Biostatistics (Ph.D., M.S.)

Graduate program director: *George*

## General Information

The Department of Biostatistics offers programs through the Graduate School leading to the MPH, M.S. and Ph.D. degrees in Biostatistics. The programs provide a balance between theory and application, the perspective being the role of statistics and modeling in scientific research. The objective is to produce research-oriented scientists who can advance statistical and modeling theory and interact effectively with scientists in other disciplines to advance knowledge in those fields. The main objective of the Ph.D. program is to provide the students with an in-depth understanding of statistical theory and methodology, to train them to become effective statistical consultants and collaborators in scientific research, and to train them to do teaching and independent statistical research. Members of the department conduct research in statistical methodology and applications as well as in fundamental problems of modeling biological systems. Much of the department's research is collaborative in nature, involving participation in projects from basic science, clinical medicine, public health, and other health-related areas both within and outside UAB. Members of the department are actively involved in the development of grant proposals in these fields.

Students joining the MS/PhD program are expected to have a very strong foundation in Mathematics. At the very minimum, they should have had a semester of Advanced Calculus and a semester of Advanced Matrix Algebra, and they should be proficient in programming skills.

Faculty research interests include statistical genetics, genetic epidemiology, microarrays, general/generalized linear models, nonlinear estimation, discrete data analysis, multivariate analysis including longitudinal data analysis, survival analysis, missing data, Bayesian inference, and clinical trials.

Faculty and students in this department are involved in activities relating to the development and understanding of biostatistical models with their associated statistical theory and to the application of these models to the analysis of data collected in many different experimental situations including statistically designed laboratory experiments, prospective and retrospective epidemiological studies, survey research, behavioral research and clinical research, clinical trials, family and case-control designs in genetic analysis.

## The MS/Ph.D. Program

The MS/PhD program in biostatistics was created to be a balanced



program with both theoretical and applied aspects of biostatistics covered. Sufficient theory is necessary to enable the Ph.D. student to read and evaluate the theoretical bases underlying past and current statistical methodological development and to contribute to that development in a nontrivial manner, and to enable the master's student to choose among available methodologies in an informed manner. Realizing, however, that the most important theory is often driven by a need for new models and new data analysis tools in particular applications, this program is conceived as a serendipitous marriage of both theory and application. Advanced courses typically are offered in alternate years. All advanced courses contain both theoretical and applied components.

## The MPH Program

The MPH degree is intended primarily for those who are interested in graduate studies in Public Health with emphasis in biostatistical methodology. These can include persons who are from decision-making positions in health care settings, as well as persons interested in data management, statistical analysis and interpretation, and clinical investigators.

The MPH is a professional degree that includes coursework in all areas of Public Health, and emphasizes the application of statistical models in biomedical and public health settings.

## Required Courses for the M.S. Degree

### Biostatistics Core:

BST 621 Statistical Methods I 3 Credit hours  
BST 622 Statistical Methods II 3 Credit hours  
BST 623 General Linear Models 3 Credit hours  
BST 626 Data Management / SAS 3 Credit hours  
BST 631 Statistical Theory I 3 Credit hours  
BST 632 Statistical Theory II 3 Credit hours  
BST 655 Categorical Data Analysis 3 Credit hours  
BST 690 Biostatistical Consulting 0 Credit Hours

Biostatistics Electives: Minimum 6 credit hours of regular courses of 624 or higher-level.

Outside Electives: A minimum of 6 graduate credit hours of electives must be taken from some field of Biology, Public Health or Medicine. The academic advisor must approve these courses.

## Required Courses for the Ph.D. Degree

In addition to the 33 credit hours of regular coursework and the

consulting course required for the MS degree, the PhD students are required to take the following courses.

Biostatistics Core:

BST 723 Theory of Linear Models 3 Credit hours  
BST 726 Advanced Computational Methods 3 Credit hours  
BST 735 Advanced Inference 3 Credit hours  
BST 760 Generalized Linear & Mixed Models 3 Credit hours

Biostatistics Electives: Minimum 12 credit hours of 624 or higher level regular courses, including at least 9 hours of 700 level courses.

Readings & Research: Students are strongly recommended to take Research in Statistics (BST 698) under various faculty members every semester after completion of the first-year equivalent of course work, until a research advisor is chosen.

## Required Courses for the MPH Degree

Public Health Core:

SPH 600 Public Health Integrated Core I 9 Credit hours  
SPH 601 Public Health Integrated Core I 6 Credit hours  
SPH 690 MPH Integrative Experience 3 Credit Hours

Biostatistics Core:

BST 611 Intermediate Stat. Analysis I 3 Credit hours  
BST 612 Intermediate Stat. Analysis II 3 Credit hours  
BST 619 Data Collection/ Management 3 Credit hours  
BST 626 Data Management / SAS 3 Credit hours  
BST 697 Internship in Biostatistics 3 Credit Hours

Biostatistics Electives: Minimum 9 credit hours of regular courses of 624 or higher-level.

Outside Electives: A minimum of 3 graduate credit hours of electives must be taken from some field of Biology, Public Health or Medicine. The academic advisor must approve these courses.

## Admission

Students in the Graduate program are admitted in the Fall semester of each academic year. Applicants for the MS/PhD program are expected to have a strong foundation in Mathematics. At the very minimum, they should have had a semester of Advanced Calculus and a semester of Advanced Matrix Algebra, and they should be proficient in programming skills. The MPH applicants should also be quantitatively oriented with

background in calculus and linear algebra.

The GRE and GPA requirements are scores of 550 or better on each of the three sections (verbal, quantitative and analytic) of the GRE General Test. The department also requires a TOEFL score of at least 250 (600 on the old scale) for all international students whose native language is not English.

## Financial Support

Fellowships and/or assistantships are awarded to well-qualified students admitted into the PhD program, and are continued contingent on satisfactory progress toward the degree. The financial support during the first-year is usually through graduate fellowship, and during the subsequent years through research assistantship. In order to be considered for financial aid for the coming academic year, the completed application materials must be received at UAB by March 1. Separate application for financial support is not required. Also, there are a number of special minority fellowships available through the Graduate School. Those interested in minority fellowships should contact the UAB Graduate School directly for further information.

## MS/PhD Examinations

Upon completion of the first year-and-a-half of course work, the MS/PhD candidate is given a written examination consisting of two parts - Applied Statistics and Theory of Statistics. The exam will test the students on their understanding and comprehension of the foundation of the theory and applications of statistics, and will generally cover materials from BST 621, 622, 623, 626, 631, 632 and 655. This will be a standard Departmental exam, and evaluation is administered by the Biostatistics Graduate Program Committee. The criteria for evaluation are the candidate's understanding and competency in basic principles and foundations of biostatistics, and his/her potential for conducting independent research in statistical methods. This examination is offered during the first half of January of each year. At first attempt, a student must take both parts at the same time.

The student may pass each part of the exam at the PhD level, fail at the PhD level but pass at the Master's level, or fail at the Masters level. If a student fails either part of the exam at either level, only one additional chance will be given in the first half of July. The MS degree requirements include passing this exam at least at the Masters level. A full time student must pass this examination at the PhD level within the first two years of study in order to continue in the PhD program.

Upon successful completion of the preliminary examination and the required biostatistics courses (usually at the end of the 2½ years), the PhD candidate is given a qualifying exam. The evaluation of this exam is based on the student's in-depth understanding and competency in advanced topics in biostatistics and in his/her proposed area of

specialization, and the ability and maturity to apply the course-work knowledge in doing meaningful research and consulting. It is tailor-made for the student, based on his/her training and research, and will be administered by his/her dissertation committee. After a literature survey and a clearer definition of the scope of the proposed research under the direction of the advisor, the student must submit a written proposal and present it orally to the dissertation committee. The oral presentation may be done concurrent with the qualifying exam. If a candidate fails the qualifying examination and/or the proposal is disapproved, he/she may be given only one other opportunity to retake this exam and/or resubmit and re-present the proposal, and it must be done within six months of the first attempt.

The dissertation committee administers the final oral examination after the student has completed all other formal requirements for the PhD degree, including all the courses in the Plan of Study. It is a public defense of the dissertation. The candidate also is expected to demonstrate a good understanding of materials relevant to the general field in which the dissertation is written.

## Additional Information

For detailed information, contact:  
Dr. Varghese George  
Professor & Director of Graduate Program  
1665 University Boulevard, RPHB 309C  
Birmingham, AL 35294-0022.  
Telephone/FAX: (205) 934-4905/975-2540  
E-mail [VGeorge@UAB.edu](mailto:VGeorge@UAB.edu)  
Web site: [www.uab.edu/publichealth](http://www.uab.edu/publichealth)

## Course Descriptions

Unless otherwise noted, all courses are of 3 credit hours. Courses in italics are only proposals.

**BST 600. Biostatistics for Public Health.** To provide Public Health students with the ability to understand and utilize basic biostatistical concepts and tools and to facilitate their capacity to seek and utilize biostatistical expertise as may be required when conducting their own research. This course is required for all MPH students as a component of the web-based integrated core curriculum. Co-requisites: PUH 600, PUH 602. 4 hours.

**BST 601-602. Biostatistics I & II.** Logic and language of scientific methods in public health and other life science research; use of basic statistics in testing hypotheses and setting confidence intervals; simple and multiple linear regression; analysis of basic experimental designs. Prerequisite: BST 601 for BST 602.

**BST 603. Applied Regression Analysis.** Application of linear models to public health problems. Fitting straight lines to data, multiple variables, matrix approaches, tests, examination of residuals. Limitations and pitfalls in use of techniques. Prerequisite: BST 602.

**BST 611-612. Intermediate Statistical Analysis I & II.** Students will gain a thorough understanding of basic analysis methods, commonly used sampling distributions, parametric and nonparametric one and two sample tests, confidence intervals, applications of analysis of two-way contingency table data, simple linear regression and analysis of variance including the links between the two(parameterization), multiple regression, indicator variables, use of contrasts, multiple comparison procedures and regression diagnostics. The second half of the course will generalize these modeling concepts to different types of outcome data including categorical outcomes (i.e., logistics and log-linear modeling) and survival outcomes (i.e., proportional hazards analysis). Students are taught to conduct the relevant analysis using current software such as the Statistical Analysis System (SAS). Prerequisite: Intermediate Mathematical skills and permission of instructor.

**BST 619. Data Collection and Management.** Basic concepts of study design, forms design, quality control, data entry, data management and data analysis. Hands-on experience with data entry systems, e.g., DBASE, and data analysis software, e.g., PC SAS. Exposure to other software packages as time permits. Previous computer experience highly recommended. Prerequisites: BST 602.

**BST 621 & 622. Statistical Methods I & II.** Mathematically rigorous coverage of applications of statistical techniques designed for Biostatistics majors and others with sufficient mathematical background. Statistical models and applications of probability; commonly used sampling distributions; parametric and nonparametric one and two sample tests and confidence intervals; analysis of two-way contingency table data; simple linear regression; simple analysis of variance designs with equal or proportional subclass members; use of contrasts and multiple comparisons procedures; introduction to survival analysis; multivariate methods. Prerequisites: A year of calculus sequence.

**BST 623. General Linear Models.** Multiple regression using matrix approach; weighted and nonlinear regression; variable selection methods; modeling techniques; regression diagnostics and model validation; systems of linear equations; factorial and nested (hierarchical) designs; blocking; repeated measures designs; incomplete block designs; confounding. Prerequisite: BST 622.

**BST 624. Experimental Design.** Intermediate experimental design and analysis of variance models using Matrix approach. Factorial and nested (hierarchical) designs; blocking; repeated measures designs; Latin squares; incomplete block designs; fractional factorials; confounding. Prerequisites: BST 623.

**BST 625. Design and Conduct of Clinical Trials.** Concepts of clinical

trials; purpose, design, implementation and evaluation. Examples and controversies presented. Prerequisites: BST 621.

**BST 626/626L. Data Management/Reporting with SAS.** A hands-on exposure to data management and report generation with one of the most popular statistical software packages. Prerequisite: Permission.

**BST 631 & 632. Statistical Theory I & II.** Fundamentals of probability; independence; distribution and density functions; random variables; moments and moment generating functions; discrete and continuous distributions; exponential families, marginal and conditional distributions; transformation and change of variables; convergence concepts, sampling distributions. Point and interval estimation; hypothesis and significance testing; sufficiency and completeness; ancillary statistics; maximum likelihood and moment estimators; asymptotic properties of estimators and tests; introduction to Bayesian inference. Prerequisite: Advanced Calculus.

**BST 640. Nonparametric Inference.** Properties of statistical tests; order statistics and theory of extremes; median tests; goodness of fit; tests based on ranks; location and scale parameter estimation; confidence intervals; association analysis; power and efficiency. Prerequisite: BST 622, BST 632.

**BST 655. Categorical Data Analysis.** Logistic regression models; regression diagnostics; proportional odds; ordinal and polytomous logistic regression; analyses for multi-way tables; Mantel-Haenszel test; measures of association and of agreement; loglinear and logit models; ordinal discrete data; matched pairs; repeated categorical data; Prerequisite: BST 622.

**BST 660. Multivariate Analysis.** Analysis and interpretation of multivariate general linear models including multivariate regression, multivariate analysis of variance/covariance, discriminant analysis, repeated measures, canonical correlation, and longitudinal data analysis for general and generalized linear models. Extensive use of SAS, SPSS, and other statistical software. Prerequisite: BST 623.

**BST 661. Structural Equation Modeling.** Basic principles of measurements; multivariate predictive models including mediation mechanisms and moderator effects; path analysis; integrative multivariate covariance models, methods of longitudinal analysis. Prerequisite: BST 623.

**BST 665. Survival Analysis.** Design and analysis of clinical trials; sample size computation; properties of survival distributions; estimation and hypothesis testing for survival parameters; Kaplan-Meier estimation; exponential tests; Cox proportional hazards regression models, parametric survival models. Prerequisite: BST 622.

**BST 670. Sampling Methods.** Simple random, stratified, cluster, ratio regression and systematic sampling; sampling with equal or unequal

probabilities of selection; optimization; properties of estimators; non-sampling errors; sampling schemes used in population research; methods of implementation and analyses associated with various schemes. Prerequisite: BST 632.

**BST 671. Meta Analysis.** Statistical methods and inference through meta analysis. Prerequisite: BST 623, BST 632.

**BST 675. Introduction to Statistical Genetics.** Probability models for genotypes and phenotypes; tests of genetic hypotheses and estimation of parameters; random mating, evolution, and genetic drift; inbreeding; non-random mating patterns. Prerequisite: BST 621.

**BST 676. Statistical Bioinformatics.** Algorithms and methods that underlie the analysis of high dimensional biological data, as well as issues in the design and implementation of such studies. High dimensional biology includes microarrays, proteomics, genomic, protein structure, biochemical system theory and phylogenetic methods. Prerequisite: BST 622, 675.

**BST 690. Biostatistical Consulting.** Implementation of statistical theory and application in scientific research. Systematic formulation of problem; data collection procedures; design of study; analysis of data; interpretation and communication of results. Pass/Fail. 0 hours.

**BST 695. Special Topics.** Special topics in Biostatistics not covered in regular 600 level courses, but suited for Masters students in Biostatistics and doctoral students in other related disciplines. 1-3 hours.

**BST 697. Internship in Biostatistics.** Pass/Fail. 1-6 hours.

**BST 698. Non-thesis Research.** Pass/Fail. 1-6 hours.

**BST 699. Thesis Research.** Prerequisite: Admission to candidacy for MS Degree. Pass/Fail. 1-12 hours.

**BST 723. Theory of Linear Models.** Multivariate normal distributions and quadratic forms; least square estimation; nested models; weighted least squares; testing contrasts; multiple comparisons; polynomial regression; maximum likelihood theory of loglinear models. Prerequisite: BST 632.

**BST 725. Advanced Clinical Trials.** Prerequisites: BST 625, BST 632, BST 665.

**BST 726. Advanced Computational Methods.** Numerical algorithms including likelihood maximization, EM algorithm, integration using quadratic and Monte-Carlo methods, interpolation using splines, random variate generation methods, MCMC and Metropolis-Hastings algorithms; randomization tests; resampling plans including bootstrap and jackknife.

Prerequisite: BST 632.

**BST 735. Advanced Inference.** Families of models; likelihood; sufficiency; significance tests; similar regions; point and interval estimation; invariant tests; asymptotic theory and large sample inference; LR, score and Wald tests; robust procedures. Prerequisites: BST 632.

**BST 740. Bayesian Analysis.** A combination of Bayesian principles, tools and methods with emphasis on models, computations and analysis. Likelihood function; prior, posterior and predictive distributions, Bayes factors; HPD regions; conjugate and non-informative priors in the exponential family; MCMC methods for generalized linear model, hierarchical models and restricted parameter spaces; examples of Bayesian analyses of complex biomedical data. Prerequisites: BST 723, BST 726.

**BST 750. Stochastic Modeling.** Poisson processes; random walks; simple diffusion and branching processes; recurrent events; Markov chains in discrete and continuous time; birth and death process; queuing systems; applications to survival and other biomedical models. Prerequisite: BST 632.

**BST 760. Generalized Linear and Mixed Models.** Generalized linear models; mixed models; and generalized estimating equations. Prerequisite: BST 723.

**BST 770. Statistical Methods for Incomplete Data.** Prerequisite: BST 632.

**BST 775-776. Statistical Methods for Genetic Analysis I & II.** Rigorous mathematical & statistical treatment of methods for understanding variation in qualitative and quantitative disease traits, and localizing genes and environmental effects involved in the etiology of complex traits using case-control and pedigree data. Topics include sampling and study designs; decomposition of trait variation into components representing genes, environment and gene-environment interaction; resemblance between relatives and heritability; oligogenic and polygenic traits; complex segregation analysis, methods of mapping and characterizing simple and complex trait loci; association, linkage and linkage disequilibrium methods; variance components methods; haplotype analysis; population substructure; admixture mapping. Prerequisite: BST 623, 632, 675.

**BST 795. Advanced Special Topics.** Advanced special topics in Biostatistics not covered in regular 700 level courses, but suited for doctoral students in Biostatistics. 1-3 hours.

**BST 798. Non-dissertation Research.** Pass/Fail. 1-6 hours.

**BST 799. Dissertation Research.** Prerequisite: Admission to candidacy for PhD. Pass/Fail. 1-12 hours.



## Biostatistics Faculty

**Chichi Aban**, PhD (Bowling Green State), Assistant Professor. *Clinical Trials, Survival and Reliability Analysis, Regression Diagnostics, Inference for Heavy Tail Distributions.*

**David B. Allison**, PhD (Hofstra), Professor & Head of the Section on Statistical Genetics. *Statistical Genetics, Meta Analysis, Analysis of Clinical Trials Data, Applied Survival Analysis.*

**Alfred A. Bartolucci**, PhD (SUNY, Buffalo), Professor. *Clinical Trials, Survival Analysis, Bayesian Statistics.*

**T. Mark Beasley**, PhD (Southern Illinois), Associate Professor. *Linear Models, Linkage and Association with Quantitative Traits, Nonparametric Methods.*

**J. Jackson Barnette**, PhD (Ohio State), Professor & SOPH Senior Associate Dean for Academic Affairs. *Effect Size Indices and Association, Error Control Procedures, Likert Survey Design, Technology in Teaching Statistics.*

**Christopher S. Coffey**, PhD (North Carolina - Chapel Hill), Associate Professor. *Linear Models, Power Analyses, Sample Size Re-estimation.*

**Stacey S. Cofield**, PhD (Virginia Commonwealth), Assistant Professor. *Mixed-Effects Models, Statistical Methods for Microarray Data, Clinical Trials, Statistical Consulting.*

**Xiangqin Cui**, PhD (Iowa State), Research Assistant Professor). *Microarray Experimental Design and Analysis, Gene Interaction, Metabolomics Analysis.*

**Gary Cutter**, PhD (U. Texas Medical Center - Houston), Professor & Head of the Section on Clinical Trials. *Clinical Trials and Community Studies, Chronic Disease Epidemiology, large scale data bases, Multiple Sclerosis.*

**Jose Fernandez**, PhD (Pennsylvania State), Assistant Professor. *Statistical Genetics, Admixture Modeling, Obesity.*

**Naomi Fineberg**, PhD (Boston University), Research Professor. *Biomedical Applications, Consulting.*

**Varghese George**, PhD (Missouri - Columbia), Professor & Director of Graduate Program. *Linkage and Association Studies in Humans, Regression, Likelihood Inference, Bayesian Modeling.*

**George Howard**, DrPH (North Carolina - Chapel Hill), Professor and

Chair. *Design and Analysis of Multi-center Clinical Trials, Linear Models.*

**Charles R. Katholi**, PhD (Adelphi), Professor Emeritus. Computationally Intensive Statistical Methods, Applied Numerical Analysis; Mathematical Models of Biological Systems, Asymptotic Theory.

**Ann Loraine**, PhD (UC Berkeley), Assistant Professor. Computational Biology, Genomics, DNA Microarray Analysis.

**Leslie McClure**, PhD (Michigan), Assistant Professor. *Design and Analysis of Clinical Trials, Interim Analysis with multiple outcomes.*

**Grier Page**, PhD (Texas Health Science Center - Houston), Assistant Professor. *Microarrays, Human Linkage, Disequilibrium.*

**Sharina D. Person**, PhD (UAB), Assistant Professor. *Time Series Analysis, Epidemiology, Missing Data.*

**Suzanne Perumean-Chaney**, PhD (SUNY - Albany), Research Assistant Professor. *Clinical Trials, Linear Models, Missing Data.*

**David T. Redden**, PhD (Alabama), Associate Professor. *Nonparametric Statistics, Longitudinal Models, Regression Diagnostics.*

**David L. Roth**, PhD (Kansas), Professor. *Structural Equations Modeling, Psychometric Analysis.*

**Hemant K. Tiwari**, PhD (Notre Dame), Assistant Professor. *Genetic Linkage Analysis, Disequilibrium Mapping, Population Genetics, Molecular Evolution, Bioinformatics.*

**O. Dale Williams**, PhD (North Carolina - Chapel Hill), Professor. *Public Health Education, Cardiovascular Disease Epidemiology, Clinical Trials.*

**Nengjun Yi**, PhD (Zhejiang), Assistant Professor. *Statistical Genetics/Genomics, Gene Mapping Using ML and Bayesian Methods, Complex Mating Designs.*

**Kui Zhang**, PhD (Peking), Research Assistant Professor. *Statistical Methods for Molecular Biology and Genetics, Linkage and Disequilibrium Analysis, Functional Genomics.*

Last modified 10/06/04

## UAB Graduate School

### Breast Cancer Training Program

Graduate program director: *Lamartiniere*

## Faculty

**Stephen Barnes**, Professor (Pharmacology and Toxicology); Chemoprevention of breast cancer, pharmacokinetics, drug development, mass spectrometry.

**Kirby I. Bland**, Professor (Medicine); Preclinical/clinical development of novel retinoids.

**Wayne Brouillette**, Professor (Chemistry); Protein structure and computer modeling methods for the design and synthesis of new breast cancer drugs.

**Donald Buchsbaum**, Professor (Radiation Biology); Pre-targeting radioimmunotherapy of metastatic breast cancer.

**Robert M. Conry**, Associate Professor (Medicine); Targeted gene delivery to accomplish gene therapy for breast cancer.

**Robert B. Diasio**, Professor (Pharmacology and Toxicology); Pharmacogenetic and -genomic factors predicting efficacy and toxicity to chemotherapeutic agents in patients.

**Joanne Douglas**, Assistant Professor (Pathology); Breast cancer metastasis.

**Charles N. Falany**, Associate Professor (Pharmacology and Toxicology); Biochemistry and molecular biology of estrogen sulfation mechanisms in the mammary.

**Andra Frost**, Associate Professor (Pathology); Intermediate marker role of a novel breast cancer oncogene.

**Clinton J. Grubbs**, Professor (Nutrition Sciences); Chemoprevention of breast cancer in animal models; retinoids, antiestrogens, nutritional chemoprevention, combination agents.

**Robert W. Hardy**, Assistant Professor (Pathology); Regulation of cell proliferation and signal transduction.

**Donald Hill**, Research Professor (Chemoprevention) Preclinical/clinical development of novel retinoids.

**Jeffrey Kudlow**, Professor (Medicine); Role of growth factors and their

receptors in the mammary gland and epithelial development.

**Coral A. Lamartiniere**, Professor (Pharmacology and Toxicology); Breast cancer causation and prevention from environmental estrogens; genistein, resveratrol and epigallocatechin-3-gallate; breast cancer prevention with genistein; molecular and cellular endocrinology of the mammary gland.

**Donald Muccio**, Professor (Chemistry); Use of conformationally constrained retinoids for cancer prevention and therapy.

**Selvarangan Ponnazhagan**, Associate Professor (Pathology); Adeno-associated virus gene therapy for cancer.

**Michael Ruppert**, Assistant Professor (Medicine); Genetic alterations on tumors, mechanisms of transformation by oncogenes.

**Rosa A. Serra**, Assistant Professor (Cell Biology); Mechanism of TGF- $\beta$  action in regulating development and cancer of the breast.

**Theresa V. Strong**, Assistant Professor (Medicine); Identification and characterization of tumor antigens; polynucleotide immunization as a means of gene therapy.

**Dan Welch**, Professor (Pathology); Cancer metastasis, oncogenes, suppressor genes.

**Kurt Zinn**, Professor (Medicine); Molecular imaging in animal models.

## Training Program Description

The goal of the Breast Cancer Training Program at UAB is to educate and train predoctoral students for interdisciplinary breast cancer research. The program is part of the Toxicology Feeder Program, recruiting and admitting students, providing the core curriculum, and facilitating laboratory rotations in the first year. A student in good standing after completing the core curriculum will identify a mentor and complete electives and dissertation research in a participating degree-granting program. Faculty and mentors are drawn from Cell Biology, Comparative Medicine, Environmental Health Sciences, Gene Therapy, Medicine, Nutrition Sciences, Oncology Subspecialties, Pathology, Pharmacology and Toxicology, Physiology, and Preventive Medicine.

We have identified 6 broad-based research foci, traditional and "cutting-edge": cancer causation, cancer chemoprevention, mechanisms of growth control, cancer pharmacology, gene therapy, and targeted immunotherapy. These criteria foster opportunities for collaboration and produce a trainee with diverse expertise in breast cancer research. Trainees with interdisciplinary education and training will have better insight and be more innovative in research and diagnosis, and in

preventing and treating breast cancer.

## Financial Assistance

Stipends, tuition, and health insurance are available. In addition to an interest in breast cancer, the admission committee looks for students that have an educational background in chemistry, biology, biochemistry and, if possible, one or more courses in molecular biology, physiology, and/or cell biology. The applicant should have a GPA of 3.0 or better and a score of 1100 or better on the combined verbal and quantitative GRE. A campus visit and interview are strongly encouraged.

## Additional Information

For more information on the Interdisciplinary Breast Cancer Training Program, contact Dr. Coral Lamartiniere, VH 124, 1670 University Blvd., mailing: VH 124, 1530 3rd Avenue South, Birmingham, Alabama 35294-0019.

Telephone 205-934-7139

E-mail [Coral@uab.edu](mailto:Coral@uab.edu)

## Course Descriptions

**TOX 750. Breast Cancer Causation and Regulation.** Epidemiology, mechanism of therapeutic and chemopreventive drugs, and innovative research and clinical approaches. Spring.

**IBS 700. Biological Chemistry and Cellular Physiology.** (8 credits).  
Fall.

**IBS 701. Pathophysiology and Pharmacology of Disease.** (8 credits).  
Spring.

**IBS 702. Molecular Medicine and Functional Genomics.** (8 credits).  
Summer.

Cellular and Molecular Biology I-IV can substitute for the IBS series

Last modified 10/05/04

## UAB Graduate School

### Business Administration (M.B.A.)

Graduate program director: *Ms. Melody Lake*, [mlake@uab.edu](mailto:mlake@uab.edu), 934-1651

## Faculty

**Nell Adkins**, Associate Professor (Accounting and Information Systems);  
Corporate Taxes

**Douglas Ayers**, Associate Professor (Management, Marketing,  
Industrial Distribution); Business to Business Marketing, Product  
Management, Industrial Distribution

**Theodore Bos**, Professor (Finance, Economics and Quantitative  
Methods); Quantitative Analysis

**Lowell Broom**, Professor and Associate Dean (Accounting and  
Information Systems); Auditing, Governmental and Not-for-profit  
Accounting

**Richard M. Burns**, Associate Professor (Finance, Economics and  
Quantitative Methods); Financial Management, Financial Institutions

**Adrian Cowan**, Assistant Professor (Finance, Economics and  
Quantitative Methods); Financial Management

**Paul Crigler**, Instructor (Accounting and Information Systems);  
Management Information Systems

**Manabendra Dasgupta**, Associate Professor (Finance, Economics and  
Quantitative Methods); Economic Theory

**James B. Dilworth**, Professor Emeritus (Management, Marketing and  
Industrial Distribution); Production and Operations Management

**W. Jack Duncan**, University Scholar and Professor (Management,  
Marketing and Industrial Distribution); Strategic Management

**Cindy Edmonds**, Associate Professor (Accounting and Information  
Systems); Financial and Managerial Accounting

**Thomas Edmonds**, Professor (Accounting and Information Systems);  
Financial and Managerial Accounting

**Thomas A. Fetherston**, Professor (Finance, Economics and

Quantitative Methods); Investments, International Finance

**Peter M. Ginter**, Professor (Management, Marketing and Industrial Distribution); Policy and Strategic Management

**Robert Holmes**, Professor, Dean (Management, Marketing and Industrial Distribution); Strategic Management

**Buky Folami**, Assistant Professor (Accounting and Information Systems); Managerial Cost

**Morris M. Gee**, Instructor and Internship Director (Management, Marketing and Industrial Distribution); Marketing, Retail and Entrepreneurship

**Eric P. Jack**, Assistant Professor (Management, Marketing, Industrial Distribution); Operations Management

**Karen Kennedy**, Associate Professor (Management, Marketing, Industrial Distribution); Personal Selling and Marketing Strategy

**Susan Key**, Associate Professor (Management, Marketing and Industrial Distribution); Social, Legal, and Ethical Environment of Business

**Seung-Dong Lee**, Professor (Finance, Economics and Quantitative Methods); International Economics, Applied Economic Theory

**Warren S. Martin**, Professor (Management, Marketing and Industrial Distribution); Survey Research, Marketing Research, Industrial Distribution

**Michael K. McAlister**, Professor (Accounting and Information Systems); Management Information Systems

**Gail W. McGee**, Professor Emeritus (Management, Marketing and Industrial Distribution); Organizational Behavior

**Frank M. Messina**, Professor and Chairman (Accounting and Information Systems); Fraud Prevention

**George M. Munchus, III**, Professor (Management, Marketing and Industrial Distribution); Human Resource Management, Labor Relations

**Philip Musa**, Assistant Professor (Management, Marketing and Industrial Distribution); Production and Operations Management

**Lance Nail**, Assistant Professor and Chairman (Finance, Economics and Quantitative Methods); Wealth Creation

**Thomas L. Powers**, Professor (Management, Marketing and Industrial

Distribution); International Marketing, Strategic Marketing

**Julio C. Rivera**, Associate Professor (Accounting and Information Systems); Management Information Systems

**Robert A. Robicheaux**, Professor and Chairman (Management, Marketing and Industrial Distribution); Marketing and Retail

**Robert A. Scott**, Associate Professor Emeritus (Management, Marketing and Industrial Distribution); Administrative Theory and Practice, Organizational Design and Development

**Sanjay K. Singh**, Associate Professor (Accounting and Information Systems); Management Information Systems

**Tommie Singleton**, Assistant Professor (Accounting and Information Systems); Accounting and Information Systems

**Jay A. Smith, Jr.**, Professor, Ben S. Weil Chair of Industrial Distribution (Management, Marketing and Industrial Distribution); Logistics, Industrial Distribution

**Robert E. Stanford**, Professor (Finance, Economics and Quantitative Methods); Operations Research

**John E. Swan**, Professor Emeritus (Management, Marketing and Industrial Distribution); Marketing

**Deborah Tanju**, Professor (Accounting and Information Systems); Financial Accounting, Internal Auditing and Accounting Systems

**Murat Tanju**, Professor (Accounting and Information Systems); Financial Accounting

**Bor-Yi Tsay**, Professor (Accounting and Information Systems); Managerial Accounting and Accounting Systems

**Richard Turpen**, Associate Professor (Accounting and Information Systems); Financial Accounting and Auditing

**Robert Underwood**, Assistant Professor (Management, Marketing, Industrial Distribution); International marketing and Promotion/Advertising

**Joseph G. Van Matre**, Professor (Finance, Economics and Quantitative Methods); Multivariate Analysis, Total Quality Management

**Joe Walker**, Associate Professor (Finance, Economics and Quantitative Methods); Financial Management

**Frank Watkins**, Associate Professor (Accounting and Information



Systems); Taxation and Business Law

**Barbara Wech**, Assistant Professor (Management, Marketing, Industrial Distribution); Organizational Behavior

## Program Objectives

The objectives of the program are to provide professional, graduate-level education and to maintain a continuing relationship with the business community through service activities. In order to deal effectively with increasingly complex problems of organizations, managers require training in sophisticated analytical techniques, appreciation for the behavioral facets of management, and an ability to anticipate and adapt to changes in the organizational environment. The M.B.A. program is designed to provide competency in management and to acquaint the student with all aspects of business activity. The program is decision oriented, focusing on key aspects of modern administration, and seeks to prepare graduates for leadership roles in business, industry, government, or social service.

## Admission Requirements

Requests for application forms and information concerning admission procedures should be directed to the UAB Graduate School of Management. Applicants must be holders of baccalaureate degrees from regionally accredited institutions and must present evidence including, but not limited to, admission test scores (see below) and undergraduate records indicating high promise of success in business study at the graduate level. Applicants must have completed satisfactorily an undergraduate calculus course within the previous five years of application or must pass a proficiency exam or complete the Graduate School of Management Calculus Review. In addition, foreign student applications must have a minimum score of 550 on the TOEFL.

Admission to the M.B.A. program is competitive. In order to be considered, applicants must submit transcripts from baccalaureate work and GMAT scores. In addition, applicants with a minimum two years full-time professional work experience are preferred. The number of qualified applicants admitted may have to be limited when resource constraints and optimum enrollment considerations so dictate.

Candidates interested in non-degree seeking admission must meet admission requirements for the MBA program. We will require a resume, copies of transcripts, and GMAT scores along with the application. We will accept candidates with terminal degrees who have not taken the GMAT. The option to enter as non-degree seeking will be offered to candidates who miss the application deadline for applying to the MBA program, but who submit all materials prior to the beginning of the term and meet admission requirements, provided that there are seats

available.

## Program Requirements

The M.B.A. program is suitable not only for students with baccalaureate degrees in business but also for those who have degrees in engineering, science, or other liberal arts.

A maximum of 48 semester hours of credit is required for completion of the M.B.A. program; however, students with applicable undergraduate courses in business may have certain core courses (MBA 620, 632, 633, 640, 650, 660) waived. The minimum degree requirement is 36 semester hours.

After the student is admitted to the program, the M.B.A. graduate advisor is available to meet with the student, if needed, to help outline a plan of study. Once admitted, students are expected to complete at least three courses during each 12-month period. Each candidate for the M.B.A. must file formal application for the degree in the Graduate School of Management Office at least three months before the expected date of graduation.

## Program Information

The M.B.A. program is taught in an evening format and is designed for students who work during the day. Most students can complete degree requirements within 2-2½ years. Concentrations are available in finance, information technology management, and health care management. Each concentration consists of nine semester hours. The M.B.A. program is accredited by AACSB—The Association to Advance Collegiate Schools of Business.

## Additional Information

For detailed information, contact the UAB Graduate School of Management, School of Business, Room 219, 1150 South 10th Avenue, Birmingham, Alabama 35294-4460.

Telephone 205-934-8817

E-mail [mbainfo@uab.edu](mailto:mbainfo@uab.edu)

Web [www.business.uab.edu](http://www.business.uab.edu)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Courses numbers preceded with an asterisk indicate courses that can be

repeated for credit, with stated stipulations.

## **Master of Business Administration (MBA)**

### **610. Financial Reporting and Analysis for Management.**

Determination and use of cost data for decision making, control and evaluation of performance, and formulation of goals and budgets. 3 hours.

**611. Management Information Systems.** Applications of information and management sciences to design and use of decision-oriented systems. 3 hours.

**620. Corporate Finance.** Introduction to financial management of nonfinancial corporations. Topics include time value of money, bond and stock valuation, cost of capital, capital budgeting, capital structure and dividend policy. Cases may be used. Prerequisites: MBA 610, and 660. 3 hours.

**621. Advanced Topics in Corporate Finance.** An advanced course in finance with emphasis on special topics such as financial planning, working capital management, leasing hybrid financing, international capital budgeting, etc. Case studies are used. Prerequisite: MBA 620. 3 hours.

**630. Social, Ethical, and Legal Environment.** Social, ethical, and legal environment in which business enterprise operates domestically and internationally. 3 hours.

**632. Managerial Processes & Behavior.** A study of classical and modern theories of organization, management and leadership with emphasis on applications to modern organizations. 3 hours.

**633. Operations Management.** Introduction to management planning and control techniques applicable to operations portion of various enterprises. Prerequisites: MBA 660 or 661. 3 hours.

**634. Business Strategy.** Integration of management, finance, accounting, marketing, economics, production, and decision-making concepts. Prerequisite: Last term in MBA program. 3 hours.

**635. International Business Policy.** Problems and strategic considerations of firms engaged in international business. Prerequisites: MBA 632 or equivalent. 3 hours.

**640. Applied Microeconomic Analysis.** Application of economic theory and methodology to decision making: theoretical and empirical analysis of demand, production, costs, and pricing behavior. Prerequisite: MBA 660. 3 hours.

**650. Modern Marketing Concepts.** Analytical approach to business

systems directing flow of goods and services from product conception and production to consumption from a marketing manager's point of view. 3 hours.

**651. Seminar in Marketing Policy.** Problems of marketing managers; planning, implementing, evaluating, and controlling marketing activities. Prerequisite: MBA 650. 3 hours.

**660. Business Statistics.** Selected statistical techniques, including statistical inference, regression, and decision theory. Application to business problems. 3 hours.

**661. Decision Science.** Introduction to topics in operations research. Prerequisite: MBA 660. 3 hours.

**667. Quantitative Methods for Finance.** Development of the mathematical foundations of graduate level financial modeling and analysis, including applications of calculus, probability theory and linear algebra to the measurement of asset returns and the assessment of risk, to the pricing of options and other financial derivatives, and to the solution of important financial optimization problems. Prerequisite: 660. 3 hours.

## Electives

**615. Technology Based Entrepreneurship.** Technology Based Entrepreneurship. MBA 611 as the prerequisite. 3 hours.

**616. Information Systems Planning and Decision Making.** Provides the foundation for the strategic planning of information systems and solving problems faced by decision makers. MBA 611 as the prerequisite. 3 hours.

**617. Enterprise Application Implementation.** Provides the managerial foundation for developing and implementing large-scale enterprise applications. MBA 611 as the prerequisite. 3 hours.

**618. Technology Based Project Management.** Provides the foundation for the management and successful execution of IT based projects. MBA 611 as the prerequisite. 3 hours.

**622. Portfolio Theory and Construction.** Theoretical and practical aspects of investments and portfolio management. Prerequisites: MBA 620. 3 hours.

**623. Mergers and Acquisitions.** Introduces the student to the basic terminology, theories, and empirical evidence regarding the immediate and long-term wealth effects of corporate control events such as mergers, acquisitions and divestitures. Prerequisites: MBA 620. 3 hours.

**624. Global Financial Management.** Financial analysis and decision

making in international context. Prerequisite: MBA 620. 3 hours.

**626. Credit Markets and Instruments.** Detailed coverage of the credit markets (Money and Bond markets) of the U.S. and an introduction to the international aspects of those instruments. Prerequisite: MBA 620. 3 hours.

**627. Financial Risk Analysis and Management.** Unifying approach to the valuation and use of derivatives in domestic and international financial risk management; exploration of issues in the measurement, analysis, and management of financial risk including interest rate, exchange rate, and commodity price risks. Prerequisite: MBA 620. 3 hours.

**636. Human Resource Management.** Critical management theory as applied to human resource problems such as employment, employee education and training, labor-management, health and safety, compensation and human resources research. Prerequisite: MBA 632 or equivalent. 3 hours.

**641. Macroeconomic Analysis and Decision Making.** Macroeconomic analysis; modern theory of aggregate demand and supply; forecasting and link between business firm and microenvironment. Prerequisites: 660. 3 hours.

**654. International Marketing.** Examination of international marketing activities, including environmental issues, marketing strategy, and tactical considerations in entering foreign markets. Prerequisite: MBA 650. 3 hours.

**669. Foundations of Total Quality Management.** Reviews essential elements of TQM and emphasizes their interrelatedness. What thought processes of management must be changed, why, and how is discussed with application to manufacturing and service sectors. Prerequisites: MBA 660, which may be taken concurrently, or permission of instructor. 3 hours.

**671. Health Care Marketing.** Introductory survey of marketing concepts as applied to health services organizations. Consumer behavior, market segmentation, target marketing, marketing research, management, and control of marketing mix variables. 3 hours.

**673. Product Innovation Management.** Introduction of the process of new product development, managing existing products and product deletion decisions. Prerequisite: MBA 620, 650 or HA 671. 3 hours.

**674. Services Marketing.** An examination of the generic differences between goods and services, with appropriate marketing strategies for services developed. Prerequisite: MBA 650. 3 hours.

**675. Seminar in E-Commerce.** Introduction to E-Commerce business-to-consumer and business-to-business activities. Prerequisite: MBA 650.

3 hours.

**676. Management Internship.** Provides students the opportunity to gain first-hand experience in local businesses for one term while receiving academic credit. Prerequisites: MBA 632, 650 or equivalent and permission of the instructor. 3 hours.

**698. Directed Study (Nonthesis).** Prerequisite: Approval of Graduate School of Management. 3 hours.

Graduate students may choose only two courses (6 hours) from the following list of 500-level electives or, if an undergraduate accounting major, from the list of 500-level accounting electives.

**MG 521. Entrepreneurship.** Analytical and critical examination of functions and environments where new organizational development takes place. Role of entrepreneurship in creation and development of new economic entities. Prerequisite: MBA 632. 3 hours.

**MK 520. Sales Management.** Management of personal selling function. Nature of selling task; recruiting, selecting, training, compensating, and evaluating sales personnel. Prerequisite: MBA 650. 3 hours.

**MK 540. Small Business Consulting and Research.** Applied field work integrating all of the functional business fields. Prerequisites: MBA 632, MBA 650, and permission of instructor. 3 hours.

**QM 525. Applied Regression Analysis.** Simple, multilinear, and polynomial regression analysis. Model selection, inferential procedures, and application with computer. Prerequisite: MBA 660. 3 hours.

Last modified 10/14/04

## UAB Graduate School

### Cell Biology (Ph.D.)

Graduate program director: *Collawn*

## Faculty

**Daniel Balkovetz**, Associate Professor (Medicine), Epithelial Cell Biology; Epithelial Cell Cycle Regulation; Microbial Interactions with Polarized Epithelia

**David M. Bedwell**, Professor (Microbiology); Mitochondrial Biogenesis, ABC Transporters

**Dale J. Benos**, Professor and Chair (Physiology & Biophysics); Molecular physiology of ion channels

**Etty N. Benveniste**, Professor and Chair (Cell Biology); Neuroimmunology, Cytokine Production in the Central Nervous System

**Michael J. Bertram**, Assistant Professor (Medicine)

**J. Edwin Blalock**, Professor (Physiology & Biophysics); Molecular Recognition, Immune Network, Immune Neuroendocrine Interactions

**Daniel Bullard**, Assistant Professor (Comparative Medicine); Adhesion Molecules in Inflammatory Disease

**Steven L. Carroll**, Assistant Professor (Clinical Pathology); The Role of Neuregulin-1 in PNS Regeneration and Neoplasia

**Chenbei Chang**, Assistant Professor (Cell Biology); Developmental Biology, Signal Transduction and Transcriptional Control in Early Frog Embryogenesis

**Xinbin Chen**, Associate Professor (Cell Biology); p53 Tumor Suppressor Gene Family and Transcriptional Regulation

**Charles Cobbs**, Assistant Professor (Neurosurgery); Role of Human Cytomegalovirus in Oncogenesis

**James F. Collawn**, Associate Professor (Cell Biology); Molecular Mechanisms of Protein Trafficking, Antigen Processing and Presentation

**Christine A. Curcio**, Associate Professor (Ophthalmology); Relations of Human Retinal Anatomy and Spatial Vision

**Stuart J. Frank**, Professor (Medicine); Growth Hormone Receptor Structure-Function, Growth Hormone Signaling

**Gerald M. Fuller**, Professor (Cell Biology); Inflammatory Cytokine Signaling Pathways in Hepatocytes and Synoviocytes

**G. Yancey Gillespie**, Professor (Surgery); Cell and Molecular Biology of Malignant Brain Tumors

**Candece Gladson**, Associate Professor (Clinical Pathology); Angiogenesis and Cellular Signals in Glioma Tumors that Promote Proliferation and Invasion

**Lisa Guay-Woodford**, Professor (Medicine); Characterizing molecular determinants involved PKD pathogenesis

**James Hagood**, Associate Professor (Pediatrics); Role of Fibroblasts in Tissue Remodeling

**Gail V. W. Johnson**, Professor (Psychiatry); Phosphorylation, Function and Metabolism of Neuronal Cytoskeletal Proteins

**Richard Jope**, Professor (Psychiatry); Neuronal Signaling Mechanisms Regulating Gene Expression and Cell Death

**F. Cleveland Kinney**, Professor (Medicine); Research for medications for the treatment of dementia and Alzheimer's disease.

**Robert Kimberly**, Professor (Medicine); Autoimmunity, Molecular Mechanisms and Genetic Risk

**Mattias Kraus**, Associate Professor (Medicine); Molecular Genetics of Oncogenic Transformation and Cancer; Signal Transduction and Growth Regulation by the ErbB/EGF Receptor Family of Tyrosine Kinases

**Jeffrey Kudlow**, Professor (Medicine); Transcriptional Control of Growth Factor Gene Expression

**Matthieu Lesort**, Assistant Professor (Behavioral Neurobiology)

**Fang-Tsyr (Fannie) Lin**, Assistant Professor (Cell Biology); Regulation of Cell Growth by G Protein-Coupled Receptor Signaling

**Weei-Chin Lin**, Assistant Professor (Cell Biology); Cell Cycle Control and DNA Damage Response

**Richard B. Marchase**, Professor/Assoc Dean Medicine (Cell Biology); Cytoplasmic Glycosylation and Intracellular Calcium Regulation

**Guillermo Marques**, Assistant Professor (Cell Biology); Developmental and adult synaptic plasticity, regulation of gene expression during nervous system development, cell signaling and signal transduction by the TGF- $\beta$ /BMP pathway in neurons.

**Richard Mayne**, Professor (Cell Biology); Structure and Pathophysiology of Skeletal Muscle, Cartilage, Eye

**Jay McDonald**, Professor and Chair (Pathology); Cellular Life and Death Signals in Cancer, Aids and Bone Disease

**Michael Miller**, Assistant Professor (Cell Biology); Function and evolution of intercellular communication mechanisms

**Casey Morrow**, Professor (Cell Biology); HIV Replication. RNA:RNA and RNA:Protein Interactions

**Joanne E. Murphy-Ullrich**, Professor (Pathology); Extracellular Matrix Control of Cell and Growth Factor Function

**Louis Burt Nabors**, Assistant Professor (Neurology)

**Martin M. Pike**, Associate Professor (Cardiovascular Disease); Nuclear Magnetic Resonance Studies of Myocardial Ion Regulation

**Lucas D. Pozzo-Miller**, Assistant Professor (Neurobiology); Neurotrophins on Ca<sup>2+</sup> Signaling, Synapse Development, and Plasticity

**Lawrence Prince**, Assistant Professor (Pediatrics); Cystic fibrosis

**J. Michael Moates**, Assistant Professor (Medicine); Regulation of gene expression in pancreatic islets and adipose tissue.



**Julian C. Rayner**, Assistant Professor (Medicine); Cell Biology of the Malaria Parasite, Plasmodium Falciparum

**Michael J. Ruppert**, Associate Professor (Medicine); Role of Zinc Finger Transcription Factors in Tumor Progression

**Erik Schwiebert**, Associate Professor (Physiology & Biophysics); Extracellular Nucleotide Signaling and Epithelial Cell Biology and Physiology

**Lisa Marshall Schwiebert**, Associate Professor (Physiology & Biophysics); Inflammatory Responses

**Rosa Serra**, Assistant Professor (Cell Biology); Mechanism of TGF- $\beta$  Action in Developmental and Disease Processes

**Bingdong "Ben" Sha**, Associate Professor (Cell Biology); Protein Crystallography

**Gene P. Siegal**, Professor (Pathology); Tumor Cell Interaction with Extracellular Matrix During Invasion

**Harald W. Sontheimer**, Professor (Neurobiology); Regulation and Function of Ion Channels in Glia

**Elizabeth S. Sztul**, Professor (Cell Biology); Intracellular Membrane Sorting and Fusion

**W. Anne B. Theibert**, Associate Professor (Neurobiology); Inositol-Phosphate Second Messengers in Neurotransmitter Action in the Brain

**Laura Timares**, Assistant Professor (Dermatology); Engineering Dendritic Cells for Immunotherapy

**Shu-Zhen Wang**, Associate Professor (Ophthalmology); Molecular mechanism of early retinal development, using the embryonic chick as a model system to answer questions with molecular biology, cell biology, genetics, and experimental embryology.

**David S. Weiss**, Professor (Neurobiology); Structure/Function Relationship of Ion Channels

**Anne C. Woods**, Associate Professor (Cell Biology); Cell-Extracellular Matrix Interactions and Transmembrane Signaling

**J. Michael Wyss**, Professor (Cell Biology); Neural Control of Cardiovascular System and Limbic Cortex

**Bradley K. Yoder**, Associate Professor (Cell Biology); Polycystic Kidney Disease

**Tong Zhou**, Assistant Professor (Medicine); Apoptosis in Autoimmunity and Cancer Biology

## Program Information

The Department of Cell Biology participates in the Cellular and Molecular Biology (CMB) Program and the Neurosciences Program, which are designed to provide a first-year curriculum to graduate students interested in the broad area of cellular and molecular biology. The CMB and Neurosciences Programs involves student recruitment, admissions, and the first-year curriculum. At the end of the first year, each CMB student chooses a mentor and elects to pursue a degree in biochemistry and molecular genetics, cell biology, microbiology, or neurobiology. Students from the Medical Scientist Training Program (MSTP) are also welcome to complete the basic science component of their training in Cell Biology.

The goal of the graduate program in Cell Biology (CB) is to prepare research-oriented individuals for careers as independent academic or industrial scientists. Each student is counseled and guided by faculty and staff and interacts with a variety of postdoctoral fellows and other graduate students. Thus, through both formal and informal discussion, the student is challenged to consider a wide range of scientific questions and methodologies and is encouraged to relate these to the particular scientific endeavor he or she is pursuing.

The student is expected to gain a broad research background through active participation in formal courses and through hands-on research. In addition to the research-oriented course offerings within the department, the student is expected to expand his or her knowledge by undertaking relevant coursework in biochemistry, statistics, physiology, molecular biology, and immunology. Each student's program is tailored to meet the student's needs and scientific interests. A student usually rotates through at least three independent laboratories (10 weeks each) before identifying a permanent laboratory where his or her formal research for the Ph.D. degree will be done. The Ph.D. program, including coursework, research, and dissertation, usually requires a commitment of at least four to five years, depending on the background of the student.

The program allows specialization in all areas of cell biology, including neurobiology. The program houses active, well-funded research projects that are indicated in the preceding faculty roster. In addition to UAB Graduate School admission requirements, the program requires a baccalaureate degree with a major emphasis in science, a B average in all courses and a slightly higher average in science coursework, and a minimum score of 1,100 on combined verbal and quantitative sections of the GRE General Test.

## Ph.D. Program

Although it is expected that most students will enter the program with an advanced biological science background, exceptionally promising students with deficiencies in biological studies will be accepted into the program with the proviso that they take the necessary remedial coursework, usually while they simultaneously pursue research within the program. The successful student will, by the end of his or her graduate tenure, have an ability both to carry out independent research and to contribute to a teaching program in modern cell biology.

Following completion of basic coursework (usually one-and-a-half to two years), each student is required to pass a qualifying examination. This examination is structured to (1) test the student's ability to design a comprehensive research proposal that addresses a problem within an area of cell biology, (2) determine the breadth of the student's knowledge in modern biological sciences, and (3) examine the student's understanding of current concepts in cell biology. After successful completion of this examination by a graduate faculty committee, the student is admitted to candidacy.

All entering graduate students will be awarded fellowships plus full payment of tuition, fees, and insurance premiums. No teaching responsibilities are attendant to the fellowship acceptance.

## Additional Information

For detailed information, contact Dr. James F. Collawn, UAB Cell Biology Graduate Program Director, MCLM 350, 1530 3rd Avenue South, Birmingham, AL 35294-0005.

Telephone 205-975-7145

E-mail [jcollawn@uab.edu](mailto:jcollawn@uab.edu)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Cell Biology (CB)

601. **Dental Gross Anatomy.** 8 hours.

712. **Developmental Biology.** Journal club. 1 hour. Pass/Fail. (Mayne)

713. **Growth Factors.** Journal club. 1 hour. Pass/Fail. (Gillespie)

714. **Calcium Signaling.** Journal club. 1 hour. Pass/Fail. (Marchase)
715. **Biochemical Approaches to Cell Biology.** Journal club. 1 hour Pass/Fail. (Collawn)
716. **Molecular Basis of Signaling in the Nervous System.** Journal club. 1 hour. Pass/Fail. (Theibert/Fuller)
720. **Developmental Neurobiology.** Journal club. 1 hour. Pass/Fail. (Wyss)
721. **Laboratory Rotation.** 5 hours. Pass/Fail.
722. **Vascular Biology.** Journal club. 1 hour. Pass/Fail. (Wyss)
723. **Membranes & Glycobiology.** Journal Club. 1 hour. (Rostand)
724. **Special Topics in Cell Biology.**
728. **Advanced Cell Biology.** (Collawn)
729. **Mechanisms of Signal Transduction.** (Fuller/Theibert)
730. **Molecular Basis of Conformational Diseases.** (Sztul/Wyss).
735. **Mechanisms of Writing a Scientific Paper and NIH Grant.** (Morrow)
746. **Cell Cycle and Cancer Genetics.** (Chen)
737. **Developmental Biology.** (Mayne/Chang/Yoder)
740. **Research in Cell Biology.** 1 hour. Pass/Fail.
747. **Cell Biology Seminar.** 1 hour. Pass/Fail. (Mayne/Sztul)
748. **Special Problems in Cell Biology.** 1-5 hours.
750. **Graduate Gross Anatomy.** Lectures, demonstrations, and dissection of all systems and regions of human body. 6 hours. (M. Casey)
752. **Graduate Histology.** Light microscopic features and ultrastructure of cells, fundamental tissues, and organ systems. 5 hours. (Fuller)
755. **Graduate Neuroanatomy.** Gross and microscopic preparations of brain and spinal cord. Functional significance of tracts and nuclei. 4 hours. (Wyss)
779. **Special Problems in Neuroanatomy.** 1-4 hours.
788. **Directed Readings.** Specialized advanced readings in selected topics under direction of appropriate faculty member. 1-4 hours.
790. **Developmental Neurobiology.** (Wyss) 4 hours.
798. **Doctoral Nondissertation Research.** 1-15 hours.
799. **Doctoral Dissertation Research.** Prerequisite: Admission to candidacy. 1-15 hours.

Last modified 09/21/04

## UAB Graduate School

### Cellular and Molecular Biology

Program Administrator: *Webster*

## Faculty

### Cell Adhesion and Matrix

**Steve Barnes**, Professor (Pharmacology); Bile Acids and Isoflavonoids

**Candece Gladson**, Associate Professor (Pathology); Malignant Astrocytoma Cell Migration, Invasion, and Proliferation

**Richard Mayne**, Professor (Cell Biology); Development and Structure of Mesenchymal Tissues

**Anne Woods**, Associate Professor (Cell Biology); Transmembrane Signaling in Cell-matrix Interactions

### Cell Physiology and Signaling

**Daniel Balkovetz**, Associate Professor (Cell Biology); Epithelial Cell Biology and HIV-Associated Nephropathy

**Dale Benos**, Professor and Chairman (Physiology & Biophysics); Molecular basis of operation on ion channels and transporters

**Etty Benveniste**, Professor and Chairman (Cell Biology); Communication Between the Immune and Nervous Systems

**J. Edwin Blalock**, Professor (Physiology & Biophysics); Immune, Neuroendocrine Interactions, Molecular Recognition

**Chenbei Chang**, Assistant Professor (Cell Biology); Signal pathways in frog development

**James Collawn**, Associate Professor (Cell Biology); Intracellular Protein Sorting

**Stuart Frank**, Professor (Cell Biology); Eukaryotic Cell Biology and Genetics

**Bruce Freeman**, Professor (Anesthesiology); Tissue Production and Reactions of Reactive Oxygen Species

**Richard Jope**, Professor (Psychiatry); Neuronal Signaling Systems, and

## Neuronal Disorders

**Kevin Kirk**, Professor (Physiology & Biophysics); Ion Channels, Membrane Traffic, Cystic Fibrosis

**Fang-Tsy (Fannie) Lin**, Assistant Professor (Cell Biology); Regulation of Cell Growth by G Protein-Coupled Receptor Signaling

**Richard Marchase**, Senior Associate Dean for Biomedical Research, Professor (Cell Biology); Calcium Signaling and Cardiac Hypertrophy

**Guillermo Marques**, Assistant Professor (Cell Biology); Developmental Synaptic Plasticity, Regulation of Gene Expression during Nervous System Development, Cell Signaling and Signal Transduction

**Michael Miller**, Assistant Professor (Cell Biology); Function and Evolution of Intercellular Communication Mechanisms

**Joanne Murphy-Ullrich**, Professor (Pathology); Extracellular Matrix Control of Cell and Growth Factor Function

**Julian Rayner**, Assistant Professor (Microbiology); Cell Biology of the Malaria Parasite, plasmodium falciparum

**Erik Schwiebert**, Associate Professor (Physiology & Biophysics); Extracellular Nucleotide Signaling and Epithelial Cell Biology and Physiology

**Lisa Schwiebert**, Associate Professor (Physiology & Biophysics); Airway Inflammation

**Elizabeth Sztul**, Associate Professor (Cell Biology); Organellar Biogenesis and Membrane Traffic

**John Thompson**, Professor (Surgery); Molecular Mechanisms of Angiogenesis

**Anne Woods**, Associate Professor (Cell Biology); Syndecan Proteoglycans in Cell Adhesion and Matrix Assembly

## Gene Regulation and Expression

**Ching-Yi Chen**, Assistant Professor (Biochemistry & Molecular Genetics); Mechanism and Regulation of Mammalian mRNA Turnover

**Xinbin Chen**, Associate Professor (Cell Biology); The p53 Tumor Suppressor Gene Family and Transcriptional Regulation

**David Crawford**, Assistant Professor (Biochemistry & Molecular Genetics); Control of Mitotic Entry and the G2 DNA Damage Checkpoint,

## Ubiquitin Mediated Protein Degradation

**Creg Darby**, Assistant Professor (Microbiology); Analysis of Host-Pathogen Interactions using *C. elegans*

**N. Patrick Higgins**, Professor (Biochemistry and Molecular Genetics); Mechanics and Enzymology of *in vivo* Chromosome Movement

**Weei-Chin Lin**, Assistant Professor (Cell Biology); Cell cycle control and DNA damage response

**Susan Lobo-Ruppert**, Assistant Professor (Biochemistry and Molecular Genetics); Synthesis of Small Nuclear RNAs

**Jay McDonald**, Professor and Chairman (Pathology); Cellular Life and Death Signals in Cancer, AIDS and Bone Disease

**Kevin Roth**, Professor (Pathology); Molecular Regulation of Neuronal Cell Death

**Thomas Ryan**, Assistant Professor (Biochemistry and Molecular Genetics); Gene Regulation, Stem Cells, Mouse Models, Mutagenesis, Cell Therapies

**Tim Townes**, Professor and Chairman (Biochemistry and Molecular Genetics); Developmental Regulation of Gene Expression

**Charles Turnbough**, Professor (Microbiology); Bacterial Gene Regulation; Structure/Function of the *Bacillus anthracis* Spore Surface

## Immunology

**Prescott Atkinson**, Associate Professor (Pediatrics); Signal Transduction in Lymphocytes

**Scott Barnum**, Associate Professor (Microbiology); Role of Complementin CNS Inflammatory Diseases

**Olalee Branch**, Assistant Professor (Medicine); Malaria, Molecular Epidemiology and Immunology

**Louis Bridges**, Associate Professor (Microbiology); Immunoglobulin Gene Expression; Rheumatoid Arthritis

**R. Pat Bucy**, Professor (Pathology); Immune Regulation, Transplantation, and HIV Pathogenesis

**Peter Burrows**, Professor (Microbiology); B Cells, Developmentally Regulated Genes, Isotype Switching

**Robert Carter**, Associate Professor (Medicine); Molecular Mechanisms of Control of B Lymphocyte Responses

**David Chaplin**, Professor and Chair man (Microbiology); T Cell Control of Tissue Inflammation, Regulation of Normal and Pathologic Immune Responses in Lymphoid Tissues. Regulation of Secondary Lymphoid Tissue Development and Function.

**Max Cooper**, Professor (Medicine); Immune System Ontogeny and Phylogeny

**Charles Elson**, Professor (Medicine); Chronic Intestinal Inflammation

**Kohtaro Fujihashi**, Professor (Microbiology); Mucosal Immunology, Regulation of S-IgA Antibody Responses, Mucosal Vaccine Development

**Zdenek Hel**, Assistant Professor (Pathology); Development and Testing of Novel HIV/AIDS Vaccine Strategies

**Louis Justement**, Associate Professor (Microbiology); Lymphocyte Activation, Tyrosine Kinases and Phosphatases, CD45, CD22

**Janusz Kabarowski**, Assistant Professor (Microbiology); Lysophospholipid receptors in the regulation of innate immunity and inflammation

**Jannet Katz**, Professor (Microbiology); Vaccine Delivery Systems; Inflammation; Innate Immunity

**John Kearney**, Professor (Microbiology); B Cells, Idiotypes, Hybridomas, Transgenic Mice, Immunoregulation

**Christopher Klug**, Assistant Professor (Microbiology); Hematopoietic Stem Cell Development

**William Koopman**, Professor and Chairman (Medicine); Pathogenesis of Immune Disease

**Hiroshi Kubagawa**, Research Professor (Pathology); B Cells; Antibodies; Fc Receptors; Immunoglobulin-like Receptors; Immunopathology

**Robinna Lorenz**, Associate Professor (Pathology); Cellular and Molecular Immunology of the Gastrointestinal Tract

**Jiri Mestecky**, Professor (Microbiology); Mucosal Immunity, Vaccines

**Sue Michalek**, Professor (Microbiology); Vaccine Delivery Systems, Mucosal Immunity, Inflammation, T Cells and Cytokines

**John Mountz**, Professor (Medicine); Autoimmunity, Soluble *fas*;



Transgenic Mice

**Chander Raman**, Assistant Professor (Medicine); Immunology and Rheumatology

**Harry Schroeder**, Professor (Medicine); Developmental Genetics, Clinical Immunology

**Laura Timares**, Assistant Professor (Cell Biology); Engineering Dendritic Cells for Immunotherapy

**Casey Weaver**, Associate Professor (Pathology); T Cell Development

**Zhixin Zhang**, Assistant Professor (Microbiology); Molecular Regulation of Early B Cell Development and Antibody Repertoire Formation

**Tong Zhou**, Associate Professor (Medicine); Apoptosis, Autoimmunity, and Cancer Biology

## **Macromolecular Structure and Function**

**Christie Brouillette**, Research Professor (Biochemistry and Molecular Genetics); Protein Structural Cooperativity and Energetics

**Debasish Chattopadhyay**, Assistant Professor (Medicine); Cellular Trafficking, Antimicrobial Chemotherapy

**Herbert Cheung**, Professor (Biochemistry and Molecular Genetics); Molecular Motors, and Fluorescence Spectroscopy

**Lawrence DeLucas**, Professor (Optometry); Protein Crystallography/ Protein Crystal Growth

**Gabriel Elgavish**, Professor (Biochemistry and Molecular Genetics); NMR Studies of Intact Hearts

**N. Rama Krishna**, Professor (Biochemistry and Molecular Genetics); Structural Biology and Biomolecular NMR Spectroscopy

**Ming Luo**, Professor (Microbiology); Structure-Based Approaches to Anti-Infectious Agents

**Jere Segrest**, Professor (Biochemistry & Molecular Genetics); Plasma Lipoprotein Structure and Function

**Bingdong ( Ben) Sha**, Associate Professor (Cell Biology); Structure and Function of Molecular Chaperones

**Mark Walter**, Associate Professor (Microbiology); X-ray Crystallography, Molecular Recognition, Signal Transduction, Cytokine Structure and

Function

## **Molecular Genetics and Disease**

**Sarki Abdulkadir**, Assistant Professor (Pathology); Molecular Genetics of Prostate Cancer

**David Bedwell**, Associate Professor (Microbiology); Translation Termination, Calcium Signaling

**Igor Chesnokov**, Assistant Professor (Biochemistry & Molecular Genetics); DNA Replication, Cell Cycle, Cytokines

**Peter Detloff**, Associate Professor (Biochemistry and Molecular Genetics); Mouse Models of Human Genetic Disorders

**Kevin Dybvig**, Professor ( Genetics ); Mycoplasmas, DNA Rearrangements

**Lisa Guay-Woodford**, Associate Professor (Medicine); Molecular Genetic Determinants of Polycystic Kidney Disease

**Richard Kaslow**, Professor (Epidemiology); Immunogenetic Determinants in AIDS and Other Infectious and Immune Diseases

**Robert Kimberly**, Professor (Medicine); Immunologic Diseases and Autoimmunity

**Jeffrey Kudlow**, Professor (Medicine); Growth Factor Gene Transcription

**Elliot Lefkowitz**, Research Associate Professor (Microbiology); Bioinformatics; Microbial Genomics and Evolution

**Michael Ruppert**, Associate Professor (Medicine); Mechanism of Action of Transforming Oncogenes in GLI and KLF4/GKLF in Carcinoma Genetic Progression

**Rosa Serra**, Assistant Professor (Cell Biology); The TGF-beta Superfamily in Development and Disease.

**Theresa Strong**, Associate (Medicine); Gene Therapy for Cancer and Inherited Disease

**Bradley Yoder**, Associate P rofessor (Cell Biology); Cilia Assembly, Function, and Polycystic Kidney Disease

## **Molecular Pathogenesis**

**William Benjamin**, Associate Professor (Pathology); Genetics of Host-

## Bacterial Relationship

**David Briles**, Professor (Microbiology); Bacterial Pathogenesis, Virulence, Immunity, Pneumococcus, Tuberculosis

**Noel Childers**, Professor (Oral Biology); Oral Immunization, Dental Caries

**Creg Darby**, Assistant Professor (Microbiology); Analysis of Host-Pathogen Interactions using *C. elegans*

**Susan Hollingshead**, Research Associate Professor (Microbiology); Mechanisms of Variation in Microbial Pathogenesis

**Moon Nahm**, Professor (Pathology); Vaccine, *S. pneumoniae*, Bacterial Pathogenesis, Immunity

**David Pritchard**, Professor (Biochemistry and Molecular Genetics); Molecular Basis for the Pathogenicity of Gram-Positive Bacteria

**Adrie Steyn**, Assistant Professor (Microbiology); Mechanism of Mycobacterium Tuberculosis virulence

**Thomas Unnasch**, Professor (Medicine); River Blindness, Evolution; Immunotherapy; Diagnosis.

**Ken Waites**, Professor (Pathology); Diagnostic microbiology, epidemiology and mechanisms of antimicrobial resistance

**Janet Yother**, Associate Professor (Microbiology); *Streptococcus pneumoniae* Genetics and Pathogenesis

## Neurobiology

**Michael Brenner**, Associate Professor (Neurobiology); Molecular Neurobiology

**Lynn Dobrunz**, Assistant Professor (Neurobiology); Synaptic Transmission, Presynaptic Properties of Single Synapses

**Michael Friedlander**, Professor and Chairman (Neurobiology); Synapse Function, Role of Nitric Oxide in Neural Signaling , Molecular Basis of Learning

**John Hablitz**, Professor (Neurobiology); Cellular Mechanisms of Neurotransmission

**Gail Johnson**, Professor (Psychiatry); Phosphorylation and Function of Cytoskeletal Proteins

**Robin Lester**, Associate Professor (Neurobiology); Nicotinic Receptors in the CNS; Neurobiology of Addiction

**Stuart Mangel**, Associate Professor (Neurobiology); Synaptic Plasticity and Modulation in the Retina; Circadian Rhythmicity

**Lucas Pozzo-Miller**, Assistant Professor (Neurobiology); Calcium Signaling; Synaptic Plasticity; Neurotrophic Factors

**Douglas Ruden**, Associate Professor (Neurobiology); Drosophila: Gene Environment Interactions and Toxicology

**Harald Sontheimer**, Associate Professor (Neurobiology); Role of Neuroglia in Brain Function

**Anne Theibert**, Associate Professor (Neurobiology); Role of Phosphoinositides in Developmental Neurobiology

**David Weiss**, Professor (Neurobiology); Structure/Function and Regulation of Ligand-Activated Ion Channels

**Scott Wilson**, Assistant Professor (Neurobiology); Mouse Models of Neurodegeneration

**Michael Wyss**, Professor (Cell Biology); Control of the Autonomic Nervous System

**Yi. Zhou**, Assistant Professor (Neurobiology); Modulation of Ion Channels, Regulation of Neuronal Excitability and Synaptic Transmission

## **Virology**

**Andrew Ball**, Professor (Microbiology); RNA Replication Mechanisms

**William Britt**, Professor (Pediatrics); Herpesvirus Envelope Assembly

**Louise Chow**, Professor (Biochemistry and Molecular Genetics); Molecular and Cellular Biology of Human Papillomaviruses

**Jeff Engler**, Professor (Biochemistry and Molecular Genetics); Virus Protein Structure and Function

**Patricia Fultz**, Professor (Microbiology); Retroviral Pathogenesis, HIV Vaccines

**Beatrice Hahn**, Professor (Medicine); Human Retroviruses and Associated Diseases

**John Kappes**, Associate Professor (Medicine); HIV, Molecular Virology

and Pathogenesis

**Casey Morrow**, Professor (Cell Biology); Viral Morphogenesis and Replication; Gene Therapy and Vaccines

**Peter Prevelige**, Associate Professor (Microbiology); Viral Capsid Self-Assembly: Defining the Underlying Subunit-Subunit Interactions and Their Potential as Therapeutic Targets

**George Shaw**, Professor (Medicine); Human Retroviruses, Molecular Virology and Pathogenesis

**Gail Wertz**, Professor (Microbiology); Molecular Virology, Control of RNA Replication and Transcription

**Richard Whitley**, Professor (Pediatrics, Microbiology, Medicine); Virus, Herpesvirus, Herpes Simplex, *Varicella zoster* Virus

**Allan Zajac**, Assistant Professor (Microbiology); Antiviral Immunity; T Cell Responses

## Program Information

Graduate study in the multidisciplinary area of cellular and molecular biology is coordinated through the Cellular and Molecular Biology (CMB) Program. Faculty mentors in this program have primary or secondary appointments in the Departments of Biochemistry and Molecular Genetics, Cell Biology, Microbiology, or Neurobiology. The students enrolled in this program, therefore, have over 120 potential research laboratories in which to pursue their doctoral training.

The CMB Program administers an intensive, year-long core curriculum designed to provide entering graduate students with a comprehensive introduction to the broad fields of cellular and molecular biology. The core curriculum includes courses in biomolecules, genetics, cells, signaling, virology and immunology, and special topics. In addition, students are exposed to on-going research projects as they rotate through three different laboratories during their first nine months of residency.

Students enter the CMB Program with the intent of using their classroom and laboratory experiences during the first year to help them further define their research interests. The minimum admission criteria are those of the Graduate School (B-level scholarship and a combined score of 1,100 on the verbal and quantitative sections of the GRE General Test) and a suitable background in the biological and physical sciences. Students for whom English is a second language are also required to take the TOEFL examination. At the end of their first year in graduate school, CMB students who successfully complete the first-year curriculum select an advisor and become affiliated with the graduate

program of one of the four participating departments.

Advanced courses in CMB are then offered by the four individual departments. The CMB Program, therefore, acts as a mechanism for allowing students to be admitted into graduate school in this general area while maintaining as broad a spectrum of potential research mentors as possible. The program is highly interdisciplinary, and students benefit from the strong interrelationships between the basic science departments and between the basic and clinical sciences. This interdisciplinary approach and the ready willingness to work together to share ideas and methodologies have played a major role in UAB's rise to international prominence in many fields of research. Such interactions also allow graduate research experiences to move at a pace and in directions that might not be anticipated at the outset of thesis work. The program anticipates admitting 25-30 students each year.

## Additional Information

For detailed information, contact Valerie Webster, Program Administrator (International applicants) or Katie Michum, Program Coordinator (domestic applicants), Cellular and Molecular Biology Graduate Program, BBRB 260, 1530 3rd Avenue South, Birmingham, AL 35294-2170.

Telephone 1-800-262-7764

Fax 205-975-2536

E-mail [cmb@uab.edu](mailto:cmb@uab.edu)

Web [www.cmb.uab.edu](http://www.cmb.uab.edu)

## Course Descriptions

### Cellular and Molecular Biology (CMB)

712. **Methods and Logic.** Practical aspects of critical evaluation of the scientific literature. 1 hour.

713 . **CMB I.** Biomolecules—Structural and biochemical properties of proteins, enzymes, and coenzymes are discussed. 5 hours.

720 . **CMB II.** Genes —Prokaryotic and eukaryotic genetics; control of gene expression; DNA recombination, replication, transcription and translation. 5 hours.

730 . **CMB III.** Cells—Fundamental aspects of cell biology. 5 hours.

741 **Module 1 CMB-IV.** Bacterial Genetics & Physiology. 3 hours.

742 **Module 1 CMB-IV.** Cell Signaling. 3 hours

754 **Module 2 CMB-V.** Cell. & Molec. Neurosci.-This course will cover fundamental principles of cellular neurobiology, including membrane permeability, the ionic basis of the resting membrane potential and of the action potential, neurotransmitter substances and their receptors, synaptic transmission and plasticity and their role in learning and memory, intracellular signaling, and the role of glial cells in neuronal function. The course will have 4 days of lectures per week (Mon - Thu) and a journal club-style discussion of a research paper every Friday. Lecturers are faculty members of the Departments of Neurobiology, Cell Biology, and Physiology & Biophysics. Successful completion will depend on the grade in 1 final exam (essay-style), class participation (i.e. on Friday's article discussion), and attendance. 3 hours

755 **Module 2 CMB-V** Cell & Molec. Aspects of Dev. Bio. 3 hours

756 **Module 2 CMB-V** Virology--The format of the course begins with an initial week of lectures to give a background in the subject and then on most following days there will be an hour of lecture followed by an hour of discussion on relevant current issues relating to the topic in order to bring out important concepts. 3 hours

761 **Module 3 CMB-VI** Eukaryotic Genetics. 3 hours.

762 **Module 3 CMB-VI** Immunology-- Immunology is a team-taught survey course that covers basic concepts of innate and adaptive immunity. Students actively participate in the course through weekly presentations of selected immunology topics based on the current literature. This course provides an excellent foundation in immunology not only for the budding immunologist, but those in microbiology, medicine, neuroscience and other disciplines. 3 hours

763 **Module 3 CMB-VI** Developmental Neuroscience. 3 hours

764 **Module 4 CMB-VII** Molecular Basis of Disease—This course comprehensively reviews the discovery and cellular/molecular biology of members of several important gene families and discusses how this knowledge is applied in animal model systems, including the human. An important course theme involves the interdependence and interchangeability of information at the levels of molecules, models, and man. Students will learn to critically analyze and present data obtained from experimental, scientific, and translational papers. 3 hours

765 **Module 3 CMB-VI** Cell Matrix Interactions in Disease --This course will cover a combination of basic mechanisms underlying extracellular matrix interactions with cells, and how these go wrong in several disease processes. It will be a series of seminars, followed in the final week with oral student presentations on the disease of their choice and submission of a one-page summary.

743 **Module 4 CMB-VII** Molecular Enzymology--To integrate practical

aspects of enzymology and kinetic theories to provide a mechanistic overview of enzyme activity and regulation. 3 hours.

**771 Module 4 CMB-VII Bacterial Pathogenesis--**The course in Bacterial Pathogenesis to be taught each year during fourth CMB module has been designed to be relatively comprehensive and will use as its texts both *Bacterial Pathogenesis* (second edition) by Salyers and DeWhitt and *Principals of Bacterial Pathogenesis* edited by Eduardo Groisman. The first six two hour lectures and the last lecture will be based loosely on the introductory 8 chapters of Salyers and Dewitt's book. The sixth lecture will be based in part on the chapter by Howard Ochman on evolution of bacterial pathogenesis in Groisman's book. The remaining 13 two hour lectures will cover individual pathogens and will be built around chapters in both books and information developed by the speakers. 3 hours

**772 Module 4 CMB-VII Diseases of The Nervous System--**Major advances have been made in understanding diseases of the nervous system at a cellular and molecular level. Several new findings have had direct therapeutic implications and have resulted in the development of novel drugs or new disease management strategies. This course intends to review the most common brain and CNS disorders. 3 hours

**773 Module 4 CMB-VII Protein Folding Diseases.** 3 hours

**774 Module 4 CMB-VII Stem Cell Biology—**This course will explore the derivation, manipulation, and differentiation of embryonic, fetal, and adult stem cells in both mice and humans. Topics to be discussed include stem cell self-renewal, teratoma formation, hematopoietic stem cells, neural stem cells, trans-differentiation, nuclear transfer, and reproductive and therapeutic cloning. The course will be a mixture of instructor lectures and interactive journal club style presentations from the current stem cell literature by the students. Students will be evaluated based upon their journal article presentations, participation in class discussions, quizzes, and attendance. 3 hours

**775 Module 4 CMB-VII Lymphocyte Biology--**The objective of this class is to provide first year graduate students with the opportunity to gain a more in depth understanding of selected aspects of lymphocyte biology. Tentative topics to be cover include T cell subsets, B cell biology, lymphocyte activation and transplantation immunology. The course is literature intense and students are required to read and present numerous scientific papers. 3 hours

**776 Module 4 CMB-VII From Molecules to Behavior.** 3 hours

**777 Module 4 CMB-VII Molec. Recognition & 3-D Graphics--**Molecular interactions (protein-protein, protein-DNA, and protein-drug) are critical for life and impact every area of science. This class will review the basic principles of protein-protein interactions and provide the student practical experience studying these interactions using 3D graphics. The class will spend approximately equal time reviewing



papers and learning to use molecular graphics programs. 3 hours

780 **Laboratory Rotation.** 2 hours

780 **Laboratory Rotation.** 3 hours

12-week rotations in each of three laboratories conducting research; 15-minute oral presentations on accomplishments following each rotation

**Special Courses: 1hr**

790 Laboratory Methods

Last modified 11/16/04

## UAB Graduate School

### Cellular and Molecular Physiology

Graduate program director: *L. M. Schwiebert*

### Primary Faculty

**Marcas M. Bamman**, Assistant Professor (Cellular and Molecular Physiology); Exercise Physiology

**Susan L. Bellis**, Assistant Professor (Cellular and Molecular Physiology); Cellular Physiology

**Dale J. Benos**, Professor and Chair (Cellular and Molecular Physiology); Epithelial Transport, Membrane Biochemistry

**Mark O. Bevensee**, Assistant Professor (Cellular and Molecular Physiology); Cellular and Molecular Physiology of the Central Nervous System

**Carmel McNicolas-Bevensee**, Instructor (Cellular and Molecular Physiology); Structure-Function and Regulation of Ion Channels of the Renal and Cardiovascular System

**Kathleen H. Berecek**, Professor (Cellular and Molecular Physiology); Cardiovascular Physiology

**J. Edwin Blalock**, Professor (Cellular and Molecular Physiology); Neuroimmunoendocrinology

**James K. Bubien**, Associate Professor (Cellular and Molecular Physiology); Ion Transport Systems-Nephrology

**Alvaro G. Estevez**, Assistant Professor (Cellular and Molecular Physiology); Oxidative Stress in Motor Neuron Apoptosis

**Catherine M. Fuller**, Associate Professor (Cellular and Molecular Physiology); Membrane Transport, Molecular Biology of Ion Channels

**F. Shawn Galin**, Assistant Professor (Cellular and Molecular Physiology); Neuroimmunology

**Patricia Jackson**, Instructor (Cellular and Molecular Physiology); Molecular Physiology

**Kevin L. Kirk**, Professor (Cellular and Molecular Physiology); Molecular Physiology of the Cystic Fibrosis Gene Product; Polarized Membrane Traffic

**Lori L. McMahon**, Assistant Professor (Cellular and Molecular Physiology); Neurophysiology

**Jimmy D. Neill**, Distinguished Professor Emeritus (Cellular and Molecular Physiology); Molecular Neuroendocrinology

**Roger M. Rick**, Professor (Cellular and Molecular Physiology); Electron Microprobe Analysis of Transepithelial Ion Transport

**James A. Schafer**, Professor Emeritus (Cellular and Molecular Physiology); Regulation of Epithelial Transport Processes

**Erik M. Schwiebert**, Associate Professor (Cellular and Molecular Physiology); Cellular Physiology and Autocrine Regulation of Epithelial Ion Channels in Cystic Fibrosis and Polycystic Kidney Disease

**Lisa M. Schwiebert**, Associate Professor (Cellular and Molecular Physiology) Cellular and Molecular Mechanisms of Airway Inflammation

**Douglas A. Weigent**, Professor (Cellular and Molecular Physiology); Immunoendocrinology

## Secondary Faculty

**P. Darwin Bell**, Professor (Medicine-Nephrology); Renal Physiology

**Etty Benveniste**, Professor (Cell Biology); Neuronal Cell Biology

**Richard Blackwell**, Associate Professor (OB/GYN); Endocrinology/ Reproductive Biology

**John C. Chatham**, Associate Professor (Cardiology)

**Debashish Chattopadhyay**, Assistant Profesosr (Medicine); Protein Structure, Vesicular Trafficking

**Irshad Chaudry**, Professor (Surgery); Cardiovascular; trauma-hemmmorage & sepsis

**Louis Dell'Italia**, Professor (Medicine-Cardiology); Cardiovascular Physiology

**Lawrence DeLucas**, Professor (Medicine); Crystallography

**Lynn E. Dobrunz**, Assistant Professor (Neurobiology)

**William Evanochko**, Associate Professor (Medicine-Cardiology); Cardiovascular NMR

**Stuart Frank**, Associate Professor (Neurobiology)

**Michael Friedlander**, Professor and Chair (Neurobiology); Neurophysiology

**Barbara Gower**, Associate Professor (Nutrition Sciences)

**John Hablitz**, Professor (Neurobiology); Cellular Neurophysiology

**Basil Hirschowitz**, Professor Emeritus (Neurobiology); Gastrointestinal Physiology

**Raymond Ideker**, Associate Professor (Medicine-Cardiology); Cardiovascular Physiology

**James E. Johnson**, Associate Professor (Medicine); Pulmonary Research

**Kent Keyser**, Associate Professor (Vision Sciences)

**Peter King**, Assistant Professor (Neurology)

**Jeffrey Kudlow**, Professor (Medicine-Endocrinology); Regulation of Growth-Factor Expression

**Jack R. Lancaster**, Professor (Anesthesiology)

**Robin Lester**, Assistant Professor (Neurobiology); Neurophysiology

**Stuart Mangel**, Associate Professor (Neurobiology); Neurophysiology

**James Markert**, Associate Professor (Neurosurgery)

**Sadis Matalon**, Professor (Anesthesiology); Respiratory Physiology

**Anthony Nicholas**, Assistant Professor (Neurology)

**Suzanne Oparil**, Professor (Medicine-Hypertension); Cardiovascular Physiology

**Laura P. Oslund**, Assistant Professor (Medicine-Cardiology)

**Laura Pinderski**, Assistant Professor (Medicine-Cardiovascular); Cardiovascular Physiology

**Dale Parks**, Associate Professor (Anesthesiology); Respiratory Physiology

**Joseph Philips, III**, Associate Professor (Pediatrics); Neonatal Pulmonary Physiology

**James Pittman**, Distinguished Professor (Medicine); Thyroid and the Pituitary Control of the Thyroid

**Lucas Pozzo-Miller**, Assistant Professor (Neurobiology)

**Lawrence S. Prince**, Assistant Professor (Medicine-Pediatrics)

**Steven Rosenfeld**, Associate Professor (Medicine) Neurology

**Paul W. Sanders**, Associate Professor (Medicine); Nitric Oxide Physiology

**Harald Sontheimer**, Professor (Neurobiology); Neurophysiology

**Eric Sorscher**, Professor and Director (Medicine and CF Center); Molecular Biology in Cystic Fibrosis

**Elizabeth S. Sztul**, Professor (Cell Biology)

**Anne Theibert**, Assistant Professor (Neurobiology); Neurophysiology

**Ferdinand Urthaler**, Professor (Medicine-Cardiology); Cardiovascular Physiology

**Mark R. Walter**, Associate Professor (Microbiology)

**David Warnock**, Professor (Medicine-Nephrology); Renal Physiology

**David Weiss**, Professor (Neurobiology); Neurophysiology

**C. Roger White**, Assistant Professor (Medicine-Cardiology); Cardiovascular Physiology

**Philip A. Wood**, Professor (Medicine); Comparative Medicine-Genetic/Metabolic Physiology

## Program Information

### Program Objective

The objective of the Cellular and Molecular Physiology graduate program is to develop in doctoral candidates a fundamental knowledge of mammalian physiology, the ability to conduct research, a capacity to assess work in the field critically, and the ability to teach physiology.

### Admission Requirements

Applications to the program will be judged by the graduate committee of the Cellular and Molecular Physiology Graduate Program, in consultation with other appropriate faculty. Acceptance recommendations will be based on Graduate School admission criteria and, when possible, a personal interview with members of the graduate committee.

### Selection of Faculty Advisor and Area of Research

Upon admission to the graduate program, each student will be assigned a temporary graduate committee until a field of research is selected. During the first year, students will perform at least three (3) laboratory rotations. Each rotation must be approved by the graduate program director. Students are encouraged to perform laboratory rotations with primary and secondary faculty members in the Department of Physiology and Biophysics. In the event that a student identifies a faculty member outside of the Department of Physiology and Biophysics with whom he/she would like to rotate, the student must bring this matter to the attention of the graduate program director. The student must state clearly to the Director why he/she has made such a choice. The Director will then present the matter to the Cellular and Molecular Physiology Graduate Committee for review and approval. The length of each of these rotations can vary, but they must last at least eight weeks. By the end of the first year, the student is expected to have selected an area of research and a permanent advisor from the Physiology and Biophysics faculty roster. It is hoped that International students select a permanent mentor when applying for admission. During the second year, the student should assemble his/her thesis committee. The committee will consist of a minimum of five faculty members to include three physiology faculty and two external faculty (at least one external member should be neither a primary nor secondary Physiology and Biophysics faculty appointment); the departmental chair and graduate program director are ex-officio members of all graduate thesis committees. The student's committee is required to meet formally with the student every 9-12 months, and submit a written report summarizing the

deliberations of that meeting to the Director of Graduate Students with a copy to the student. After 4 years in the program, the Committee will meet every 6 months until the Ph.D. dissertation work is completed.

## **Financial Assistance**

Doctoral students will receive financial aid in the form of a fellowship. Current stipends are \$21,000 per year plus tuition, fees and insurance.

## **Ph.D. Program Requirements**

### **Courses**

All students are required to take IBS 700, 701, 702, PHY 750 (Molecular Physiology and Medicine), and PHY 704 (Biometry). Each student is also required to take three reading courses (PHY 790, 791, 792) and PHY 796 (Seminars in Physiology). PHY 796 must be taken by all students throughout their graduate studies. All 1st year students must successfully complete GRD 717 "Principles of Scientific Integrity". Exceptions and substitutions must be approved by the program director and/or department chair. The graduate school regularly offers one-day workshops and short courses in scientific writing, communication skills, and scientific ethics that our graduate students are encouraged to attend. Full-time students are required to register for 15 hours per semester for fall and spring; 10 hours for summer semester.

### **Grades**

At the completion of a course, students are normally assigned a Letter Grade. Students must maintain a "B" average. If a student receives one "C" grade or lower, the student will be placed on academic probation. In general, it takes two semesters to clear probation. If a student receives two "C" grades or lower in required courses, the student is subject to dismissal from the program pending an appeal to the Cellular and Molecular Physiology Graduate Committee.

### **Departmental Seminars**

As required for PHY 796, all graduate students must attend and participate in the department seminar series every semester that they are enrolled. Following each seminar, the graduate students meet with the seminar speaker over lunches for which they have previously registered with the program manager. Attendance is mandatory. As the seminar program is published well in advance, students should ensure that they are available for this 2-hour period. The faculty consider the seminar series as one of the more important and essential enrichment activities for the graduate students.

### **Grievances**

Although rare, disagreements can arise that may affect a student's progress toward the completion of the degree. The parties involved in such a dispute should make a good faith effort to discuss and resolve the disagreement. Guidelines regarding the handling of grievances as well as arbitration for the graduate program in Cellular and Molecular Physiology are available on our web site at

[grad-program.physiology.uab.edu](http://grad-program.physiology.uab.edu). If, for any reason, you have concerns or a grievance about the program, please contact Dr. Lisa Schwiebert or Dr. Dale Benos directly.

## Admission to Candidacy

Following completion of required courses, each student must take a qualifying exam subject to review by the student's thesis committee. This qualifying exam should be completed during the student's third year. Specifically, this exam will entail a written thesis proposal and an oral defense of this proposal. Throughout the organization of the thesis proposal-qualifying exam, the amount of direction the student receives is at the discretion of the mentor and the thesis committee members. The thesis proposal should be 10-pages in length and written in an NRSA-style format (i.e. Abstract, Specific Aims, Background and Significance, Preliminary Data, and Research Design). A draft of the proposal should then be handed out to each committee member, the student may then schedule the oral defense of the proposal before the department; it is anticipated that approval of the written proposal by the committee members will occur within a month of having received the proposal. Following the oral defense of the thesis proposal, the committee may recommend corrections to the written proposal within a month of the defense. Upon successful completion of both the written proposal and oral defense, the student may apply for candidacy. It is recommended that no more than 2 months lapse between initial submission of the written proposal to the committee and application for candidacy; if more than two months elapses, the student may have to re-defend the proposal.

Upon entering candidacy, each student must enroll in PHY 799 (Doctoral Level Dissertation Research). Completion of 30 credit hours (i.e., 2 semesters @ 15 hours each) of PHY 799 is required prior to the thesis defense.

## Ph.D. Program Completion

Once the mentor, student, and thesis committee agree that the student has completed his/her thesis work, the student may begin to prepare for the thesis defense. In preparation for and completion of the defense, the following steps must be taken:

- The student must 'apply for the degree'. This entails completing the necessary paperwork (See Patricis Matthews, MCLM 808, 934-4210), which requires signatures from the student's mentor and the graduate program director.
- After the student has applied for the degree, he/she will receive the following items from the UAB Graduate School: thesis formatting instructions, typed signature forms (see Julie Bryant-HUC 511), microfiche form, and graduate student survey. For any questions regarding formatting, the student should contact Jan Baird at the Graduate School (HUC 511, 975-6511). Upon receipt of the typed signature forms, the student should bring these forms to the graduate program director's office for safekeeping until the defense. The student should complete the microfiche form and survey at his/her convenience.
- Once the thesis is complete, copies of the thesis must be distributed to each thesis committee member as well as to Dr. Benos and the graduate program director. All copies must be distributed AT LEAST TWO WEEKS PRIOR TO THE ORAL DEFENSE.

- To schedule the oral defense of the thesis, the student must contact Patricia Matthews (934-4210). She will need the title of the thesis, the date and time agreed upon by the mentor and thesis committee, and the location of the defense. It is the responsibility of the student to reserve a site for the defense and a location to meet with the committee after the defense.
- Upon successful defense of the thesis, the student must turn in a final, corrected draft to the UAB Graduate School with 10 business days following the oral defense. Since the Graduate School may require formatting changes to the thesis after the final draft has been submitted, it is strongly suggested that the student remain at UAB at least two additional weeks to complete these changes.
- Before the student leaves the Cellular and Molecular Physiology Graduate Program, the student must leave a forwarding address with the graduate program director's office

## Additional Information

For detailed information contact Dr. Lisa Schwiebert, Graduate Program Director, UAB Department of Cellular and Molecular Physiology, McCallum Building, Room 966, 1530 3rd Ave South, Birmingham, AL 35294-0005.

Telephone 205-934-3970

Fax 205-975-9028

E-mail [lschwieb@uab.edu](mailto:lschwieb@uab.edu)

Web [www.physiology.uab.edu](http://www.physiology.uab.edu)

## Required Courses

### Pathology

IBS 700	IBS I–Biochemistry & Cell Physiology 8 hrs
IBS 701	IBS II–Pathophys & Pharmac of Disease 8 hrs
IBS 702	IBS III–Functional Genomics 8 hrs

### Cellular and Molecular Physiology (PHY)

PHY 698	Master's Nonthesis Research 1-13 hrs
PHY 699	Master's Thesis Research 1-15 hrs
PHY 700	Medical Physiology (spring) 8 hrs
PHY	Physiology of Optometry Students (spring)



702	6 hrs
PHY	Physiology of Dental Students (spring) 6
703	hrs
PHY	Biometry (TBA) 3 hrs
704	
PHY	Molecular Physiology & Medicine 2 hrs
750	
PHY	
790-	Selected Topics in Physiology 3 hrs
794	
PHY	Seminars in Physiology 2 hrs
796	
PHY	Student Seminars in Physiology (summer)
751	2 hrs
PHY	
798	Nondissertation Research 1-13 hrs
PHY	Doctoral Level Dissertation Research 1-15
799	hrs (Prerequisite: Admission to Candidacy)

## Course Descriptions

Unless otherwise noted all courses are for 3 semester hours of credit. Courses numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Cellular and Molecular Physiology (PHY)

698. **Master's Nonthesis Research.** 1-10 hours per term.

699. **Master's Thesis Research.** Prerequisite: Admission to candidacy. 1-10 hours per term.

700. **Medical Physiology.** General principles of organ system physiology. 8 hours.

701. **Physiology Graduate Students.** Physiology for graduate students.

702. **Physiology for Optometry Students.** General principles of organ system physiology. 6 hours. (Weigent)

703. **Physiology for Dental Students.** General principles of organ system physiology. 6 hours.

704. **Biometry.** Statistical concepts and tests for biological data sets. 1-4 hours. (LeDoeuf, Quick)

750. **Molecular Physiology and Medicine.** Fundamental insights into common diseases. 2 hours. (Blalock)

790-794. **Selected Topics in Physiology.** Literature search, seminars, discussion of research in various areas of physiology. 1-4 hours each.

796. **Seminars in Physiology.** Departmental Seminars.

798. Doctoral Nondissertation Research. 1-15 hours per term.

799. **Doctoral Dissertation Research.** Prerequisite: Admission to candidacy. 1-15 hours per term.

751. **Summer Seminars.** Mandatory participation. 1 hour per summer semester.

Last modified 09/28/04

## UAB Graduate School

### Chemistry (Ph.D., M.S)

Graduate program director: *Graves*

## Faculty

**Rigoberto C. Advincula**, Assistant Professor (Chemistry); Synthesis, Fabrication, and Characterization of Ultrathin Films

**Wayne J. Brouillette**, Professor (Chemistry); Drug Design and Synthesis, Stero-Specific Anticonvulsants, Antidiabetics

**Juan P. Claude**, Assistant Professor (Chemistry); Electrosynthesis and Photophysics of Semiconductor Nanoparticles

**Gary M. Gray**, Professor (Chemistry); Transition Metal P-Donor Complexes, Homogeneous Catalysts, Chemotherapeutic Agents

**Tracy P. Hamilton**, Associate Professor (Chemistry); Ab Initio Theoretical Chemistry Development and Applications

**Larry K. Krannich**, Professor (Chemistry); Synthesis, Characterization Chemical Dynamics of Group III and V Systems

**John A. Montgomery**, Adjunct Professor (Pharmaceutical Design); chemotherapy, Antifolates Nuclear Science, Alkylating Agents, Mitotic Inhibitors

**Donald D. Muccio**, Professor (Chemistry); Spectroscopy, Biophysical Chemistry, Energy Transfer in Biological Systems

**William K. Nonidez**, Associate Professor (Chemistry); Novel Flow System Detectors, Electrochemistry, Chemiluminescence, X-ray Fluorescence

**James R. Piper**, Adjunct Professor (Chemistry); Organic Synthesis, Folate Antagonists, Medicinal Chemistry, Drug Design

**John A. Secrist III**, Adjunct Professor (Chemistry); Drug Design and Synthesis, Medicinal Chemistry, Nucleic Acid Components

**Frederick P. Smith**, Associate Professor (Criminal Justice); Trace Element, Physiological Fluid, and Drug Detection

**Lee R. Summerlin**, Professor (Chemistry); Chemical Education, Computer-Assisted Instruction

**Sergey Vyazovkin**, Assistant Professor (Chemistry); Analytical Chemistry, Kinetics and Mechanisms of Condensed Phase Reactions, Thermal Methods of analysis, Polymeric and Energetic Materials.

**Charles L. Watkins**, Professor (Chemistry); NMR Spectroscopy, Biophysical Chemistry, Dynamics of Solute-Solvent Interactions

## Program Information

### General Requirements

Specializations available to M.S. and Ph.D. students in chemistry include analytical, organic, inorganic, and physical chemistry with biochemical applications. After being admitted to the graduate program and before registering for any graduate chemistry courses, the student must take placement examinations. Based upon the results of these examinations, some students may be required to take specified remedial work on a pass/fail basis before enrollment in the core courses; a pass must be obtained in each remedial course for continuation in the program. Other students may be exempted from certain core courses and can proceed to a more advanced course level.

All chemistry graduate students are required to take a total of 18 semester hours of courses that include CH 601/701, 602/702 and four other courses selected from nine courses offered by the department or courses outside the department when career objectives suggest a knowledge base that can be best acquired in this manner. The choice should reflect individual career objectives. To continue in the Ph.D. program, the student must earn a grade of B or better in each of the selected core courses. To continue in the M.S. program, the student must earn a B average or better in the 18 semester hours of core courses. One repeat of any of these courses is allowed to raise grades.

All graduate students must present a departmental literature seminar after the third quarter of enrollment. A minimum of one quarter of teaching experience is required of all graduate students. Prior to the conclusion of the third quarter of enrollment, the student should select a major professor. This selection occurs after the student has interviewed each graduate faculty member in the Department of Chemistry. The student and the major professor will recommend to the director of the graduate program in chemistry the composition of the graduate study committee.

9 Core Courses:

(CH) 625/725, 622/722, 732, 640/740, 641/741, 642/742, 650/750, 651/751, 656/756.

Substitutions are permitted with the approval of the Advisory Committee.

Master's students choose from the 600 courses, Ph.D. students from the

700 courses.

## M.S. Program

### Plan I

Plan I is a research program that requires a minimum of 24 semester hours (including 18 semester hours of core courses) of formal academic coursework approved by the student's graduate study committee. The progress of the student's research program is monitored by the graduate study committee. The student, having been admitted to candidacy and having completed an approved plan of research, will complete and defend a thesis.

### Plan II

Plan II is a nonthesis program that requires a minimum of 30 semester hours (including 18 semester hours of core courses) of appropriate graduate work that has been approved by the student's graduate study committee.

## Ph.D. Program

For Ph.D. students, there are no specific course requirements beyond the core courses. The academic program is determined through the action of the student's graduate study committee. A written qualifying examination must be passed in the student's area of specialization. If failure occurs, only one repeat exam is allowed. A research proposal must be defended within 12 months of completion of the written qualifying examination. If failure occurs, one repeat defense is allowed. The student, having been admitted to candidacy and having completed an approved plan of research, will submit a dissertation to the Graduate School. This dissertation must be defended at an open meeting.

## Additional Information

For detailed information, contact Dr. David E. Graves, UAB Graduate Program Director, CHEM 201C, 1530 3rd Avenue South, Birmingham, AL 35294-1240.

Telephone 205-934-8276

E-mail [dgraves@uab.edu](mailto:dgraves@uab.edu)

Web [www.chem.uab.edu](http://www.chem.uab.edu)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

## Chemistry (CH)

525. **Physical Chemistry I for Graduate Study.** Thermodynamics and chemical equilibria; and chemical kinetics. Prerequisites: MA 126, PH 202, CH 117. Fall.

526. **Physical Chemistry II for Graduate Study.** Quantum mechanics, chemical bonding, and molecular spectroscopy. Prerequisite: CH 525. Spring.

535. **Organic Chemistry I for Graduate Study.** Structure of organic compounds based on bonding, stereochemical, and physical properties. Fall, spring, summer.

537. **Organic Chemistry II for Graduate Study.** Practical and theoretical considerations of organic reactions; Introduction to spectroscopy. Prerequisite: CH 535. Fall, Spring, Summer.

540. **Inorganic Chemistry I for Graduate Study.** Chemical reactivity and descriptive chemistry in terms of structural and electronic parameters. Fall.

541. **Transition Metal Chemistry.** Atomic structure, chemical bonding characterization and reactivity of transition metal complexes. Prerequisite: CH 340, CH 323. Spring.

550. **Analytical Chemistry I for Graduate Study.** Analytical measurements, spectrophotometric and gravimetric analyses, chromatography, and chemical equilibrium. Spring.

555. **Analytical Chemistry II for Graduate Study.** General operating principles and quantitative applications of commonly used analytical instruments. Prerequisite: CH 550. Spring.

561, 564. **Biochemistry I, II: General Biochemistry.** Chemistry, biosynthesis, intermediary metabolism, and function of carbohydrates, lipids, nucleic acids, and proteins and their monomeric units. General aspects of enzymology, energy metabolism, and biological control mechanisms. Prerequisite: CH 233. Fall, Spring.

580, 581. **Polymer Chemistry I, II.** Introduction to Polymer Chemistry (CH 580, also MSE 530). Structure and properties of crystalline and amorphous polymers; polymer processing; correlation of polymer structure with processability and performance. Synthesis and characterization of polymers; polymerization reactions, kinetics, and mechanisms; polymer solution properties. Prerequisite: CH 233, 321, or MSE 254. Spring, Spring.

600. **Foundations of Physical and Analytical Chemistry.** Quantum mechanics applied to electronic structure and chemical bonding. Symmetry and spectroscopic measurements. Fall.

601. **Foundations of Organic and Inorganic Chemistry.** Atomic structure, chemical bonding, and periodicity.

602. **Principles of Chemical Instruction.** Responsibilities of laboratory instructors, safety regulations, grading, teaching styles and formats, and instructional objectives. Prerequisite: Permission of instructor. Fall. 1 hour.

610. **Laboratory Experiences in Chemistry I.** Application of simple experiments to high school science programs.

611. **Laboratory Experiences in Chemistry II.** Continuation of CH 602.

612. **Polymer Chemistry for Teachers.** Lecture and laboratory experiences focusing on natural and synthetic polymers. Morning lectures by polymer chemists with afternoon labs where polymers are synthesized and studied. Emphasis is on practical application and new developments in polymer chemistry. Experiments are suitable for high school science programs.

613. **Introductory Organic Chemistry for Teachers.** A laboratory/lecture/demonstration course on the nature of carbon compounds including hydrocarbons, functional groups and their reactions. Emphasis given to laboratory experiments and demonstrations suitable for high school students.

614. **Introductory Biochemistry for Teachers.** Lecture series covering carbohydrates, lipids, and proteins. Emphasis given to practical applications and relationship between chemistry and biology. Aspects of nutrition are discussed.

615. **Introductory Biochemistry for Teachers II.** Lecture series covering vitamins, minerals, enzymes, biochemical energy and metabolism. Strong connections between chemistry and biology. Practical applications are emphasized.

616. **Chemical Demonstrations.** A laboratory-based course exploring the teaching potential of selected chemical reactions. Teachers perform at least 50 demonstrations in the laboratory and share ways they can use these in their own classes. Emphasis on facilitating learning of chemistry.

617. **Chemical Demonstrations II.** At least 50 demonstrations will be performed. Focus is on safe, practical and effective experiments suitable for high school students.

\*619. **Special Topics in Chemical Education.** Topics determined by interest of students and faculty.

622. **Chemical Dynamics and Equilibrium.** Chemical thermodynamics, kinetic processes and chemical reaction dynamics from a molecular approach. Dynamic nature and molecular basis of equilibrium emphasized. Both theoretical and experimental approaches for understanding elementary chemical processes. Prerequisite: CH 321. Fall.

**625. Molecular Structure and Spectroscopy.** Classical and quantum mechanical descriptions of molecular structure and bonding. Basic principles and techniques of molecular spectroscopic methods. Exercises and experiments with computational software and spectroscopic instrumentation will be conducted.

**\*629. Special Topics in Physical Chemistry.** Topics determined by interest of students and faculty. Prerequisite: CH 325.

**630. Physical Organic Chemistry.** Localized and delocalized chemical bonds, stereochemistry, acidity and basicity, determining organic mechanisms and structure. Fall.

**631. Organic Reactions and Their Mechanisms.** Nucleophilic and electrophilic substitution, free radical substitutions, additions to carbon-carbon and carbon-hetero multiple bonds, elimination reactions. Prerequisite: CH 630. Spring.

**\*639. Special Topics in Organic Chemistry.** Topics determined by interest of students and faculty. Prerequisite: CH 323. 1-3 hours.

**640. Bonding and Structure in Inorganic Compounds.** Advanced treatment of bonding in main group and transition metal compounds, and a study of its relationship properties of compounds. Prerequisite: CH 540 or permission of instructor. Spring.

**641. Coordination Compound Dynamics.** Steady-state and time-resolved spectroscopy of coordination compounds; photophysics; electron transfer reaction; mixed-valence complexes; bioinorganic applications. Prerequisite: CH 640 or 740 or permission of instructor. Summer (alternate years).

**642. Organometallic Chemistry and Catalysis.** Study of transition metal organometallic compounds and their applications as homogeneous catalysts for organic and polymer syntheses. Prerequisite: CH 640 or 740 or permission of instructor. Summer (alternate years).

**\*649. Special Topics in Inorganic Chemistry.** Topics determined by interest of students and faculty. Prerequisite: Permission of instructor. 1-3 hours.

**650. Advanced Analytical Chemistry.** Survey of instrumental methods including separations, spectroscopy, and electrochemistry. Prerequisite: CH 600. 3 hours.

**651. Advanced Analytical Chemistry II.** Kinetic methods of analysis, fundamental principles of electrochemical, separation, and spectroscopic methods of analysis. Spring.

**655. Electroanalytical Chemistry.** Potentiometry, voltammetry, polarography, coulometry, pulse techniques, and trace analysis. Prerequisite: CH 551 or permission of instructor.

**656. Analytical Separations.** Advanced treatment of distillation, extraction, gas chromatography, HPLC, TLC, and GC-MS. Prerequisite: CH 551 or permission of instructor.

**657. Analytical Spectroscopy.** Physical optics, error and precision of optical methods, applications of modern atomic and molecular spectrometry. Prerequisite: CH 551 or permission of instructor.



658. **Laboratory Electronics for Chemists.** A basic course in applied electronics, covering fundamental circuit components and interfacing. Prerequisite: Permission of instructor.

\*659. **Special Topics in Analytical Chemistry.** Prerequisite: Permission of instructor. 1-3 hours.

664. **Physical Techniques in Biology.** Common physical methods for understanding the structure and stability of macromolecules that include several spectroscopic, thermodynamic and computational methods. Underlying physical principle described, instrumentation discussed, and examples cited from the literature. Prerequisite: CH 323 or 461. Spring.

\*669. **Special Topics in Biochemistry.** Detailed consideration of areas of special interest. Prerequisite: CH 363.

670. **Chemical Literature.** Use of on-line literature and development of searching techniques.

689. **Special Topics in Polymer Chemistry.**

691. **Seminar.** Seminars on current topics in chemical research. Pass/Fail. 1 hour.

692. **Seminar Presentation.** Seminar given by graduate students on current topics in chemical research. 2 hours.

698. **Graduate Research.** Prerequisite: Permission of graduate faculty member. Pass/Fail. 1-8 hours.

699. **M.S. Thesis Research.** Prerequisites: Admission to candidacy and permission of graduate faculty member. 1-8 hours.

700. **Foundations of Physical and Analytical Chemistry.** Quantum mechanics applied to electronic structure and chemical bonding. Symmetry and spectroscopic measurements. Fall.

701. **Foundations of Organic and Inorganic Chemistry.** Quantum mechanics applied to electronic structure and chemical bonding. Symmetry and spectroscopic measurements. Fall.

710. **Medicinal Chemistry.**

722. **Chemical Dynamics and Equilibrium.** Chemical thermodynamics, kinetic processes, and chemical reaction dynamics covered from a molecular approach. The dynamic nature and molecular basis of equilibrium is emphasized. Both theoretical and experimental approaches for understanding elementary chemical processes are discussed. Prerequisite: CH 321. Fall.

725. **Molecular Structure and Spectroscopy.** Classical and quantum mechanical descriptions of molecular structure and bonding. Basic principles and techniques of molecular spectroscopic methods. Exercises and experiments with computational software and spectroscopic instrumentation will be conducted.

\*729. **Special Topics in Physical Chemistry.** Typical are X-ray crystallography, molecular spectroscopy, solution properties of macromolecules, magnetic resonance. Prerequisite: Permission of instructor. 1-3 hours.

730. **Physical Organic Chemistry.** Localized and delocalized chemical bonds, stereochemistry, acidity and basicity, determining organic mechanisms and structure. Fall.

731. **Organic Reactions and Their Mechanisms.** Nucleophilic and electrophilic substitution, free radical substitutions, additions to carbon-carbon and carbon-hetero multiple bonds, elimination reactions. Prerequisite: CH 730. Spring.

732. **Organic Reactions and Synthesis.** Strategy of synthesis, carbon skeletal assembly, selective functional group interconversion, blocking groups, stereochemical control. Prerequisite: CH 731. Spring.

733. **Reactive Intermediates and Conservation of Bonding.** Behavior of organic molecules in static and reactive situations. Prerequisite: CH 731 or permission of instructor. Spring.

\*739. **Special Topics in Organic Chemistry.** Topics determined by interest of students and faculty. Prerequisite: CH 233.

740. **Bonding and Structure in Inorganic Compounds.** Advanced treatment of bonding in main group and transition metal compounds, and a study of its relationship to the properties of compounds. Prerequisite: CH 540 or permission of instructor. Spring.

741. **Coordination Compound Dynamics.** Steady-state and time-resolved spectroscopy of coordination compounds; photophysics; electron transfer reaction; mixed-valence complexes; bioinorganic applications. Prerequisite: CH 640 or 740 or permission of instructor. Summer (alternate years).

742. **Organometallic Chemistry and Catalysis.** Study of transition metal organometallic compounds and their applications as homogeneous catalysts for organic and polymer syntheses. Prerequisite: CH 640 or 740 or permission of instructor. Summer (alternate years).

743. **Chemical Applications of Group Theory.** Representations of groups, construction of hybrid orbitals, molecular orbital theory, ligand field theory, infrared and Raman spectroscopy. Prerequisite: CH 740. Spring.

744. **Spectroscopy of Inorganic Chemistry.** Ultraviolet, visible, infrared, Raman, microwave, NMR, ESR, and magneto chemistry techniques. Prerequisite: CH 741. Summer.

\*749. **Special Topics in Inorganic Chemistry.** Topics determined by interest of students and faculty. Prerequisite: Permission of instructor. 1-3 hours.

750. **Advanced Analytical Chemistry.** Survey of instrumental methods including separations, spectroscopy, and electrochemistry. Prerequisite: CH 700.

751. **Advanced Analytical Chemistry II.** Kinetic methods of analysis, fundamental principles of electrochemical, separation, and spectroscopic methods of analysis. Spring.

755. **Electroanalytical Chemistry.** Potentiometry, voltammetry, polarography, coulometry, pulse techniques, and trace analysis. Prerequisite: CH 751 or permission of instructor.

756. **Analytical Separations.** Distillation, extraction, gas chromatography, HPLC, TLC, and GC-MS. Prerequisite: CH 751 or permission of instructor.

757. **Analytical Spectroscopy.** Physical optics, error and precision of optical methods, applications of modern atomic and molecular spectrometry. Prerequisite: CH 751 or permission of instructor.

758. **Laboratory Electronics for Chemists.** A basic course in applied electronics, covering fundamental circuit components and interfacing. Prerequisite: Permission of instructor.

\*759. **Special Topics in Analytical Chemistry.** Prerequisite: Permission of instructor. 1-3 hours.

764. **Physical Techniques in Biology.** Common physical methods for understanding the structure and stability of macromolecules that include several spectroscopic, thermodynamic, and computational methods. Underlying physical principle described, instrumentation discussed, and examples cited from the literature. Prerequisite: CH 323 or CH 461. Spring.

\*769. **Special Topics in Biochemistry.** Detailed consideration of areas of special interest. Prerequisite: CH 463. 1-3 hours.

770. **Chemical Literature.** Use of on-line literature and development of searching techniques.

789. **Special Topics in Polymer Chemistry.**

791. **Seminar.** Seminars on current topics in chemical research. Pass/Fail. 1 hour.

792. **Seminar Presentation.** Seminar given by graduate students on current topics in chemical research. 2 hours.

798. **Nondissertation Research.** Prerequisite: Permission of graduate faculty member. Pass/Fail. 1-8 hours.

799. **Dissertation Research.** Prerequisite: Admission to candidacy and permission of graduate faculty member. 1-8 hours.

Last modified 12/10/04

## UAB Graduate School

### Clinical Laboratory Sciences (M.S.)

Graduate program director: *Skrinska*

## Faculty

**George Fritsma**, Associate Professor (Diagnostic and Therapeutic Sciences); Hematology, Coagulation, Body Fluids

**Margaret Fritsma**, Associate Professor (Diagnostic and Therapeutic Sciences); Immunohematology; Hemostasis, Laboratory Management

**Pat E. Greenup**, Associate Professor (Diagnostic and Therapeutic Sciences); Clinical Microbiology; Laboratory Operations Management

**Linda H. Jeff**, Associate Professor (Diagnostic and Therapeutic Sciences); Clinical Microbiology; Educational Methodology

**Victor Skrinska**, Professor (Diagnostic and Therapeutic Sciences); Clinical Chemistry; Toxicology

### Program Information

### Program Mission

The faculty members are committed to service to the community and to providing quality education to prepare students and practitioners for the current and future in clinical laboratory sciences. The faculty, in its concern for the health and safety of the general public, is committed to ensuring that each student develops knowledge, skills, and values essential to the appropriate role providing the basis for continuing intellectual and professional growth.

The Master of Science in Clinical Laboratory Science (M.S.) is a part-time or full-time graduate degree program with two plans for degree completion: professional entry and postprofessional entry. The postprofessional entry plan enables professionals who hold a baccalaureate degree and certification (or eligibility for certification) as a Medical Technologist (ASCP) or Clinical Laboratory Scientist (NCA) to prepare for advanced technical and administrative career opportunities. Through courses, research, and project or thesis preparation, M.S. students can enhance their proficiency in clinical laboratory science disciplines, including immunohematology, chemistry, hematology, laboratory operations, informatics, or microbiology. For previously certified medical technologists, certification as a specialist is available in some disciplines upon completion of specific requirements established by national certification agencies.

Examples of positions graduates may prepare for include the following:

- technical consultant with advanced technical proficiency

- operations manager of a clinical laboratory
- clinical laboratory educator within a selected specialty discipline
- quality assurance/improvement manager
- clinical laboratory human resources manager
- clinical laboratory information systems manager.

The professional entry plan is designed for students who hold a Bachelor of Science in biology, chemistry, or a related major, and who are not certified medical technologists but who desire a career in clinical laboratory science. Such students, upon completion, will be eligible to take a national examination for certification as a Medical Technologist or Clinical Laboratory Scientist.

The professional entry plan requires 24 months as a full-time student for completion of the degree requirements. The postprofessional plan time requirement is determined by whether a student is a full- or part-time student.

The program is jointly sponsored by Clinical Laboratory Sciences in the School of Health Related Professions (SHRP) and the Department of Pathology in the School of Joint Health Sciences.

## **M.S. Admission Requirements**

In addition to the general Graduate School admission requirements, applicants to the M.S. program must

- possess a baccalaureate degree in medical technology, biology, chemistry, or a related major from an accredited college or university,
- have a minimum undergraduate GPA of 3.0 (A = 4.0), computed from all undergraduate credits or from the last 60 semester hours of undergraduate course credit,
- earn scores of at least 500 in each of the verbal and quantitative sections of the GRE General Test,
- if applicant is a clinical laboratory scientist, provide evidence of certification,
- provide a written statement of career goals,
- if foreign-educated, have a score of at least 550 on the TOEFL and submit a transcript evaluation from an acceptable agency, and
- if accepted, complete the UAB medical history questionnaire and physical, provide proof of required immunizations, and receive satisfactory screening by the UAB Medical Center Student Health Service before enrollment.

Persons with a Bachelor of Science who are not certified medical technologists should have completed natural science and mathematics courses equivalent to those required for a Bachelor of Science in Medical Technology (described in SHRP Catalog).

Persons with a Bachelor of Science or who are certified clinical laboratory practitioners may be eligible to register for some of the courses offered through the nondegree path of registration. These students can take up to 12 credits hours of graduate course work. If these students meet the program admission requirements, then these credits may be accepted toward the M.S. degree at the discretion of the M.S. faculty, program director, and faculty advisor. Admission of a student to any course as a nondegree student does not constitute admission to the M.S. degree program.

## Essential Requirements

Fundamental tasks, behaviors, and abilities necessary to successfully complete the academic and clinical/residency requirements of the program and to satisfy licensure or certification requirements, if any, have been outlined and are available upon request from the academic program office. Students requesting disability accommodations must do so by filing a disability accommodation request in writing with the academic program office.

## M.S. Program of Study

The purpose of the program is to prepare graduates with technical, cognitive, interpersonal, and critical thinking skills required of practitioners who are associated with the operations of clinical laboratory sciences and services. The graduates will have completed general, research skills and advanced technical and operational management courses under the direction of a graduate study committee. These courses assist the graduate to design research projects, collect and analyze data, write empirical research reports and narrative review papers, and prepare for various career opportunities related to clinical laboratory sciences and the in vitro diagnostics industry.

The M.S. program consists of a minimum of 33 semester hours of graduate academic credit, available as a part-time or full-time program. Students must

- complete course requirements and achieve defined competencies,
- maintain a cumulative GPA of at least 3.0 (A = 4.0), and
- write a paper and orally present a Plan II project or a Plan I thesis that reports original research within the student's chosen discipline.

Students complete required general, research, and advanced technical or operational courses and may select electives as explained below:

**General Courses:** The general course sequence requires a minimum of 9 semester hours. Courses in this sequence include health and safety management, scientific publications analyses, quality management, technology assessment, and educational methodology.

**Research Courses:** The research course sequence consists of a minimum of 9 semester hours and includes courses covering research design methodology, and statistics. Thesis and project credits are recorded as part of the research core.

**Advanced Courses:** This course sequence consists of at least 9 semester hours as needed from courses in clinical chemistry, hematology, immunology, immunohematology, laboratory operations, informatics, and microbiology. These course sequences are designed to provide in-depth scientific knowledge.

**Electives:** Electives may be selected from M.S. courses or other academic programs at UAB as approved by the student's advisor.

Students in the Professional Entry Plan have prescribed courses that fulfill the General, Research, and Advanced Areas. Electives are available.

#### **Additional Information:**

For detailed information, contact Victor Skrinska, Director, Clinical Laboratory Sciences Programs, UAB School of Health Related Professions, RMSB 431 1705 University Blvd., Birmingham, Alabama 35294-1212.

Telephone 205-934-4863.

Fax 205-975-7302

E-mail [mscls@uab.edu](mailto:mscls@uab.edu)

Web [www.uab.edu/cls](http://www.uab.edu/cls)

#### **Course Descriptions**

All courses require permission of the student's academic advisor. Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### **Clinical Laboratory Sciences (CLS)**

**500. Biological and Chemical Weapons: Detectors/Response.** Awareness of biological, chemical and social sciences concepts related to biological and chemical weapons. The identification of competencies needed by individuals, healthcare practitioners and researchers to detect and minimize harm to the public's health caused by biological and chemical weapons. Prerequisite: none. 2 hours.

**600. Quality Management in Clinical Laboratory Markets.** TQM/CQI change management practices, comparison and contrast to scientific management theory, principles, practices, tactics, and evaluation of practices that support performance improvement for individuals, groups, and organizational business unit performance; quality management (QM) elements and interrelationships intended to achieve internal and external customer satisfaction; tactics supportive for implementation and internalization of internal support structures needed by internal customers so that commitment to improving personal competencies in knowledge, skills, abilities, service behaviors and intended performance achievement are more likely to

occur; practices needed to achieve internal and external customer satisfaction and customer value/retention behaviors. Prerequisite: permission of instructor.

**601. Designing Effective Laboratory Medicine Services.** Application of organizational theory and behavior principles to operations of laboratory medicine services; structural, contextual, and system/process factors that affect delivery of services; outcomes to include tactic applications needed for maximizing personal and organizational performance behaviors and results; analysis of strategies and tactics for achieving exceptional and evolving service relationships with internal and external customers. Prerequisite: permission of instructor.

**602. Managing Clinical Laboratory Financial and Cost Accounting Operations.** Clinical laboratory approach to cost accounting, project management principles, reimbursement and fee determination mechanisms, budgeting practices, performance indicators/ratios, lease vs. buy decision criteria, and micro-costing practices linked with quality or performance management, legislation/regulations, external stakeholders, utilization management, billing practices, fraud and abuse/compliance practices, outcomes cost analysis models, and factors influencing cost accounting practices in clinical laboratory and in vitro diagnostic industries. Prerequisite: permission of instructor.

**603. Strategic Human Performance Technology for Laboratory Medicine Professionals.** Human performance technology and interventions to improve individual, unit, and organizational performance focusing on systems and processes; techniques for designing high-performance work units and service culture, process control and optimization of clinical laboratories, material and process flow, management of specimens, equipment, products, informatics and fit of people, technology, and internal marketing practices. Prerequisite: permission of instructor.

**605. Transfusion Service Management.** Regulatory and compliance issues; inspection and accreditation; Good Manufacturing Practices (GMP); historical perspective and future directions; basic concepts of management and management theory; legal and employment issues; personnel interview, selection, discipline, competency assessment, and performance management; ethical issues; quality assessment, management, and improvement; blood bank computer systems; budget, financial management, and cost assessment. Prerequisite: permission of instructor.

**610. Advanced Technology Assessment.** Analysis of technology assessment information for test methods and instruments utilized in diagnostic laboratory medicine services; experience with determining and evaluating performance characteristics and clinical utility information for specific diagnostic test procedures; application of quality management practices to establish the diagnostic accuracy of products sold and to establish process quality for services delivered; application of critical thinking skills to evaluate methodological and substantive validity of correlation and evaluation studies relevant to laboratory medicine practices. Prerequisite: BST 601-602, CLS 693, and permission of instructor.

**\*620. Applications of Educational Methodology.** Curriculum and course development and implementation, objectives, application of learning theory to educational strategies, laboratory teaching techniques; preparing a teaching laboratory budget, observation and supervised practice teaching, measurement and evaluation, presentation techniques. Prerequisite: permission of instructor. 1-3 hours.



**625. Principles of Blood Cell and Bone Marrow Counting.** Bone marrow aspirate and biopsy preparation and visual examination; review of normal and disease morphology; determination of bone marrow cellularity and myeloid:erythroid ratio. Prerequisite: permission of instructor. 1 hour.

**630. Advanced Hemostasis.** In-depth discussion of the plasma coagulation system and cellular systems comprised by hemostasis; pathophysiology and hemostasis laboratory diagnosis and case management of congenital and acquired thrombotic and hemorrhagic disorders; quality and efficacy issues affecting hemostasis laboratory testing. Prerequisite: permission of instructor. 2 hours.

**631. Advanced Hematology.** Structure and function of bone marrow, spleen, and lymphatic system; stem cell differentiation, hematopoiesis, erythrocyte kinetics; laboratory diagnosis and case management of acute and chronic leukemias, myeloproliferative disorders, myelodysplastic syndromes, anemias; application of cell population scattergrams and phenotyping; quality and efficacy issues affecting hematology laboratory testing. Prerequisite: MT 340 and permission of instructor; corequisite: CLS 632. 2 hours.

**632. Advanced Hematology Laboratory.** Laboratory sessions coordinated with CLS 631; myelogenous cell line, abnormalities and inclusions; erythrocyte structural changes; lymphocytic cell line, abnormalities and inclusions; erythrocyte maturation abnormalities; stains and cell markers used in classification of neoplasias. Prerequisite: AHS 500 and permission of instructor; corequisite: CLS 631. 1 hour.

**637. Emerging Diagnostic Technologies.** Emerging diagnostic technologies for use in clinical laboratories, including methods for molecular microbiology, oncology, hematology, genetics, and identity testing; flow cytometry, automation, and robotics. Review of rapid tests and new in vitro methodologies; economic factors; regulations and licensing issues; accreditation criteria; and social, ethical, and legal issues associated with emerging in vitro diagnostic technologies. Prerequisite: permission of instructor. 2 hours.

**642. Infectious Disease Principles.** Microbial virulence factors, host defense mechanisms, and methods of transmission; major clinical syndromes, infectious diseases and their etiologic agents with focus on microbial detection and/or isolation, identification of isolates and antimicrobial studies; issues of quality and performance management, resources utilization, and role of clinical microbiology laboratories/laboratory practitioners. Prerequisite: MT 336 and permission of instructor.

**643. Microbial Epidemiology Principles.** Epidemiology principles related to special host infections; notifiable diseases; surveillance methods, nosocomial infections; infection control practices; antimicrobial resistance; emerging infectious diseases' prevention strategies and bioterrorism issues. Prerequisite: permission of instructor.

**650. Immunology.** Antigens, antibodies, cytokines; cellular and humoral immune response; genetics of immune system; complement; phagocytosis; adhesion molecules; major histocompatibility complex; antigen presentation and T and B cell activation; mucosal immunology; transplantation. Prerequisite: permission of instructor. 1 hour.

**663. Blood Transfusion Therapy.** Red cell metabolism, survival, and preservation; collection of blood for allogeneic and autologous transfusion; blood component preparation, storage, therapy, and indications for transfusion; physiology of blood loss and transfusion replacement; use of blood substitutes, immunomodulation by transfusion; immune

mechanism of red cell destruction; other adverse effects of transfusion; immunology of hepatitis, HIV, and other transfusion-transmitted infections; bone marrow and peripheral blood stem cell transplant; transfusion for oncology, pediatric neonatal, obstetric, and transplant patients; hemolytic disease of newborn. Prerequisite: permission of instructor.

**664. Advanced Immunohematology.** Red cell blood group systems: antigens and antibodies, phenotypes, molecular biology, immunogenetics, biochemistry, serology, and clinical significance of antibodies; parentage testing; auto antibodies; drug-induced red cell sensitization; advanced techniques for problem solving; case studies. Prerequisite: permission of instructor. 3 hours.

**675. Advanced Clinical Chemistry.** Method evaluation; nutrition and wellness assessment, endocrinology evaluation, reproductive and pregnancy monitoring; pharmacokinetics, therapeutic drug monitoring and drugs of abuse; lipids; heme synthesis and evaluation; organ system evaluation and application of total testing process to error reduction; preparation for accreditation; nanotechnology; reference intervals and biological variation. Prerequisite: MT 320 and permission of instructor.

**\*684. Clinical Practicum.** Directed clinical practice; advanced laboratory procedures and methods; quality control systems, preventive maintenance, problem solving, safety. Prerequisite: permission of instructor and AHS 500. 1-6 hours.

**\*686. Special Topics in Clinical Laboratory Sciences.** Selected advanced topics of current scientific, clinical, and professional importance; specific topics designed to meet student need and interest. Prerequisite: permission of instructor. 1-4 hours.

**688. Managing and Marketing Laboratory Medicine Services.** Marketing management methods and evaluation of marketing tactics; examination of service management principles and elements of customer service-driven organizations in managed care/integrated systems environment; skills, abilities, and knowledge necessary for creating a service-, customer-, and market-oriented clinical laboratory industry. Prerequisite: permission of instructor.

**692. Immunohematology Seminar.** Current clinical, administrative, professional, and research developments in immunohematology and transfusion medicine. Prerequisite: permission of instructor. 1 hour.

**693. Scientific Publications Analysis.** Review and scientific critique of current literature related to laboratory medicine, overview of research design and interpretation of statistics, sources of publication journals and government documents, content and style of scientific paper. Prerequisite: biostatistics and permission of instructor.

**\*698. Master's-Level Nonthesis Research.** Prerequisite: permission of instructor. 1-6 hours.

**\*699. Master's-Level Thesis Research.** Prerequisite: Admission to candidacy. 1-6 hours.

Last modified 09/27/04

## UAB Graduate School

### Communication Management

Graduate program director: *Amsbary*

## Additional Information

For additional information, contact Dr. Jonathan Amsbary, Program Director, OB 15, Room 223, 1530 3rd Ave. S., Birmingham, AL 35294-2060.

Telephone 205-934-3878

E-mail [amsbary@uab.edu](mailto:amsbary@uab.edu)

Web [cs.hum.uab.edu](http://cs.hum.uab.edu)

## Course Descriptions

### Communication Management (CM)

Unless otherwise noted, all courses are for 3 semester hours of credit. Courses numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

**501. Instructional Communication.** Communication problems in the classroom. Definition of sign and sign process. Signs in communicative action. Prerequisite: Junior standing.

**505. Contemporary Philosophies of Communication.** Twentieth-century systems of Western rhetoric. Concepts selected from among works of Burke, Weaver, Toulmin, Perelman, Richards, and McLuhan. Prerequisite: 6 hours in CM courses or permission of instructor.

**511. Seminar in Organizational Communication.** Theory and research in communication audits of organizations. Prerequisites: CM 311 or permission of instructor.

**513. Nonverbal Communication.** Elements of nonverbal behavior (physical appearance, gestures, space, voice) that affect communication in person-to-person situations. Prerequisite: Sophomore standing.

**514. Language and Thought.** Semiotics and communication. Definition of sign and sign process. Cognitive processes and communication processes. Signs in communicative action. Prerequisite: Junior standing.

**515. Intercultural Communication.** Communication problems in intercultural and multicultural contexts. Interpretations and otherness. Ethnocentricity and culture. Analysis of one culture interpreting another, with special emphasis on modern societies.

555. **Seminar in Political Communication.** (also MC 555) Emerging cross-disciplinary field of political communication, literature and propositions surrounding key approaches, methods, and substantive areas of inquiry in political communication. Prerequisite: 6 hours in CM/MC courses or permission of instructor.

558. **Communication Criticism.** (also EH 458) Rhetorical systems for appraising persuasive messages and campaigns in the 20th century. Prerequisites: Junior standing and 6 hours in CM courses or permission of instructor.

560. **Communication and Social Movements in America.** Exploration of role of public communication in political, religious, social, and economic evolution of America. Movements include war and peace, revolution, slavery, feminist concerns, and industrial change. Prerequisites: Junior standing and 6 hours in CM/MC or permission of instructor.

580. **Seminar in Health and Medical Communication.** Advanced communication theory and research in health care setting. Emphasis on impact of interpersonal, organizational, and mass communication policy in the field of human health and medicine. Prerequisite: CM 480.

581. **Communication and Aging.** Biological, neurological, and sociopsychological effects of aging on communication process. Emphasis on communication with elderly in various health and medical contexts. Prerequisite: CM 480.

592. **Independent Study.** Topics of mutual interest to student and faculty member. Prerequisites: 15 hours in CM courses and written permission of instructor prior to registration. 1-3 hours.

593. **Special Topics in Communication Arts.** Topics selected by faculty. Prerequisites: 15 hours in CM courses and permission of instructor. May be repeated for total of 6 hours. 1-3 hours.

594. **Communication Research Methods.** (also MC 494) Emphasis on research questions, design, methodology, data gathering, and analysis. Practice in conducting, interpreting, and communicating research findings to public. Prerequisites: Junior standing and permission of instructor.

595. **Seminar in Communication Arts.** Advanced topics in history and theory of communication. Prerequisites: 15 hours communication arts and permission of instructor. May be repeated for total of 6 hours. 1-3 hours.

601. **Communication Models.** Development of communication models, relationships between models and research, examination of functions of models and their impact on human communication in various media.

602. **Source Credibility.** Theories of ethos, dynamics of credibility in public speaking, organizational, interpersonal, print, and broadcasting contexts. Measures of credibility and methods for constructing credibility.

603. **Message Construction.** Features of communication messages, including audience, situation, and culture and their impact on message construction. The principles underlying the creation of messages in various media.

604. **Analysis of Communication Audiences.** Analysis of the audience and its place in the communication model. Includes needs and gratifications from various media as well as how messages and feedback are interpreted.

605. **Communication Effects.** Effects of communication, especially through mass media, as a result of messages transmitted. Topics include violence, persuasion, and sexuality.

607. **Seminar in Applied Human Communication.** Topics include interpersonal communication, small group communication, organizational communication, and political communication.

691. **Seminar in Communication Models.** Synthesis of courses on the Shannon-Weaver model of communication, with contemporary adaptations.

694. **Quantitative Communication Research.** The study of communication theory from a quantitative perspective. Data gathering, experimental and quasi-experimental design, field research and data analysis in applied contexts to be probed.

696. **Qualitative Communication Research.** Study of communication theory from a qualitative perspective. Historical/critical, participant-observations, and various data gathering methods and models explored from theoretical and practical point of view.

698. **Master's Applied Project.** Development of project as requisite for obtaining the MA in Communication Management.

699. **Thesis Research.** Development of thesis as requisite for obtaining the MA in Communication Management.

## **Mass Communication (MC)**

530. **Electronic Media Management.** Organizational structures and business policies of radio, television, and cable companies. Planning basic program structures for broadcast and cable operations with consideration of audience requirements. FCC policy and competitive market. Prerequisite: Junior standing.

555. **Seminar in Political Communication.** (also CM 555) Emerging cross-disciplinary field of political communication. Review of literature and propositions surrounding key approaches, methods, and substantive areas of inquiry in political communication.

592. **Independent Study.** Topics of mutual interest to student and faculty member. Prerequisites: 15 hours of MC courses and written permission of instructor prior to registration. 1-3 hours.

595. **Mass Media and Society.** History of mass communication and research from 1940s to present. Transactional model of communication and symbolic-interactionist perspective use among other approaches to evaluate role of mass media in 20th-century America. Prerequisite: Junior standing.

601. **Communication Models.** Development of communication models, relationships between models and research, examination of functions of models and their impact on human communication in various media.

602. **Source Credibility.** Theories of ethos, dynamics of credibility in public speaking, organizational, interpersonal, print, and broadcasting contexts. Measures of credibility and methods for constructing credibility.

603. **Message Construction.** Features of communication messages, including audience, situation, and culture and their impact on message construction. The principles underlying the creation of messages in various media.

604. **Analysis of Communication Audiences.** Analysis of the audience and its place in the communication model. Includes needs and gratifications from various media as well as how messages and feedback are interpreted.

605. **Communication Effects.** Effects of communication, especially through mass media, as a result of messages transmitted. Topics include violence, persuasion, and sexuality.

606. **Seminar in Applied Mass Communication.** Topics include health and medical communication, organizational communication, economic and business communication, family communication, and political communication.

694. **Quantitative Communication Research.** The study of communication theory from a quantitative perspective. Data gathering, experimental and quasi-experimental design, field research and data analysis in applied contexts to be probed.

696. **Qualitative Communication Research.** Study of communication theory from a qualitative perspective. Historical/critical, participant-observations, and various data gathering methods and models explored from theoretical and practical point of view.

Last modified 09/13/04

## UAB Graduate School

### Computer and Information Sciences (Ph.D., M.S.)

Graduate program director: *Johnstone*

## Faculty

**Purushotham V. Bangalore**, Assistant Professor (Computer and Information Sciences); Grid Computing, High Performance Computing

**Barrett R. Bryant**, Professor and Associate Chair (Computer and Information Sciences); Programming Languages, Compiler Design, Object-Oriented Technology

**Jeffrey G. Gray**, Assistant Professor (Computer and Information Sciences); Model-Integrated Computing, Generative Programming, Program Transformation

**Robert M. Hyatt**, Associate Professor (Computer and Information Sciences); Computer Chess, Parallel Architectures and Software

**John K. Johnstone**, Associate Professor (Computer and Information Sciences); Geometric Modeling, Computer Graphics

**Kevin D. Reilly**, Professor (Computer and Information Sciences); Cognitive Modeling, Neural Nets, Expert Systems

**Anthony Skjellum**, Professor and Chair (Computer and Information Sciences); Parallel and High Performance Computing, Bioinformatics

**Kenneth R. Sloan**, Associate Professor (Computer and Information Sciences); Computer Graphics, Anatomy of the Retina

**Alan P. Sprague**, Associate Professor (Computer and Information Sciences); Data Mining, Graph Algorithms, Bioinformatics

**Chengcui Zhang**, Assistant Professor (Computer and Information Sciences); Databases, Data Mining

## Program Information

The field of computer and information sciences deals with theory and methods for processing of information. Graduate programs leading to the M.S. and Ph.D. degrees are designed to prepare individuals for professional and research-level careers in industry, government, and academia. Prospective students should have substantial background in computer science and mathematics.

## M.S. Program

The M.S. program requires 30 semester hours of coursework and a thesis (Plan I) or 36 semester hours of coursework (Plan II). Specializations are available in computer graphics, distributed computing and bioinformatics.

## Ph.D. Program

The Ph.D. program consists of three phases (with some overlap between phases). The first phase of the program is devoted primarily to formal coursework and preparation for the qualifying examination. The second phase consists of coursework and research in preparation for the comprehensive examination. This examination requires presentation of a dissertation research proposal. Successful completion of this phase leads to admission to candidacy. The final phase is the completion of the dissertation research and its defense. Ph.D. student progress will be reviewed annually.

Opportunities are available for a Ph.D. specialization in bioinformatics in collaboration with the UAB Academic Health Center.

## Additional Information

For detailed information, contact Dr. Tony Skjellum, Professor and Chair, UAB Department of Computer and Information Sciences, Campbell Hall, Room 115-A, 1300 University Boulevard, Birmingham, Alabama 35294-1170.

Telephone 205-934-2213

E-mail [tony@cis.uab.edu](mailto:tony@cis.uab.edu)

Web [www.cis.uab.edu](http://www.cis.uab.edu)

## Course Descriptions

### Computer and Information Sciences (CS)

All courses require permission of the student's academic advisor, the Computer Science graduate program director, or the Computer and Information Sciences Department chair. All 500-level and 600-level courses carry 3 semester hours of credit, unless otherwise specified. All 700-level courses carry 2 or 3 hours of credit, unless otherwise specified.

**505. Programming Languages.** Formal syntax and semantics; compilers and interpreters; virtual machines; representation of data types; sequence and data control; type checking; run-time storage management; functional logic and object-oriented programming



paradigms; concurrency and multi-threading. Prerequisites: CS303 and CS350 (with grades of C or better).

**530. Computer Architecture.** Introduction to computer architecture, including memory subsystems, direct-mapped and set-associative cache and multi-level cache subsystems, direct-access devices including RAID and SCSI disk drives, processor pipelining including super-scalar and vector machines, parallel architectures including SMP, NUMA and distributed memory systems, interrupt mechanisms, and future microprocessor design issues. Prerequisites: Permission of instructor.

**534. Internetworking and Intranets.** Underlying network technology. Interconnecting networks using bridges and routers. IP addresses and datagram formats. Static and dynamic routing algorithms. Control messages. Subnet and supernet extensions. UDP and TCP. File transfer protocols. E-mail and the World Wide Web. Network address translation and firewalls. Mandatory weekly Linux-based lab. Prerequisite: CS 330.

**535. Network and Distributed System Programming.** Remote procedure call and client-server mechanisms. Protocol definition and compilation; client and server stubs, application code; transport independence; multiple client and server systems. Applications, e.g., remote database query and update, image filtering and archiving; systems programming, and file systems contexts. Prerequisite: CS 534 and permission of instructor.

**536. Advanced Information Networking.** Advanced Information Networking. Broadband wide-area networks, including frame relay and ATM. High-speed local access, including ISDN, ADSL, and cable modems. Prerequisite: CS 534.

**537. Computer Network Security.** Conventional and public-key cryptography. Message encryption and authentication. Secure communication between computers in a hostile environment, including E-mail (PGP), virtual private networks (IPSec) and the World Wide Web (SSL). Firewalls. Prerequisite: Thorough knowledge of TCP/IP protocol suite, for example from CS 534.

**538. Distributed Object Systems.** Object-oriented distributed systems design, distributed software architecture, data and resource access, communication, client-server computing, web technologies, enterprise technologies.

**540. Operating Systems.** Systems software engineering, including resource management of tasking and processes, process coordination and synchronization, scheduling and dispatch, memory system organization and architecture, physical and virtual memory organization, interfacing and communication, device management, file systems and naming, security and protection, communications and networking, and distributed and real-time systems. Prerequisites: CS303 and CS330 (with grades of C or better).

541. **Parallel Programming.** This course covers parallel and distributed programming techniques, including POSIX threads, PVM/MPI, and hybrid approaches. Programming assignments illustrate all of these techniques and are developed/executed on our Beowulf cluster, which has nine nodes with four processors per node. Prerequisite: CS303.

542. **Software Engineering.** Design and implementation of large-scale software systems, software development life cycle, software requirements and specifications, software design and implementation, verification and validation, project management, and team-oriented software development. Prerequisites: CS303 and CS350 (with grades of C or better).

544. **Supercomputer Programming.** Use of the Cray C90 as separate CPUs to perform vector processing; Cray C90 as multiprocessor via multitasking and microtasking. Examination of specific supercomputer applications. Prerequisite: Permission of instructor.

591. **Special Topics in Web Services.**

594. **Special Topics in Competitive Programming Techniques.** 1 hour.

597. **Competitive Programming Techniques.** This course will help students to be more competitive in the ACM programming contest by exploring numerous problem solving techniques and algorithms not covered in the traditional curriculum. 1 hour.

600. **Formal Semantics of Programming Languages.** Context-sensitive and semantic aspects of programming languages, denotational semantics, mathematical foundations.

601. **Program Verification.** Proving properties of programs, termination and correctness, computability and decidability, role of formal methods in software design.

602, 603. **Compiler Design I, II.** Lexical and syntactical scan, semantics, code generation and optimization, dataflow analysis, parallelizing compilers, automatic compiler generation

606-609. **Programming Languages Seminar.** Pass/Fail. 1 hour.

610, 611. **Database Systems I, II.** Relational, hierarchical, and network models; object-oriented databases, knowledge-based systems; security issues, concurrency control and distributed databases, query optimization; advanced topics.

612. **Knowledge-Base Systems.** Logic model for deductive databases, top-down and bottom-up evaluation, conjunctive and disjunctive queries, recursion, query optimization, universal relation model.

613. **Object-Oriented Database Systems.** Object data model, object-oriented query languages and database architecture, schema evolution, integration with non-object-oriented models, query optimization.

614. **Distributed Database Systems.** Distributed DBMS architecture, query decomposition and data localization, distributed query optimization, transaction management, concurrency control, multidatabase systems.

616-619. **Database System Seminar.** Pass/Fail. 1 hour.

620, 621. **Software Development I, II.** Design techniques for large-scale systems, portability, life-cycle cost considerations, maintenance, software design methodologies.

622. **Reflective and Adaptive Systems.**

623. **Compiler Design I.** Lexical and syntactical scan, semantics, code generation and optimization, dataflow analysis, parallelizing compilers, automatic compiler generation.

624. **Formal Specification of Software Systems.** Formal methods for software requirements specification, including VDM, Z, and object-oriented extensions; the relationship among formal requirements, design, and implementation.

625. **Metrics and Performance.** Metrics in the development process, personnel skill levels and development time, error control; industrial settings; performance measures, capacity planning in Web systems; analysis via spreadsheets, discrete simulation, etc.

626-629. **Software Development Seminar.** Pass/Fail. 1 hour.

630. **Computer Systems I.** Basic computer architecture and operating system topics, including memory management hardware and algorithms, process scheduling, and input-output hardware and algorithms.

631. **Computer Systems II.** Parallel computer architecture, including SMP, shared and distributed memory systems. Parallel programming software topics include POSIX threads, PVM, and MPI.

636-638. **Computer Systems Seminar.** Pass/Fail. 1 hour.

639. **Distributed Computing Research Project.** Pass/Fail. 1-3 hours.

640, 641. **Bioinformatics I, II.** Introduction to computational methodologies in bioinformatics.

646-648. **Bioinformatics Seminar.** Pass/Fail. 1 hour.

649. **Bioinformatics Research Project.** Pass/Fail. 1-3 hours.

650. **Automata, Languages, and Complexity.** Formal grammars and automata, Turing machines, computability and decidability, computational complexity, intractability.

651. **Formal Language Theory.** Parsing and translation theory, formal syntax, proof properties and complexity measures.

652. **Design and Analysis of Algorithms.** Algorithms for bioinformatics applications, especially string matching algorithms. Also, traditional algorithmic techniques, such as greedy algorithms, dynamic programming, and branch and bound.

653. **Computational Geometry.** Basic methods and data structures, geometric searching, convex hulls, proximity, intersections.

656-659. **Theoretical Foundations Seminar.** Pass/Fail. 1 hour.

660. **Principles of Artificial Intelligence.** Programming methodologies, logic foundations, natural language applications, expert systems.

661. **Expert Systems.** Concepts and architectures, tools, reasoning, evaluations, selected examples.

662. **Natural Language Processing.** Syntax, semantics, ATNs, logic grammars, language and memory.

663. **Knowledge Discovery & Data Mining.** Techniques used in data mining (such as frequent sets and association rules, decision trees, Bayesian networks, classification, clustering), algorithms underlying these techniques, and applications.

664. **Knowledge Representation.** Logic, production systems, semantic nets, frames, multiple representational systems.

665. **Neural Networks.** Theoretical foundations, associative memory, pattern processing, biological neural nets.

666-669. **Artificial Intelligence Seminar.** Pass/Fail. 1 hour.

670. **Computer Graphics.** Graphics architectures, geometric transforms, 3-D, object models, shading, intensity, hidden elements, color, advanced topics.

671. **Graphics and Modeling.** Geometric modeling for computer graphics. Parametric curve and surface design and fitting: polynomial and rational Bezier, B-spline, and Hermite curves; tensor product and triangular Bezier and B-spline surfaces, subdivision surfaces. Keyframe animation and quaternions. OpenGL.

672. **Geometric Modeling.** Geometry for motion planning and lighting: visibility analysis, shortest path motion among obstacles, motion in orientation space, safest path motion, configuration space, shadows and lighting. Reconstruction from scattered data and contour data.

673. **Computer Vision Systems.** Image understanding feature extraction, domain-specific knowledge for high-level vision.

674. **Medical Imaging.** Representation, transformation, picture relations, graph grammars, animation, scenes, inference, databases.

675. **Computer Visualization.** Advanced Computer Graphics techniques aimed at "Scientific Visualization" applications.

676-678. **Graphics and Image Processing Seminar.** Pass/Fail. 1 hour.

679. **Computer Graphics Research Project.** Pass/Fail. 1-3 hours.

680. **Numerical Computing Foundations.** Matrix computations, matrix analysis, solution of linear systems, nonlinear systems, spectral analysis, least squares.

681, 682. **Modeling and Simulation I, II.** Combined continuous and discrete simulation, simulation theory, modeling environments.

683, 684. **Numerical Analysis I, II.** Interpolation, rational approximation, ODEs, algebraic equations, least squares, Gaussian elimination, stability, ill conditioning, discretization and rounding error, iterative convergence.

686-689. **Geometric Modeling Seminar.** Pass/Fail. 1 hour.

690. **Special Topics.** Topics such as parallel algorithms and architectures, knowledge discovery biomedical computing, medical informatics, and genetic algorithms. 1-3 hours.

691. **Special Topics in Grid Computing.**

692-693. **Special Topics.**

697. **Directed Readings.** 1-3 hours.

698. **Masters Plan II.** (Plan II) Pass/Fail. 3, 5, 6 hours.

699. **Masters Thesis Research.** Prerequisite: Admission to candidacy. Pass/Fail. 1-6 hours.

700. **Topics in Programming Language Semantics.**

701. **Topics in Program Verification.**

702. **Topics in Compiler Design.**
703. **Topics in Logic Programming.**
- 706-709. **Programming Languages Seminar.**
- 710, 711. **Topics in Database Systems.**
712. **Topics in Knowledge-Base Systems.**
713. **Topics in Object-Oriented Database Systems.**
714. **Topics in Distributed Database Systems.**
- 716-719. **Database Systems Seminar.**
- 720, 721. **Topics in Software Development.**
722. **Topics in Reflective and Adaptive Systems.**
723. **Topics in Compiler Design.**
724. **Topics in Formal Specification of Software Systems.**
725. **Topics in Metrics & Performance**
- 726-729. **Software Development Seminar.**
- 730, 731. **Topics in Computer Systems.**
- 736-738. **Computer Systems Seminar.**
739. **Topics in Distributed Computing Research.**
- 740-741. **Topics in Bioinformatics.**
- 746-749. **Bioinformatics Seminar.**
750. **Topics in Automata Theory.**
751. **Topics in Formal Language Theory.**
752. **Topics in Design and Analysis of Algorithms.**
753. **Topics in Computational Geometry.**
- 756-759. **Theoretical Foundations Seminar.**

760. **Topics in Artificial Intelligence.**
761. **Topics in Expert Systems.**
762. **Topics in Natural Language Processing.**
763. **Topics in Knowledge Discovery & Data Mining.**
764. **Topics in Knowledge Representation.**
765. **Topics in Neural Networks.**
- 766-769. **Artificial Intelligence Seminar.**
770. **Topics in Computer Graphics.**
771. **Topics in Graphics and Modeling.**
772. **Topics in Geometric Modeling.**
773. **Topics in Computer Vision.**
774. **Topics in Image Processing.**
775. **Topics in Computer Visualization.**
- 776-779. **Graphics and Image Processing Seminar.**
780. **Topics in Numerical Computing.**
- 781, 782. **Topics in Modeling and Simulation.**
- 783, 784. **Topics in Numerical Analysis.**
- 786-789. **Geometric Modeling Seminar.**
790. **Special Topics.**
791. **Special Topics in Grid Computing.**
792. **Special Topics in Multimedia Information Retrieval.**
- 793,794. **Special Topics.**
795. **Medical Informatics Seminar.**
796. **Directed Readings and Research.** 1-6 hours.
799. **Dissertation Research.** Prerequisite: Admission to candidacy.

Pass/Fail. 1-6 hours.

Last modified 10/01/04



## UAB Graduate School

### Education—Counseling

Graduate program director: *Macrina*

Education, Counseling (Ed.S., M.A.)

Education, Health (Ed.S., M.A.Ed.)

Education, Health Education/Health Promotion (Ph.D.)

Education, Physical (Ed.S., M.A.Ed.)

Education, School Psychology (Ed.S.)

### Faculty

**Gypsy Abbott** , Professor; Educational Psychology, Psychological Testing, Evaluation

**Michael Brooks**, Assistant Professor, Counselor Education

**Terry Conkle** , Assistant Professor; Physical Education Pedagogy

**Angela Coker** , Assistant Professor; Counselor Education, Community.

**Suzie Davies** , Assistant Professor; Health Education

**Brian F. Geiger** , Associate Professor; Health Promotion Models, Comprehensive School Health, Technology, Community Education

**Donna J. Hester** , Associate Professor; Motor Development, Elementary Physical Education, Adapted Physical Education

**Gary R. Hunter** , Professor; Exercise Physiology, Sport Conditioning, Body Composition and Energy Metabolism

**Maxie P. Kohler** , Associate Professor; Personality Theory, Human Development, Educational Psychology

**David M. Macrina** , Professor; Health Promotion, Community Health, Planning and Administration

**Charles McLafferty** , Assistant Professor; Qualitative Research, Education Psychology, Counseling Theory

**Cynthia J. Petri** , Associate Professor; Health Behavior, HIV Education

and Prevention, Technology, Theory

**Jane Roy** . Assistant Professor, Exercise Physiology

**Gary L. Sapp** , Professor; Cognitive Assessment, School Psychometry, School Psychology

**Kristi Sayers** , Assistant Professor, Physical Education Pedagogy, Adapted Physical Education

**Patricia M. Sheets** , Assistant Professor Counselor Education; Community counseling.

**Scott W. Snyder** , Associate Professor; Child Development, Measurement, Early Childhood Special Education, Program Evaluation

**Barry Stephens**, Assistant Professor, Counselor Education, Rehabilitation.

**Lawrence Tyson** , Associate Professor; Counselor Education; School Counseling

**Lesa Woodby** , Assistant Professor; Evaluation Research, Smoking Cessation, Health Education

## M.A.Ed. Program

### Admission Requirement and Prerequisites

In addition to the general admission requirements of the Graduate School, the following prerequisites apply to these programs. The prerequisites are not part of the graduate program. Applicants without the prerequisites may be admitted conditionally and take up to 12 semester hours of graduate work while completing the prerequisites. Specific course prerequisites are determined on an individual program basis by the student's advisors.

### Exercise Physiology

The Exercise Physiology specialization offers a master's degree option for students interested in either clinical exercise physiology or physiology research. The curriculum is multidisciplinary and comprises courses in the Schools of Education, Medicine, Health Related Professions, and Public Health. Two program plans are offered (detailed below). Plan I culminates with a thesis research project, and Plan II culminates with a written comprehensive exam. Resources for student participation in research include a Muscle Research Laboratory, a Strength Performance Laboratory, and a Body Composition/Energy Metabolism Laboratory. Wide arrays of field experiences are also available in local agencies and clinics. In addition to Graduate School admission requirements, prospective students must have completed undergraduate coursework in physiology, anatomy, and chemistry.

First-year students begin in the fall term. Listed below are the courses required in the program and a sample of elective courses.

### **Plan I (27 hours and thesis)**

Major Courses (12-15 hours)

Course Course Name Semester Hours

PE 637 Exercise Physiology I	3
PE 638 Exercise Physiology II	3
EPR 692 Research Methods	3
PE 642 Practicum in Exercise Physiology	3
EPR 609 Statistical Methods and Research in Education	3
Thesis	6
Related Field	6-9

### **Plan II (36 hours of coursework)**

Major Courses (12-15 hours)

Course Course Name Semester Hours

PE 637 Exercise Physiology I	3
PE 638 Exercise Physiology II	3
EPR 692 Research Methods	3
EPR 609 Statistical Methods and Research in Education	3
Elective in Major	3
Thesis Substitution	12
Related Field	6-9

Sample Major Electives for Plan I and II

PE 656 Advanced Sport Psychology

PE 640 Advanced Techniques in Conditioning the Athlete

PE 639 Exercise Prescription for High Risk Populations

PE 672 Advanced Treatment of Athletic Injuries

PE 674 Sport Performance and Nutrition

PE 645 Motor Development

PE 695 Problems in Physical Education

PE 630 Mechanical Analysis of Motor Skills

PE 585 Principles of Fitness Leadership

Sample Courses for Related Fields, Plan I and II

NTR 601 Medical Nutrition

NTR 618 Nutritional Biochemistry I

NTR 619 Nutritional Biochemistry II

NTR 650 Body composition & energy Metabolism

PHA 602 Epidemiology of Chronic Disease

GER 540 Biology of Aging

HE 502 Mental Health & Stress Management

HE 532 Administration of Health & Fitness Programs

## **Course Descriptions**

See physical education course descriptions.

## **Health Education/Health Promotion (M.A.Ed.)**

The health education graduate program (master's) is designed to prepare individuals for advanced health education careers in agency, schools, worksites, and allied health care settings. Program options allow students to choose between a thesis or nonthesis option and an opportunity to pursue elective course work in a related field area or allied health area.

### **Programs of Study**

Health Education Thesis & Health Education Nonthesis

#### **Plan I**

Thesis required (24 hours course work required.)

Major Courses (15 hours)

1. EPR 692. Introduction to Educational Research Design
2. HE 610. Foundations of Health Education

3. HE 640. Content Issues I or HE 641, Content Issues II 4-5. Choose 6 hours from the following:

HE 531 Planning and Evaluating Effective Health Education and Promotion Programs

HE 532 Administration of Health and Fitness Programs

HE 642 Health Behavior and Health Education

HE 689 Methods and Materials for Planning Health Education Programs

HE 697 Evaluation of Health Education Programs

Research Course (3 hours)

EPR 609 Statistical Methods and Research in Education: Intermediate. Prerequisite: EPR 608.

## **Plan II**

Nonthesis (33 hours course work required.)

Major Courses (15 hours)

1. EPR 692. Introduction to Educational Research Design

2. HE 610. Foundations of Health Education

3. HE 640. Content Issues I or HE 641, Content Issues II 4-5. Choose 6 hours from the following

HE 531 Planning and Evaluating Effective Health Education and Promotion Programs

HE 532 Administration of Health and Fitness Programs

HE 642 Health Behavior and Health Education

HE 689 Methods and Materials for Planning Health Education Programs

HE 697 Evaluation of Health Education Programs

HE elective (502, 508, 521, 523, 557, 592, 593, 598, 602, 606, 612). (3 hours)

Research Course. (3 hours)

EPR 609. Statistical Methods and Research in Education: Intermediate. Prerequisite: EPR 608.

## **Physical Education**

Degrees offered include the Master of Arts in Education and the Educational Specialist. At the master's degree level students may specialize in Exercise Physiology (see listing above for more information about this program) or complete a teacher certification program. The teacher certification program links teacher certification with the graduate program in physical education. For example, the M.A. Ed. awards the level A certificate and the Ed.S. is linked to the AA certificate. Each program requires a teaching certificate in physical education at the previous level (e.g., B certificate for admission to the A level, except the Alternative A program, and the A certificate for admission to the AA certificate).

Master of Arts in Education and "A" level teaching certificate; Nonthesis (31-37 hours)

Teaching Field: At least 1/3 of the program shall be teaching field courses. (18 hours)

PE 645 Motor Development	3
PE 647 Teaching Strategies and Issues in K-12 Physical Education	3
PE 643 Curriculum Development in Physical Education	3
600-level electives as approved by advisor	9

Survey of Special Education Coursework: Required if not previously completed (0-3 hours)

ECY 600 Introduction to Exceptional Learners

Additional Courses: (13-16 hours)

EPR 608 Statistical Methods and Research in Education	3
EPR 607 Microcomputer Applications to Statistics	3
Foundations and Professional Studies (see approved list)	3
Technology Competency	0-3
Elective (as approved by advisor)	3

### **Alternative A (Nontraditional 5th-Year Physical Education program) Nonthesis**

Additional requirements are 59 hours of prescribed coursework. Contact Student Services in Suite 100 Education Building, UAB for specific courses required.

Curriculum and Teaching:

PE 643 Curriculum Development in Physical Education	3
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Professional Studies:

EDF 604 Social Philosophies and Education	3
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Survey of Special Education Coursework: Required if not previously completed. (0-3 hours)

ECY 600 Introduction to Exceptional Learners 0-3

Technology:

Competency in technology 0-3

Evaluation of Teaching and Learning:

EPR 608 Statistical Methods and Research 3

EPR 607 Microcomputer Applications in Statistical Analysis 1

Reading :

Reading in Content Area 3

Internship:

PE 696 Elementary/Secondary Physical Education Internship 9

Teaching Field:

At least 1/3 of the program shall be teaching field courses (12)

PE 645 Motor Development 3

PE 647 Teaching Strategies and Issues 3

Additional hours of Physical Education 6

## **Ed.S. Degree**

Teaching Field:

At least 1/3 of the program shall be teaching field courses (21-24 hours)

PE 726 Supervised Research in Physical Education 3

PE 694 Seminar in Physical Education 3

600- and 700-level Physical Education courses 15-18

(PE 643, 645, 647 must be taken if comparable courses were not part of the master's program)

Survey of Special Education Coursework:

ECY 600 Introduction to Special Education 0-3

Additional Courses:

EPR 692 Introduction to Educational Research	3
EPR 609 Statistical Methods and Research: Intermediate	3
Technology Competency	0-3

Electives with Permission of advisor 600- or 700-level

Professional Studies or Teaching Field courses	3-6
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## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Health Education (HE)

**502. Mental Health and Stress Management.** Fundamental concepts of mental health and mental illness, with emphasis on etiology, symptomology, treatment, and prevention of mental illness. Elementary skills, dynamics of stress, and contemporary methods of stress management.

**508. Drug Use and Abuse.** Emphasis on emotional, intellectual, psychological, and social aspects of drug use. Misconceptions about drugs. Attitudes toward drugs and drug prevention and treatment programs.

**521. Health Communication.** Skills appropriate for selected health problems; problem solving and referrals.

**523. Human Sexuality.** Biological, sociological, and cultural aspects of sexuality.

**531. Planning and Evaluation.** Program planning and curriculum development for school, agency, and health care settings. Need assessment, objective setting, methodology, and evaluation are emphasized.

**532. Administration of Health and Fitness Programs.** Administrative theory applied to health and fitness settings.

**593. Educational Gerontology.** Program preparation for generic consumers. Major health concerns facing many senior citizens and ways to communicate educational interventions. Prerequisite: Permission of instructor.

**598. Issues in Women's Health.** Historical and psychosocial factors that have and may continue to influence the potential health status of the American female. Major causes of morbidity and mortality as well as tips for health care system utilization.

**601. Current Readings in Health Education.** Review of literature in health education. Development of annotated bibliography pertinent to professional practice. Prerequisite: Permission of advisor.



602. **Alcohol and Society Seminar.** Effects of alcohol on individual health, family relations, and community life. Prerequisite: Permission of instructor.

606. **Issues in Disease Control.** Nature and distribution of disease; communicable and nutritional diseases of childhood; possibilities for prevention. Prerequisite: HE 223 or permission of instructor.

610. **Foundations of Health Education.** Issues in health education; school, community, or patient health education. Prerequisite: Permission of instructor.

611. **School Health Programs.** National, state, and local factors influencing school health programs; influences of official and nonofficial agencies. Historical perspective, present and future directions of profession and school health. Prerequisites: HE 342, 343, 431, and 489.

612. **Workshop in Health.** Concepts and methods to increase proficiency. Comprehensive health education K-6 or 7-12; health education in school, community, or both. 3 to 6 hours.

640. **Content Issues I.** Drugs, death, human sexuality, nutrition, international health, legislation, and physical and spiritual dimensions of health. Decision making and problem solving. Implication of research, computer applications.

641. **Content Issues II.** Selected health issues. Personal characteristics of population (age, sex, emotional well-being) and external factors (societal and environmental); interventions and other approaches and solutions. Prerequisite: Admission to graduate program in HE and permission of instructor.

642. **Health Behavior and Health Education.** Prerequisite: HE 610.

689. **Materials and Methods of Health Education.** Ethical, theoretical, and practical aspects of health education; teaching techniques, decision-making skills, curricular development, organization skills, and techniques. Prerequisites: HE 342, 431, 434, and 489.

691. **Special Topics in Health Education.** Topics in school and community health education; development of new ways to examine situations. Prerequisite: Completion of HE core courses. 3 or 6 hours.

692. **Supervised Research in Health Education.** Research problem based on school, community, or public health education needs. Prerequisite: Permission of advisor and EPR 508 or 509. 3 or 6 hours.

693. **Advanced Field Experience.** Professional practice and research supervised by qualified health education professionals in approved health education work setting. 3 or 6 hours.

695. **Junior/Secondary Health Education.** Student teaching. Prerequisite: HE 610, 689, and other courses identified by advisor. 9 hours.

698. **Nonthesis Research.** 1-6 hours.

699. **Thesis Research.** Supervised research project. Prerequisite: Admission to candidacy and permission of advisor. 1, 2, 3, or 6 hours.

# Health Education/Health Promotion (Ph.D.)

The Ph.D. program in Health Education/Health Promotion has been designed to provide students with the academic and practical experiential background to become leading practitioners and researchers in health education and health promotion. The program combines the resources of academic units from the University of Alabama at Birmingham ( School of Education and School of Public Health) and the University of Alabama at Tuscaloosa ( College of Education).

## Admission

Student applications are reviewed by a joint admissions committee composed of members of the participating academic units. Applicants should meet the admissions requirements of the graduate school, including submittal of scores on the GRE. Admission to the program is competitive, with evidence of scholarship, career goals and research interest, professional recommendations, and professional experience among those factors receiving strong consideration. Candidates for admission must have completed a bachelor's or master's degree from an accredited institution in health education or a health-related field.

## Program of Study

Students may enter the program with either a bachelor's or master's degree in health education or a master's degree in a closely related health field. Prerequisite coursework includes Foundations of Health Education, Administration of Health Education, Health Education Planning and Evaluation, Health Education Methods, Materials and Delivery, and Research Design and Statistics

These requirements may be corequisite components in the program.

The Ph.D. degree program will require students to complete a minimum of 72 credit hours: 36 hours of coursework, 12 hours of research internship, and 24 hours of dissertation research.

Students entering the program with a master's degree may transfer appropriate coursework to this program, but this will not reduce the number of courses required. Students will not be required to retake coursework already completed but may be required to complete prerequisites as part of their planned course of study. A required review of student credentials prior to admission will identify strengths and needs. This review will provide students with a blueprint for their course of study and will be conducted by their advisor.

The specific components of the Ph.D. program in health Education and Health Promotion are outlined below.

### I. Health Education/Promotion Core Courses

(UA = HHE, UAB-Public Health = HB, UAB-Education = HE)

A. Advanced Theoretical and Scientific Basis of Health Education and Health Promotion (HHE 605, HB 750, HE 705) 3 hr

B. Planning and Administration of Health Education and Health Promotion (HHE 606, HB 760, HE 710)	3 hr
C. Health Communications Research (HHE 607, HB 730, HE 710)	3 hr
D. Doctoral Studies Seminar (HHE 604, HB 770, HE 695)	3 hr
Subtotal	12 hr
II. Advanced Research and Statistical Methods	
A. Multivariate/Multiple Regression Analysis	3 hr
B. Advanced Epidemiological Research Methods	3 hr
C. Data Management/Computer Technology	3 hr
D. Evaluation/Research Methods	3 hr
Subtotal	12 hr
III. Coursework in the Social and Behavioral Sciences Minor	12 hr
IV. Research Internship	24 hr
V. Dissertation	24 hr
Total	72 hr

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Health Behavior (HB)

**730. Health Communication Research.** In-depth exposure to current research involving media strategies used to persuade individuals to adopt new lifestyles. Critically examines major research conducted during last decade regarding single subjects, groups, communities, and media intervention. Focus on all media, including print, audiovisual, radio, and television.

**740. Evaluation Research: Health Promotion/Disease Prevention Research.** Theory and applications of original behavioral repopulation, selection of measurement, data collection, design and analytical techniques, and preparation of evaluation research report. NIH-type research proposal required. Prerequisite: Doctoral student or advanced master's student with permission of instructor.

### Health Education (Ph.D.)

**700. Seminar in Health Education.** Presentation of health education research.

**701. Special Topic in Health Education.** Topics in school and/or community health education; development of new ways to examine situations. Prerequisite: Permission of advisor. 3 or 6 hours.

702. **Supervised Research in Health.** Research problem based on school, community, or public health education needs. Prerequisite: Permission of advisor. 3 or 6 hours.

703. **Advanced Field Experience.** Professional practice and research supervised by qualified health education professionals in approved health education work setting. 3 or 6 hours.

705. **Advanced Theoretical and Scientific Basis of Health.** Analysis of knowledge, attitude and behavior change strategies, and resulting effect on health status.

710. **Planning and Administration of Health Education/Health Promotion Programs.** Case study of school and community health education interventions. Decision making and development of program planning skills in designing interventions in a variety of health education settings.

720. **Evaluation of Health Education Programs.** Evaluation protocols in health education settings; needs assessments, process and formative evaluations, cost benefits, summary reports.

729. **Ed.S. Thesis Research.** Prerequisite: Admission to candidacy.

730. **Evaluation Research Methods.** Theory and application of behavioral evaluation research including preparation of research NIH type proposals.

731. **Health Education Planning and Promotion.**

732. **Evaluation of Health Education Programs.**

740. **Evaluation of Health Education Programs.**

\* 798. **Nondissertation Research.**

\* 799. **Dissertation Research.** Prerequisite: Admission to candidacy.

## **Physical Education (PE)**

601. **Introduction to Sport Administration.** Planning, organizing, staffing, managing, directing, and evaluating sport and athletic programs.

607. **Principles of Coaching.** Philosophy, physiology, pedagogy, athletic training, and law related to coaching.

615. **Sport Facility Planning.** Factors influencing the planning, funding, and construction of a variety of sports facilities.

630. **Mechanical Analysis of Motor Skills.** Application of principles of physics to human movement. Analysis through videotape and cinematography techniques. Prerequisite: PE 307.

631. **Foundations of Physical Education.** Overview of various subfields of physical education.
632. **Supervision of Physical Education.** Study of skills required to supervise teachers of physical education and in other related fields.
636. **Current Readings in Physical Education.** Individual readings on contemporary topics and issues in physical education. Prerequisite: Permission of advisor.
637. **Physiology of Exercise I . Description of basic organ systems and their functioning in relationship to the physiology of exercise.**
638. **Physiology of Exercise II.** Applied exercise physiology information, techniques, and research methods.
639. **Exercise Prescription for High Risk Populations.** Lecture and laboratory practice; physiological basis of exercise testing and training. (Prepares students to take ACSM Exercise Specialist certification examination.) Prerequisites: PE 400 and BY 115.
640. **Advanced Techniques in Conditioning the Athlete.** Advanced training principles; developing testing and training programs for athletes. Prerequisites: PE 400, BY 115 and 116.
642. **Practicum in Physiology.** Practical experience and observations in human physiology. Seminars by medical, dental, and nursing faculty. Effects of drugs, diet, exercise, and disease on human body. Prerequisite: PE 641. 3 or 6 hours.
643. **Curriculum Development in Physical Education.** Trends in methodology, programming, and scheduling.
645. **Advanced Motor Development.** Factors influencing development of motor skills across lifespan.
647. **Teaching Strategies and Issues in K-12 Physical Education.** Design, implementation, and evaluation of appropriate physical education programs for elementary and secondary schools.
649. **Adapted Physical Education.** Current research and teaching methodology in adapted physical education; nature of selected disabilities, implications for physical education.
650. **Social Aspects of Sport.**
651. **Issues and Problems in Coaching.**
652. **Measurement and Evaluation of Athletes.**
655. **Motor Learning.** Factors influencing learning and performance of motor skills.
656. **Advanced Sport Psychology.** Relationship of psychology to sports performance.

672. **Advanced Treatment of Athletic Injuries.** Seminar and practical experience. Conducted by certified trainers at UAB Sports Medicine Clinic.
674. **Sport Performance and Nutrition.** Nutrition, rest, and training research relating to coach-player-doctor-trainer relationship, legal implications relating to competitive athletics.
690. **Seminar in Sports Administration.**
694. **Special Projects in Physical Education.** Independent projects supervised by faculty. Prerequisite: Permission of advisor. 1, 2, 3, or 6 hours.
695. **Problems in Physical Education.** Contemporary topics in physical education (class meeting format). Prerequisite: Permission of advisor. 3 or 6 hours.
696. **Elementary/Secondary Physical Education Internship.** Clinical placement in approved school. Required in nontraditional 5th-Year Program. Prerequisite: Completion of appropriate coursework. 9 hours.
697. **Advanced Field Experience in Physical Education.** Clinical placement in approved sites. Prerequisite: PE 647 or 488. 3 or 6 hours.
698. **Coaching Internship (Individual Sport).** 100 clock hours of experience with veteran coaches. Prerequisite: PE 407 or 607.
- \* 699. **Thesis Research.** Supervised research project. Prerequisite: Admission to candidacy and permission of advisor. 1, 2, 3, or 6 hours.
710. **Special Topics in Physical Education.** Special courses offerings on contemporary topics. Prerequisite: Permission of instructor.
715. **Advanced Field Experience in Physical Education.** Supervised field experiences in public school clinical sites. Prerequisite: PE 488 or 647. 3 or 6 hours.
718. **Practicum in Exercise Physiology.** Practical experience and observations in human exercise physiology. Prerequisite: PE 641 and permission of advisor.
720. **Research Design and Methodology.** Measurements and research design in areas of biomechanics, motor learning, motor development, sport psychology, and exercise physiology. Prerequisite: EPR 692 or equivalent.
726. **Supervised Research in Physical Education.** Independent student research supervised by a full-time program faculty member. Prerequisite: Permission of advisor, and EPR 609 and 692. 3 or 6 hours.
728. **Ed.S. Thesis Research.** Prerequisite: Admission to candidacy, research methods and sufficient course work in area of emphasis to be able to formulate a problem, develop a research design, and write a thesis proposal. Permission of advisor and instructor. Pass/Fail. 3 or 6 hours.
729. **Seminar in Physical Education.**

# Counseling Specializations

## Counselor Education: Community, Rehabilitation, School

The program in Counselor Education at the University of Alabama at Birmingham prepares community, school and rehabilitation counselors at the Master's and Educational Specialist levels. At the master's level, students acquire core knowledge and clinical skills which prepare them to enter the profession of counseling. Graduates in the Educational Specialist program develop advanced skills in clinical work, supervision, research, and teaching in higher education. We strive to create a rigorous scholarly and supportive atmosphere for students to develop intellectually with a sense of social consciousness and self-awareness. We value teaching, scholarship, and service which contribute to the Mission of the School of Education and UAB.

All counseling programs (community, rehabilitation, school) are designed to meet the course-work and field experiences requirements outlined in the accreditation standards of the Council for Accreditation of Counseling and Related Educational Programs (CACREP). In addition, the rehabilitation counseling specialty area meets the Council on Rehabilitation Education (CORE) certification requirements. The school counseling program meets the course work and field experiences required by the Alabama State Department of Education for certification. All programs meet the academic requirements for licensure as professional counselors in Alabama. As a program strength, the faculty who teach the counseling theory and skills courses are professional counselors who participate in limited practice in their specialty areas.

## Admission

Each applicant seeking admission to a counseling program specialty must include with the other required materials (test scores, transcripts appropriate letters of reference), a typewritten statement of professional purpose that reflects the applicant's background development, pertinent work-related experience, professional career objectives and specified ways that completion of this program will contribute to his/her goal for becoming a professional counselor.

An interview is required as a part of the admissions process. Admission is competitive and may be limited. Selection will be made by the counseling faculty after reviewing the applicant's credentials in their entirety, including the interview; some candidates meeting minimum requirements may not be admitted.

Consideration for a dmission to graduate study in counseling will occur each term. The completed packet of materials must be received in the Department of Human Studies from the Graduate School by the dates shown:

### *Term Deadline*

Fall      July 1  
Spring    November 1  
Summer    April 1

## Evaluation of Candidates

**Master's Level** : Evaluation of the counselor-in-training is an on-going process. The faculty has the ethical responsibility to determine candidate's appropriateness to be a professional counselor; counselors-in-training are evaluated on professional and ethical dispositions each term. In addition, faculty evaluate student counseling knowledge and skill proficiencies to determine the student's eligibility to remain in the program. High stakes assessment check points are included in the on-going evaluation.

## **Comprehensive Examination**

The written comprehensive examination is an important screening review for the student after the completing Area I. The successful completion of the qualifying examination is prerequisite to admission to candidacy for the degree. The comprehensive is an examination that is broad in scope and requires the student to synthesize and apply concepts learned from relevant course work.

\*Note: Although students are encouraged to complete all of the classes in Area I, prior to sitting for the comprehensives but may take the exam while concurrently enrolled in core courses. Note however, attempts to pass the exam are limited. Should a student not successfully pass the examination, he or she must rewrite the exam on the next scheduled date for the comprehensive examination. The comprehensive examination can be retaken a maximum of two times. If a student fails to successfully pass the comprehensive examination, he or she will be terminated from the program. Comprehensive examinations are scheduled for fall, spring, and summer semesters. Ideally, the comprehensive examination should be scheduled when a student has completed the core courses in Area 1.

## **Clinicals**

Prerequisites for the clinical experience include successful completion of required coursework, successful completion of comprehensive exams, and demonstration of required competencies in Areas I and II. The practicum experience requires a minimum of 100 hours (including 40 hours of direct client contact) on-site in an appropriate setting. The internship is 600 hours ( including 240 hours of direct client contact) on-site. Grading for the clinical experiences is on a Pass/Fail basis. To receive a Pass grade the counselor-in-training must be able to demonstrate required proficiency levels, behave in an appropriate professional manner consistent with the American Counseling Association's Code of Ethics, and satisfactorily complete the academic requirements set forth in both the practicum and internship classes. If a student fails to pass any portion of the clinical experience, he or she will not be allowed to continue in the program. Taking the clinical experience is not an option.

## **Agency Community Counseling Specialty**

The role of professional counseling has become increasingly important as an effective source of personal assistance in dealing with a myriad of problems in a complex society. The counseling profession is alive with ideas and techniques based on developmental and behavioral theory and has established a rightful place among the helping professions. Counseling has a serious contribution to make toward the psychological, social, and physical well-being of members of the community. We welcome the interest and inquiry of persons who feel a dedication to helping others and who will commit to serious study of the theory, techniques, and related course work on which professional counseling practice is based.



The Master of Arts in Community Counseling is designed to prepare students to demonstrate knowledge and skills with several counseling modalities appropriate for a broad range of clients in a multicultural society; interact effectively with other helping professionals and referral resources; make appropriate counselor-client related decisions in the context of professional, ethical, and legal guidelines; and fill effectively entry-level positions of professional responsibility within the specialization of agency counseling.

**Area I: Pre-candidacy Requirements (28 semester hours)**

EPR 607 Microcomputer Applications to Statistical Analysis

EPR 608 Statistical Methods and Action Research

ECG 612 Professional, Ethical, and Legal Issues in Counseling

**Professional Orientation & Identity**

**Pre-requisite: Admission to the Counselor Education Program**

EPR 614 Life-Span Human Development

ECG 621 Prepracticum: Theories and Techniques of Individual Counseling

**Theories of Counseling**

Pre-requisite: Admission to Counselor Education Program

ECG 638 Practicum I: Introduction to the Counseling Process. Prerequisite: ECG 621

**Counseling Skills and Techniques**

Pre-requisite: ECG 621. Not open to non-degree students

ECG 624 Assessment in Counseling.

**Appraisal**

Prerequisites: ECG 607 and ECG 608

ECG 626 Theories and Processes of Group Counseling.

**Group Counseling**

Prerequisites: ECG 621 and ECG 638

ECG 628 Societal Issues

**Social and Cultural Foundations**

ECG 630 Career Development: Theory and Research Career and Lifestyle Development

**Comprehensive exams may be taken only upon completion of courses in Area I.**

**Area II: Pre-candidacy Requirements (12 semester hours)**

EPR 616 Personality Theories

ECG 650 Development and Treatment of the Psychologically Impaired Client

**Assessment and Diagnosis of Mental Disorders**

Prerequisite: ECG 624, EPR 614, ECG 621, ECG 626

**Electives:** 6 semester hours—Graduate level courses related to the student's specialty area and/or interest, and approved by an advisor.

**Admission to Candidacy**

To be admitted to candidacy, students must

1. complete required courses in Area 1
2. pass comprehensive examination
3. complete Area II (exceptions approved by faculty)
4. recommendation of faculty

**Area III: Post-candidacy Requirements (9 semester hours)**

ECG 695 Practicum: Supervised Field Experience.

Prerequisites: Areas I and II; successful completion of comprehensive examination; admission to candidacy

ECG 697a Counseling Internship. Prerequisite: ECG 695. 30 hours/week for 2 terms

ECG 697b Counseling Internship (second term)

Current standards require 100 clock hours minimum for practicum and 600 clock hours of supervised internship.

**Rehabilitation Counseling Specialty**

The rehabilitation counseling specialization is designed to prepare individuals to work with people who have disabilities to achieve their personal, social, and vocational goals. Rehabilitation counselors often practice in public or private agencies, and may also work in private practice. The Master of Arts in Counseling degree with this specialization requires a minimum of 49 semester hours of planned coursework and field experiences. The content of the specialization meets the academic requirements for Certified Rehabilitation Counselor (CRC) and Licensed Professional Counselor (LPC) with the additional course, ECG 612. Students who wish to go beyond the rehabilitation counseling master's degree may continue toward the Ed.S. degree in Community counseling.

The Rehabilitation Counseling Program is accredited nationally by the Council On Rehabilitation Education (CORE).

The program in Rehabilitation Counseling requires a *minimum* of **52 semester hours** of course work. This includes 3 semester hours (100 clinical hours) of practicum and 6 semester hours (600 clinical hours) of internship. In addition, students can specialize in areas such as Deafness, Substance Abuse Counseling, and Mental Health Counseling. *This would increase the number of required hours beyond the 49 credit hour minimum.*

The Rehabilitation Counseling faculty is committed to the enhancement of rehabilitation counselor effectiveness. The last decade has seen an increase in opportunity for those trained in rehabilitation. With the advent of the private rehabilitation sector, graduating students have opportunities to apply their skills and knowledge in both the private and public sector of service.

Students graduating from the UAB Rehabilitation Counseling Training Program find jobs in the following settings: Alabama Department of Rehabilitation Services, International Rehabilitation Associates (Private Rehabilitation), Sheltered Workshop Facilities, Higher Education–Disability Support Services, Independent Living Centers, Drug and Alcohol Treatment Centers, Correctional Facilities, Employee Assistance Programs, Mental Health Facilities, Disability Determination, Private Practice–Sole Practitioners, and Children's Hospital.

### **Area I: Pre-candidacy Requirements (28 semester hours)**

EPR 607 Microcomputer Applications to Statistical Analysis

EPR 608 Statistical Methods and Action Research

ECG 612 Professional, Ethical, and Legal Issues in Counseling.

### **Professional Orientation & Identity**

Pre-requisites: Admission to the Counselor Education Program

EPR 614 Life-Span Human Development

### **Human Growth and Development**

ECG 621 Prepracticum: Theories and Techniques of Individual Counseling.

### **Theories of Counseling**

Pre-requisite: Admission to Counselor Education Program

ECG 638 Practicum I: Introduction to the Counseling Process. Prerequisite: ECG 621

### **Counseling Skills and Techniques**

Pre-requisite: ECG 621. Not open to non-degree students

ECG 624 Assessment in Counseling. Prerequisites: ECG 607 and ECG 608

### **Appraisal**

Prerequisites: ECG 607 and ECG 608

ECG 626 Theories and Processes of Group Counseling. Prerequisites: ECG 621 and ECG 638

### **Group Counseling**

Prerequisites: ECG 621 and ECG 638

ECG 628 Social and Cultural Foundations

ECG 630 Career and Lifestyle Development

### **Area II: Pre-candidacy Courses (15 semester hours)**

ECG 540: Introduction to Rehabilitation Counseling

ECG 635: Medical and Psychosocial Information for Counselors

ECG 648: Case Management

ECG 649: Job Development for the Severely Disabled Consumer

ECG 650 Assessment and Diagnosis of Mental Disorders

Prerequisites: ECG 624, EPR 614, ECG 621, ECG 626.

### **Area III: Post-candidacy Requirements (9 semester hours)**

ECG 695 Practicum: Supervised Field Experience

(Prerequisite: Areas I and II; successful completion of comprehensive exams and faculty approval)

EGG 697a Counseling Internship

ECG 697b Counseling Internship\* (Prerequisite: ECG 695 and approval of Internship Coordinator) 6 semester hours (2 terms; 3 hours each)

\*Current trainingstandards require 600 clock hours of supervised internship.

## **School Counseling Specialty**

This specialization is designed to prepare individuals as counselors in grades K-12. The program leading to the Master of Arts in Counseling degree requires a minimum of 49 semester hours of prescribed coursework to meet the academic and field experience requirements for the SDE Class A Professional Certificate in school counseling.

## School Counseling Specialty

According to the American School Counseling Association, "the purpose of a counseling program in a school setting is to promote and enhance the learning process." The goal of the program is to enable all students to achieve success in school and to develop into contributing member of our society.

- We believe that professional school counselors value and honor diversity, equity, and equality of all people.
- We believe that professional school counselors must be proactive change agents and advocates for all people.
- We believe that professional school counselors are obligated to confront their own beliefs and assumptions and change biased behavior regarding sexism, ageism, racism, and homophobia.
- We believe that professional school counselors are ethically obligated to strive toward optimum psychological health and to engage in self-care activities which attend to the physical, mental, spiritual, and psychological dimensions.
- We believe that academic preparation process must emphasize the application of theory to practice and encompass opportunities for experiential learning throughout the program.

The program of study will prepare students to

1. address student and family issues of concern that have adverse affect on student achievement and success.
2. promote, plan, and implement prevention programs regarding personal/social management and decision-making, college/career, and course selection and placement.
3. demonstrate leadership by promoting, planning, and implementing programs that are comprehensive, developmental, and integrated into the total school curriculum.
4. participate in the development for all students of follow-up activities that enhance personal growth and academic success.
5. consult and participate with teams and individuals to ensure responsiveness and equity to cultural diversity issues as well as learning styles of all students.
6. collaborate with other helping agents (parents, agencies, community members).
7. participate in coordinating resources for all students, families, and staff.
8. be seen as a leader by faculty, parents, and students in defining and carrying out the role and function of school counselor.
9. demonstrate appropriate documentation relating to student success and well-being.
10. establish and assess measurable goals for student outcomes from counseling programs, activities, interventions, and exercises.
11. collaborate with staff members in developing staff training regarding issues related to student academic, social, emotional, and developmental needs on a school-wide basis.

**Prerequisites to Certification:** The student must meet requirements for admission to the master's program in school counseling; however, for the University to recommend

certification in school counseling, he or she must also hold Alabama Class B certification in a teaching field. Additionally, any other certification prerequisites—such as special education requirements—must be met in addition to the master's degree requirements.

Area I: Precandidacy Requirements (28 semester hours)

EPR 607 Microcomputer Applications to Statistical Analysis

EPR 608

ECG 612 Statistical Methods and Research in Education

### **Professional Orientation**

EPR 614 Life-Span Human Development

### **Human Growth and Development**

ECG 621 Prepracticum: Theories and Techniques of Individual Counseling

### **Theories of Counseling**

ECG 638 Practicum I: Introduction to the Counseling Process (Prerequisite: ECG 621)

### **Counseling Skills and Techniques**

ECG 624 Assessment in Counseling (Prerequisite: EPR 608)

### **Appraisal**

ECG 626 Theories and Techniques of Group Counseling (Pre: ECG 621 and 638)

### **Group Counseling**

ECG 628 Societal Issues

### **Social and Cultural Foundations**

ECG 630 Career Development: Theory and Research

### **Career and Lifestyle Development**

Comprehensive examinations should be taken upon completion of Area I.

Area II: Pre-candidacy Courses (12 semester hours)

ECG 620 Foundations of School Counseling

ECG 622 Group/Classroom Guidance in Schools (Prerequisite ECG 620)

ECG 623 Counseling and Guidance in the Middle/High School

ECG 619 Special Issues for School Counselors

ECG 627 Counseling and Guidance in the Elementary School

Admission to Candidacy—Completion of Areas I and II; passing qualifying examinations (comprehensive exams): and recommendation of faculty

Area III: Post-candidacy Requirements (9 semester hours)

ECG 695 Practicum II: Supervised Field Experience (Prerequisite Areas I & II; comps, approval of faculty)

ECG 697a Counseling Internship\* (Prerequisite: ECG 695)

ECG 697b Counseling Internship\* (second term)

\* Current societal standards require 600 clock hours of supervised internship to include experiences at both elementary and secondary levels.

Note: School Counseling Internship sites are very limited during summer terms.

Note: Special Education requirement must be met.

## **Educational Specialist**

The Educational Specialist (Ed.S.) degree is designed to assist counselors who wish to continue their professional development in the areas of supervision, teaching counselor education in higher education, research, and consultation. The Educational Specialist degree is offered for both school and community counseling. The Educational Specialist (Ed.S.) degree in community counseling requires a minimum of 33 semester hours of prescribed coursework beyond the Master of Arts in Education degree and successful completion of a comprehensive exam and a terminal research project. The school counseling specialty requires a minimum of 36 semester hours. This specialization meets the academic and field experience requirements for the SDE Class AA Professional Certificate in school counseling.

### **Admission**

Admission to the program is competitive, with evidence of scholarship, appropriate standardized test scores; career goals, research interest, professional recommendations, and professional experience among those factors receiving strong consideration. Candidates for admission must have completed a master's degree in counseling from an accredited institution. An interview is required as part of the admission procedure. Prerequisites for admission to the program: A Master's degree in counseling (including the core CACREP courses, a 100 hour practicum, 600 hour internship, relevant full-time work as a counselor .

The Educational Specialist program attracts professional counselors who are interested in becoming clinical supervisors, fulfilling post-master requirements for licensure, or entering doctoral studies.

**Comprehensive Examination.** A comprehensive examination will be conducted by the faculty

Students in the Ed.S. program will compile a professional portfolio and will make formal presentation of the required research project to the faculty

### **Educational Specialist in Community Counseling**

#### **Area I: Counseling Core Area of Study (21 Semester Hours)**

EPR 609 Statistical Methods and Research in Education: Intermediate

Or

ECG 696 Qualitative Research Inquiry and Analysis

(Selection will depend on focus of research study)

EPR 692 Introduction to Educational Research Design

ECG 698 Non-Thesis Research in Counseling

ECG 700 Teaching Counseling in Higher Education

ECG 704 Seminar on Current Issues in Counseling Supervision

ECG 795 Ed.S. Practicum

ECG 797 Ed.S. Internship (3 hours)

Area II: Elective Courses (12 Semester Hours)

Students may select 12 hours of graduate coursework that meet their unique needs and/or interests. There may be options outside the Counselor Education Program such as Gerontology, Health Education Promotion, and Sociology. All elective courses need to be approved by the program.

### **Educational Specialist in School Counseling**

The Educational Specialist (Ed.S.) degree is a 36-hour program, designed to assist school counselors who wish to continue their professional and academic development. Obtaining an Ed.S. degree will qualify the student to receive an AA Certificate from the Department of Education. Prerequisites for admission to the Ed.S. program in School Counseling are a master's degree in school counseling, admittance to the Graduate School, and participation in a formal application process to the Counselor Education Program.

## **Foundations of Professional Studies**

Six (6) semester hours from the following courses required



EPR610 Child Psychology

EPR611 Adolescent Psychology

EPR616 Personality Theory for Helping Professionals

ECG 650 Diagnosis and Assessment of Mental Disorders

ECG 637 Adlerian Family Therapy

ECG 660 Dynamics of Child Sexual Abuse

ECG 670 Crisis Intervention Techniques

### **Instructional Support**

Twelve (12) semester hours, following courses required:

ECG 704 Seminar on Current Issues in Counseling Supervision

ECG 795 Ed.S. Practicum (Supervision of 695 Prac students under super of professor)

ECG 797 Ed.S. Internship (job shadowing of area school counseling supervisor; summer)

ECG 700 Teaching in Higher Education

### **Research**

Nine (9) semester hours required

EPR 692 Introduction to Educational Research Design

EPR 609 Statistical Methods & Research in Education: Intermediate **OR**

EPR 596 Introduction to Qualitative Methods in Education Research

ECG 698 Non Thesis Research in Counseling (study collection and presentation)

### **Program Approved Electives**

Nine (9) semester hours required

Students should meet with an advisor and discuss their professional plans before taking courses in the program. All students will complete Area I, Core Area of Study. In Area II, students and their advisor will map out a plan of study based on the professional needs of the student.

### **Special Education**

Students should meet with their advisor and discuss their professional plans **before** enrolling in classes.

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations. Core counseling courses are not open to non-degree students.

### Counseling and Guidance (ECG)

460. **Sign Language I Survival level.** Focuses on the development of grammatical, syntactical, and lexical proficiencies in ASL at a survival level. Students will be exposed to basic vocabulary, basic sentences types.

461. **Sign Language II Intermediate level.** Focuses on the development of grammatical, syntactical, and lexical proficiencies in American Sign Language at the Intermediate level.

462. **Sign Language III Advanced level.** Vocabulary development at advanced levels; use of characterization.

463. **Introduction to Interpreting for the Deaf.**

522. **Strategies for Attitude Development.** Dynamics of both negative and positive attitudes. Methods for improving communications, developing empathy. Techniques for determining personal strengths, setting goals, managing time, developing strong positive attitudes and self-images.

523. **Strategies for Effective Interviewing.** Selected interviewing skills will be described, demonstrated, and practiced in role play to increase effectiveness in interviewing. This course is designed to familiarize students with knowledge and application of intentional interviewing skills. Students will learn effective use of skills in a variety of situations through role play and discussion of practical applications.

524. **Conflict Management.** This course examines the scope of conflict management in the inner self, the family, school, work place and the community.

540. **Introduction to Rehabilitation.** Introduction and overview of rehabilitation process. Overview of historical foundations of rehabilitation; theoretical and philosophical perspectives of disability; the nature and scope of rehabilitation services; role and functions of rehabilitation counselors; and demographics and variance among those with disabilities.

570, 670. **Crisis Intervention Techniques.** Overview of crisis counseling. Theory and practical application of crisis intervention.

574, 674. **Seminar on Death, Dying, and Bereavement.** Provides general knowledge of death, dying, and bereavement issues faced in today's society.

578. **Counseling the African American Client.** This course is designed to promote a comprehensive understanding of African American clients' psychological development,

cultural barriers in counseling, and an examination of the therapeutic models and techniques used in counseling this population.

**611. Seminar on Chemical Dependency**

**612. Professional Orientation.** Emphasis on understanding of professional roles and responsibilities; ethical and legal issues; historical perspectives; preparation standards; credentialing; trends and issues in the counseling profession. Prerequisites: Admission to the Counselor Education Program. Pre-requisite: Admission to Counselor Education Program.

**613. Foundations of Substance Abuse** Surveys the field of substance use, abuse, and dependency, providing an overview of macro and micro issues and using various models of addictions. Topics examined include: historic and current theories of addiction and treatment, the substances of addiction, their effects, their signs and symptoms, addiction and special populations, direct practice with individuals, families, groups, community level intervention and public policy issues, and outcome research. Participants will be exposed to community based support groups and treatment professionals.

**614: Theories of Substance Abuse Counseling**

**615. Substance Abuse Assessment and Diagnosis.** This course prepares the student to identify, evaluate, and differentiate cognitions and behaviors in order to assess and diagnose individuals who have substance abuse, substance dependence, and/or co-existing disorders.

**616: Substance Abuse Counseling Techniques and Treatment Planning**

**619. Special Issues for School Counselors.** Exposure to a variety of critical incidents that cover a variety of experiences will be presented in a seminar environment and will require the student counselor's expertise and proper response. Authorities from the various school systems, law enforcement agencies, counseling/mental health agencies, and child protective agencies will provide knowledge and insight from their perspectives.

**620. Foundations of School Counseling Services.** Social, psychological, economic, and philosophic trends leading to development of guidance programs in American schools. Organization and administration of guidance services.

**621. Theories of Counseling.** Educational, vocational, and personal counseling. Observations and simulations. Prerequisites: Admission to the Counselor Education Program.

**622. Group/Classroom Guidance in Schools.**

**623. Counseling and Guidance in Middle and High School.** Offers an understanding of the nature of middle and high school children as related to their guidance and counseling needs. Identification of the developmental needs, problems, and issues of adolescents (ages 13-18). Identification, development, and practice of counselor interventions in individual counseling, small group counseling, large group guidance, peer facilitator training, consultation, and program coordination. Prerequisite: ECG 620

**624. Appraisal Using standardized tests and inventories to assess individuals in order to provide appropriate counseling and related services.** Overview of instrument review

and selection, measurement methods, administration and interpretation. Emphasis on common assessment instruments used in schools and public agencies. The use of assessment data in program outcome evaluation will also be explored. Prerequisites: 3 hours of statistics. Prerequisite: Admission to the Counselor Education Program; ECG 607/608; ECG 624.

**626. Group Counseling.** Guidance and counseling in small groups. Prerequisites: ECG 621 and 638

**627. Counseling and Guidance in Elementary School.** Guidance services and activities appropriate for preschool and elementary grades; facilitating intellectual, psychological, and social development during early school years.

**628. Social and Cultural Foundations.** This course is designed to provide an introduction and survey of the unique processes, dynamics, and challenges associated with the relationship between counselors and clients who are culturally different. Prerequisite: Admission to the Counselor Education Program.

**629. Counseling Families in a Multicultural Society**

**630. Career Development and Life Planning.** Overview of career theories, career and life planning principles, labor market information, career issues and trends, resource identification, assessment inventories, decision-making, goal-setting, and life management. Prerequisite: Admission to the Counselor Education Program.

**632. Technology for Counselors: Case Management and Report Writing.** Emphasis on using specialized software to enhance clinical report writing: intake interviews, diagnostic workups, psychological evaluation, assessments, psychosocial narratives and histories, treatment plans, progress notes, and genograms. Practice management programs are highlighted.

**635. Medical and Psychosocial Information for Counselors.** Medical information, terminology, body systems, and vocational implications of disability; application to challenges facing individuals with disabilities. Survey of body systems, functions and malfunctions, common diagnostic and treatment procedures, and implications for vocational outcomes. Psychological aspects of disabilities and sociological reactions to persons with disabilities. Discussion of common reactions to disabilities, and interventions related to healthy adjustment. Prerequisite: Admission to the Counselor Education Program.

**637. Adlerian Family Counseling.** Helping parents understand children. Parent-child relationship promoting responsibility, self-reliance, cooperation, mutual respect, and self-esteem.

**638. Counseling Skills and Techniques.** This course is designed to assist the student in developing the necessary knowledge and skills to become an effective counselor. Classroom lectures as well as experiential activities are implemented to achieve the goals of the course. Communication skills in relation to persons of diverse ethnic and cultural backgrounds are addressed. Prerequisite: ECG 621.

**648. Case Management Process in Rehabilitation.** Principles and processes of case management as outlined by State Department of Vocational Rehabilitation in case service manual.

**650. Assessment and Diagnosis of Mental Disorders.** Limitations placed by certain psychiatric disorders on counseling and adjustment therapy; case management, vocational placement and stability, and family and other interpersonal relationships. Prerequisite: Course in personality theory, individual and group counseling, abnormal psychology, or advanced human development. Prerequisites: Admission to the Counselor Education Program; ECG 614, ECG 621, ECG 626, 624.

**660. Dynamics of Child Sexual Abuse.** Critical concerns and issues, effective techniques, and practices.

**672. Gender Issues in Counseling.** The course is designed to promote a more comprehensive understanding of women and men's psychological and social development and issues involved in counseling. Counselors-in-training will examine the role gender plays in men and women's conceptualization and response to life problems and tasks.

**661. Play Therapy .** Designed to provide students with instruction in the history and theories of play therapy and experiential knowledge in applying play therapy strategies with children. Meets the Association for Play therapy requirements for instruction in history and theories of play therapy and provides 67.5 Continuing Education hours for the association. Prerequisite: Admission to the Counselor Education Program.

**673. Counseling Needs of Women.** Women's development and needs; problems women bring to counselors and strategies for helping them; myths about women; and biases in psychological research.

**691. Seminar: Special Topics in the Helping Professions.** Emerging trends, techniques, and issues. Prerequisite: Permission of instructor. 3 hours.

\* **692. Independent Readings in Counselor Education.** Prerequisite: Permission of advisor and instructor. 3 hours.

**695. Practicum: Supervised Field Experience.** A 100-hour-minimum field placement in an c ommunity, school or rehabilitation setting. Focus is on developing counseling competencies. Prerequisite: Completion of Areas I and II, and comprehensive exams; permission of clinical coordinator.

**697. Counseling Internship.** Field experience in setting appropriate to student's program; participation in activities of school or community counseling services, within constraints of ethical practice. 3 hours for 2 terms (600 clock hours). Pre-requisite: ECG 695.

**698. Individual Non-thesis Research in Counseling and Guidance.** Prerequisite: Permission of instructor.

**ECG 700: College Teaching in Counselor Education.**

**ECG 704: Current Issues in Counselor Supervision.** This course is intended to provide supervisors-in-training with an overview of supervision theories, models, interventions, and issues relative to counseling supervision and the supervision process.

**726. Ed.S. Group Supervision.**

795. **Ed.S. Practicum Supervision.** Experiential course in which Ed.S. students apply supervision knowledge and theories in master's level skills and techniques groups in the Counsel or Education program. Applied knowledge of counseling supervision theories. Prerequisite: ECG 704.

797. **Ed.S. Internship Supervision.** An experiential course in which Ed.S. students are assigned to provide supervision under faculty direction to a section of the master's level internship. Applied knowledge of supervision theories and practices are highlighted. Prerequisites: ECG 704 and 795.

## **Education Psychology (EPR)**

510. **Introduction to Measurement and Evaluation in Education.** Basic concepts and principles of measurement and evaluation of personal and academic progress in classroom. Emphasis on elementary descriptive statistics and measurement techniques used in student evaluation.

596. **Introduction to Qualitative Methods in Educational Research.** Qualitative research methods and techniques; their application to qualitative research design. Introduction to types of qualitative information, methods of data collection and analysis, and presentation of results; appropriateness of qualitative design. Prerequisite: EPR 692 or equivalent.

600. **Introduction to School Psychology.** Overview of professional practices and crucial issues in school psychology.

607. **Microcomputer Applications to Statistical Analysis.** Use of microcomputers in computations of descriptive statistics. Prerequisite or corequisite: EPR 608. 1 hour.

608. **Statistical Methods and Action Research.** Statistical methods for describing sets of data, differences and relationships infused in an action research paradigm. Included are conceptualizing, implementing action research with computer applications. Corequisite: EPR 607.

609. **Statistical Methods and Research in Education: Intermediate.** Basic inferential techniques including hypothesis testing, parametric and nonparametric techniques. Assumptions, rationale, and interpretation of analysis of variance techniques. Prerequisites EPR 607 and EPR 608 or basic statistics course.

610. **Child Psychology.** Human development through infancy, preschool, and preadolescence.

611. **Adolescent Psychology.** Social, emotional, and cultural aspects of adolescence affecting classroom and school behavior.

614. **Lifespan Human Development.** Social-emotional, intellectual-language, and physical-motor development from conception to old age. Prerequisite: General psychology.

616. **Personality Theories for the Helping Professions.** Prerequisites: 3 hours of general psychology and 3 hours of graduate educational psychology or human development.

622. **Learning Theories.** Application to educational practice. Behavioral theories, information processing, biochemical basis of memory and learning.
627. **Individual Testing in Guidance III (K-ABC).** Administration, scoring, interpretation, and use of Kaufman Assessment Battery for Children (K-ABC). Prerequisite: EPR 629 and permission of instructor.
628. **Individual Testing in Guidance I (Stanford-Binet).** Administration, interpretation, and use of Stanford-Binet intelligence scale. Prerequisite: Permission of instructor.
629. **Individual Testing in Guidance II (Wechsler Scales).** Administration, interpretation, and use of Wechsler intelligence scales. Prerequisite: Permission of instructor.
630. **Clinical Assessment in Education.** Individual intelligence, personality, and projective tests used by school psychologists. Prerequisite: Permission of program coordinator.
688. **Seminar on Current Issues in Measurement and Evaluation in Schools.** Issues of standardized testing and classroom assessment for teachers and administrators.
689. **Internship and Seminar in School Psychology I.** Daily, one-semester participatory experience in school setting supervised by certified school psychometrist. Prerequisite: Completion of school psychometry major. 6 hours.
- \* 691. **Independent Readings in Educational Psychology and Research.** Prerequisites: Permission of advisor and instructor. May be repeated for total of 6 hours. 1-3 hours.
692. **Introduction to Educational Research Design.** Literature of educational research. Rationale of library and empirical research. Research on current educational issues. Prerequisite: EPR 608.
696. **Elementary/Secondary Physical Education Internship.** Clinical placement in approved school. Required in nontraditional 5th-Year Program. Prerequisite: Completion of appropriate coursework. 9 hours.
697. **Advanced Field Experience in Physical Education.** Clinical placement in approved sites. Prerequisite: PE 647 or 488. 3 or 6 hours.
698. **Coaching Internship (Individual Sport).** 100 clock hours of experience with veteran coaches. Prerequisite: PE 407 or 607.
- \* 699. **Thesis Research.** Supervised research project. Prerequisite: Admission to candidacy and permission of advisor. 1, 2, 3, or 6 hours.
710. **Special Topics in Physical Education.** Special courses offerings on contemporary topics. Prerequisite: Permission of instructor.
715. **Advanced Field Experience in Physical Education.** Supervised field experiences in public school clinical sites. Prerequisite: PE 488 or 647. 3 or 6 hours.
718. **Practicum in Exercise Physiology.** Practical experience and observations in human exercise physiology. Prerequisite: PE 641 and permission of advisor.

720. **Research Design and Methodology.** Measurements and research design in areas of biomechanics, motor learning, motor development, sport psychology, and exercise physiology. Prerequisite: EPR 692 or equivalent.

726. **Supervised Research in Physical Education.** Independent student research supervised by a full-time program faculty member. Prerequisite: Permission of advisor, and EPR 609 and 692. 3 or 6 hours.

Last modified 11/02/04



## UAB Graduate School

### Criminal Justice (M.S.C.J.)

Graduate program director: *Morgan*

## Faculty

**J. Heith Copes**, Assistant Professor (Justice Sciences); Qualitative Methods; Criminal Decision Making; White Collar Crime; Police

**John W. Grimes**, Instructor (Justice Sciences); Criminal Law, Evidence, and Procedure; Private Security; Terrorism and Social Control; Mock Trial; Pre-Law Advisor Not Graduate Faculty

**Tomislav V. Kovandzic**, Assistant Professor (Justice Sciences); Inequality and Crime; Firearms and Violence; Research Methods; Criminal Justice Policy; Police

**Kathryn D. Morgan**, Associate Professor (Justice Sciences); Corrections; Criminological Theory; Minorities

**John J. Sloan, III**, Associate Professor (Justice Sciences); Victimization; Fear of Crime; Criminal Justice Policy; Juvenile Justice; Program Evaluation

**Brent L. Smith**, Professor (Justice Sciences); Terrorism and Social Control; Criminological Theory; Victimology Retired. Faculty Emeritus status.

**Lynne M. Vieraitis**, Assistant Professor (Justice Sciences); Criminological Theory; Gender Inequality and Crime; Labor Markets and Crime; Violence Against Women

## Adjunct Faculty

**Robert Berry**, Police Administration; Criminal Justice Policy

**Foster Cook**, Research Professor (Psychiatry); Drugs and Crime; Addiction; Program Evaluation

**Kevin Fitzpatrick**, Associate Professor (Sociology); Urban Sociology; Violence; Quantitative Methods

**Mark LaGory**, Professor (Sociology); Urban Sociology; Demography; Violence

**Charles Lindquist**, Associate Professor (Emeritus); Corrections; Comparative Criminal Justice Systems; Intentional Injury; Criminal

Justice Policy

**James Philips**, Criminal Law, Evidence, and Procedure; White Collar and Corporate Crime

## Program Information

The criminal justice graduate program requires study in the overall discipline, including intensive investigation in the areas of criminal justice policy, criminal justice administration, research methods and statistics, and criminological theory.

Each year, students are admitted to the M.S.C.J. program for the fall term. **The application deadline is May 1.** Students may be admitted to the M.S.C.J. program "in good standing" provided they meet all minimum admission criteria established by the Graduate School **and** have taken an introductory-level statistics and an introductory-level research methods course in which a grade of B or better was earned in each course. Students who otherwise meet the minimum admission criteria but have not taken one or both of these courses, may be admitted to the M.S.C.J. program on a "contingency" basis. Students so admitted will not be allowed to register for graduate coursework until the contingencies are removed. Students meeting the minimum requirements for admission but lacking a substantive background in criminal justice **may** be admitted to the M.S.C.J. program on a "contingency" basis, but will be required to undertake remedial coursework before they will be allowed to register for any graduate coursework. Students failing to meet the minimum requirements for admission, but who are reasonably close, **may** be admitted to the M.S.C.J. program "on probation." Students admitted on probation will be given the opportunity to establish and maintain a minimum GPA of 3.0 for all graduate coursework undertaken. Failing to do so will result in dismissal from the program.

## Degree Requirements

### Plan I (Thesis)

Students selecting the Plan I option must (1) complete a minimum of 30 semester hours (24 of which are the required professional seminars JS 580 and JS 600-606) and (2) propose and then complete a major research project under the direction of a thesis committee chaired by the student's major advisor. Students who select the Plan I option must establish and maintain a minimum GPA of 3.0 in all coursework undertaken (required and elective). Students failing to do so may be dismissed from the program.

### Plan II (Nonthesis)

Students selecting the Plan II option must (1) complete a minimum of 36 semester hours in coursework, 24 hours of which consist of the required

professional seminars; (2) write a 20-25 page "area paper" in their area of substantive interest, and (3) pass a series of written comprehensive examinations covering the areas of criminological theory, research methods, statistics, criminal justice policy, and criminal justice administration. Students who select the Plan II option must establish and maintain a minimum GPA of 3.0 in all coursework undertaken (required and elective). Students failing to do so may be dismissed from the program.

## **White Collar and Corporate Crime Specialization**

In conjunction with the M.B.A. program in the School of Business, students in the M.S.C.J. program may pursue a specialization in the investigation and prosecution of white collar and corporate offenders. Students choosing this specialization will take 15-18 elective hours in coursework. Information on the White Collar and Corporate Crime specialization is available from the M.S.C.J. Program Director.

## **Financial Aid**

Students who are admitted to the M.S.C.J. program "in good standing" are eligible to receive department-based financial aid in the form of research assistantships or scholarships that are awarded on a competitive basis. Students are typically notified of such awards in early June of each year for the following fall.

### **Additional Information**

For detailed information contact Dr. Kay Morgan, Department of Justice Sciences, OB15, 901 15th Street South,

Birmingham , Alabama 35294-2060 .

Telephone: 205-934-2069

E-mail [kmorgan@uab.edu](mailto:kmorgan@uab.edu)

Web [www.uab.edu/criminaljustice](http://www.uab.edu/criminaljustice)

## **Course Descriptions**

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded by an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### **Criminal Justice (JS)**

## Required Seminars

580. **Computer Applications in Criminal Justice** . Computer applications in criminal justice agency settings, including statistical analysis packages, crime mapping, word processing, and graphics packages. NO LONGER OFFERED.

600. **Proseminar in Criminal Justice**. Critical analysis of formal and informal processing of offenders by criminal justice agencies, including police, courts, and corrections; effectiveness and future directions.

601. **Nature of Crime**. Analysis of crime patterns and known correlates; theoretical explanations of criminality including classical, biophysiological, psychological, and sociological theories.

602. **Seminar in Criminological Theory**. Classic and contemporary structural explanations of crime; substantive focus on relationships between crime and cultural and institutional arrangements.

604. **Seminar in Criminal Justice Policy Analysis**. Origins, formulation, implementation, and evaluation of criminal justice policy; classic and contemporary examples of policy innovations.

605. **Seminar in Criminal Justice Research Methods**. Quantitative methods of empirical research emphasizing criminal justice/criminological applications; current research methodologies relating to analysis of issues involving crime and criminal justice.

606. **Seminar in Criminal Justice Data Analysis**. Bivariate and multivariate analyses and interpretation of results from substantive research.

## Elective Courses

500-504. **Special Topics in Criminal Justice**. Investigation of topics of current interest to faculty members. Topics selected for in-depth analysis are listed each term in class schedule. May be repeated in different topics for a maximum of 12 hours. 3 hours each.

507. **Advanced Criminal Law**. In-depth, case-study examination of substantive criminal law; analysis of acts, mental states, and attendant circumstances constituting various crimes.

540. **White Collar and Corporate Crime**. Analysis of illegal or deviant behavior occurring in organizational settings, including crimes committed by and against complex organizations.

541. **Terrorism and Social Control**. Analysis of the causes and consequences of terrorism; substantive focus on government response including investigation, prosecution, and punishment of terrorists.

542. **Race, Crime, and Justice.** An examination of how the subordinate status of minority groups (primarily African Americans, Hispanics, and Native Americans) affects their interaction with the justice system.

543. **Women and the Criminal Justice System.** Examination of the role of women in the criminal justice system as offenders, victims, and professionals.

544. **Law and Society.** Origins and definition of law; overview of legal systems and their characteristics; use of law to facilitate or retard social control, social change, and social conflict.

545. **Juvenile Corrections.** Analysis of ongoing efforts to reduce juvenile delinquency; particular attention paid to recent innovations, programs, and program effectiveness.

580 **Patterns of Crime. Analysis of the social correlates of crime and the typologies of offenders.**

607. **Seminar in Criminal Justice Planning.** Planning and integration of programs in criminal justice system; techniques and tools used by planners.

608. **Seminar in Current Issues in Law Enforcement.** Analysis of such issues as administration, police-community relations, corruption, and design of law enforcement agencies.

609. **Seminar in Juvenile Delinquency.** History, measurement, patterns, and theories relating to delinquent behavior.

610. **Seminar in Correctional Systems.** Correctional philosophy; legal decisions, correctional programs, research, treatment approaches, and decision-making processes.

612. **Seminar in Comparative Criminal Justice Administration.** Theories, philosophies, and techniques of criminal justice systems worldwide; evaluation of governmental role in administration of justice systems.

603. **Seminar in Criminal Justice Administration.** Theories of organizational structure, motivation, and management applied to criminal justice agencies. NO LONGER REQUIRED!

613. **Seminar in Law and Society.** Classical and modern perspectives on the nature, origins, and functions of law.

614. **Seminar in Advanced Legal Problems.** Legal theories; criminal law, evidence, and procedure; origins, philosophy, and development of legal system; exposure to legal reasoning.

620. **Investigation and Prosecution of White Collar Crime.** Analyses

of legal aspects of case preparation and presentation; legal theories of individual and collective criminal responsibility; trial strategies

**676. Law, Evidence, and Procedure.** Legal aspects of physical evidence; role of expert witnesses in criminal process; moot court activities.

**\*696. Graduate Internship in Criminal Justice.** Field experience in criminal justice agency setting. May be repeated for a maximum of 6 hours of credit.

**\*697, 698. Directed Research.** Independent study in a student's substantive area of interest under the direction of a faculty member.

**\*699. Thesis Research.** Prerequisite: Admission to candidacy and successful defense of thesis proposal. 1-6 hours.

Last modified 10/13/04

## UAB Graduate School

### Education—Curriculum and Instruction

Graduate program director: *Calhoun*

Education, Early Childhood (Ph.D., Ed.S., M.A.Ed.)

Education, Elementary (Ed.S., M.A.Ed.)

Education, High School (Ed.S., M.A.Ed.)

Art Education (M.A.Ed.)

Music Education (M.A.Ed.)

English as a Second Language (M.A.Ed.)

## Faculty

**Jerry T. Aldridge**, Professor (Early Childhood Education); Early Childhood, Special Education, Elementary Education

**Joseph C. Burns**, Associate Professor (Elementary and High School Education); Biology, Science Education

**Charles Calhoun**, Associate Professor (Elementary Education); Elementary Math Education, Curriculum and Instruction

**Anarella Cellitti**, Associate Professor (Early Childhood Education); Early Childhood Development, Foundations of Early Childhood Education, Multi-Cultural Education

**Lois M. Christensen**, Assistant Professor (Elementary Education); Elementary Social Studies, Qualitative Research Methodology, Elementary Preservice Teacher Education, Ethnographic Processes, Study of Diversity, Women, and International Topics

**Mona Eason**, Assistant Professor/Associate Dean (Early Childhood); Early Childhood/Elementary Education

**Patricia Fitzgerald**, Clinical Instructor (Elementary Education); Classroom Management, Organizational Skills of Teachers

**Virginia D. Horns-Marsh**, Professor Emerita (Early Childhood and Elementary Education); Early Childhood, Reading, Language Arts

**Thomas W. Jambor**, Associate Professor Emeritus (Early Childhood Education); Early Childhood Development, Play Environments, Development Through Play

**Constance Kamii**, Professor (Early Childhood Education); Early Childhood Education and Theory of Jean Piaget

**Lynn Kirkland**, Associate Professor (Early Childhood Education); Early Childhood Development, Early Childhood Curriculum

**Janice Kluge**, Associate Professor (Art); Art Education, Drawing, Sculpture

**Roberta A. Long**, Professor Emerita (Elementary Education); Reading and Language Arts, Children's Literature

**Gary L. Manning**, Professor Emeritus (Elementary Education); Elementary Education, Individualization of Instruction, Language Arts and Reading

**Maryann M. Manning**, Professor (Elementary Education); Reading and Language Arts, Individualization of Instruction, Creative Teaching

**Kathleen Martin**, Assistant Professor (Early Childhood Education); Reading, Child Development, Reading Recovery

**Lee Meadows**, Associate Professor (High School Education); Science Education, Multicultural Issues, K-14 Science

**Dail W. Mullins**, Associate Professor (High School Education); Science Education (Early Childhood and Secondary)

**Eddie P. Ort, III**, Professor Emeritus (Elementary Education); Elementary School Social Studies, Curriculum Development and Evaluation

**Janice Patterson**, Assistant Professor (Elementary Education); School/University Partnerships, Resilience for Teachers and Students in Urban Schools, Preservice Teacher Education for Elementary Schools, Professional Development for Teacher Leaders

**Tonya Perry**, Teacher In Residence (Secondary Education); Language Arts Education

**Cecilia Pierce**, Associate Professor (High School Education); Social Studies Education, Curriculum Development, Qualitative Research

**David Radford**, Associate Professor (Science Education); Assessment, Professional Development

**Michele Sims**, Instructor (High School Education); Reading, Middle School Education

**Tommy G. Smith**, Associate Professor (High School Education); Mathematics Education

**Stephen S. Underwood**, Associate Professor Emeritus (Elementary



Education); Science Education, Analysis of Teaching and Learning Environment

## Graduate Programs

The M.A.Ed., Ed.S., and Class AA programs emphasize improving the teaching skills of the student and broadening the student's understanding of the field(s) of teaching specialization. Numerous teaching fields are available. All prospective students must apply for admission through the Graduate School.

The M.A.Ed. program requires a minimum of 33 semester hours of study, and the Ed.S. and AA programs require at least an additional 32 semester hours. All programs require a written final examination. An outline of the specific course requirements can be obtained from the office of the graduate program director or the Academic Advising Office in the School of Education. The M.A.Ed. programs satisfy the academic requirements for the State Department of Education Class A Professional Certificate. The Ed.S. programs satisfy academic requirements for the State Department of Education Class AA Professional Certificate and an Ed.S. degree. The AA programs satisfy AA certification requirements, but do not lead to a degree. See also the section "Education (General Information)" earlier in this catalog.

The program leading to the Doctor of Philosophy (Ph.D.) degree in early childhood education is sufficiently flexible to accommodate the interests and previous preparation of the student, but it must include an internship and a substantial research component culminating in the completion of a dissertation. The minimum admission requirements are those of the UAB Graduate School. However, admission is highly selective, and most successful applicants have qualifications much higher than the minimum. Admission is open only once annually, with the program of study beginning in June (summer term). Application packets must be complete in the Graduate School office, at the latest, by six weeks before the program begins.

### Additional Information

For detailed information, contact Dr. Jerry Aldridge (Early Childhood), Dr. Joe Burns (Elementary) or Dr. Lee Meadows (Secondary), UAB Department of Curriculum and Instruction, EB 119, 1530 3rd Avenue South, Birmingham, Alabama 35294-1250.

Telephone 205-934-5371

Web [www.ed.uab.edu](http://www.ed.uab.edu)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit.

Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

## **Early Childhood Education (ECE)**

**545. Curriculum for Young Children.** Basic knowledge of curriculum and concepts of mathematics, science, and social studies for young children. Child growth and development as basis for planning and teaching mathematics, science, and social studies to young children. Teaching methods and use of instructional media. Practicum experience required. Prerequisite: Admission to ECE 5th-Year Program. 6 hours.

**546. Communication Arts and Reading for the Young Child.** Nature of reading and language arts experiences for children, infant through grade three. Media, materials, experiences, programs, and strategies to facilitate development of communicative abilities with emphasis on preserving and maintaining creative expression in different cultural settings. Integration of learning in areas of listening, speaking, reading, composition, literature, handwriting, spelling, and other communicative arts. Laboratory experiences required. Prerequisite: Admission to ECE 5th-Year Program. 6 hours.

**548. Infant/Toddler Development.** Study of human development within an ecological context from before birth to three years of age. Course covers social-emotional, physical, cognitive, language, and creative development of the infant and toddler in the home and also in programs for very young children.

**549. Educational Environment: Infants/Parents (Toddlers/Parents).** Study of infant (or toddler) development as it relates to the organization of a parent/infant (or toddler) educational program. Information concerning program management, observation of parent/infant (or toddler) interaction, development and sequencing of activities, creation and evaluation of materials, and an examination of techniques and procedures for parent involvement and education. Actual experience in working with a parent/infant (or toddler) program will be an integral part of the course. Prerequisite: ECE 548 or equivalent. 3 or 6 hours.

**620. Introduction to Curriculum and Teaching.** Basic knowledge of early childhood curriculum for programs, infant through third grade, in a variety of settings. Relationship of child growth and development in planning and implementation of all areas of curriculum. Prerequisite: Admission to ECE 5th-Year Program.

**630. Cognitive Curriculum in Early Childhood Education.** Mathematics and science for children four to eight years of age based on constructivism. Children's thinking, particularly in physical-knowledge activities, group games, and situations in daily living.

**631. Program for Young Children.** Early childhood education programs and theoretical perspectives. Existing curricula such as Piaget, behavior modification, Montessori, open classroom, foreign-based programs.

Required for students without undergraduate majors in ECE.

**632. Young Children and Their Literature.** Literature for children in nursery school, kindergarten, primary grades; selection, use, and integration of literature in total curriculum.

**633. Social Development of the Young Atypical Child.** Theoretical issues and political, sociological relationship of the atypical child. Nature, assessment, and intervention of emotional disorder. Program planning, teaching, and interdisciplinary considerations.

**690. Practicum in Early Childhood Education.** Required of all M.A.Ed. students. Prerequisite: Permission of instructor. 3 or 6 hours.

**692. Practicum in Primary Education.** Prerequisite: Permission of advisor and department. 6 or 9 hours.

**693. Internship in Early Childhood Education.** Full-time internship for 10 weeks (300 clock hours). 3 or 9 hours.

**694. Practicum in Early Childhood Education for the Young Atypical Child.**

**730. Doctoral Seminar I: Issues in Developmental Theory.** Historical, sociological, and psychological influences on theories of development. Prerequisites: Graduate course in development or educational psychology and admission to doctoral program.

**731. Doctoral Seminar II: Children and Society.** Societal influences on child development. Role of family and various agencies in different cultures. Prerequisite: Admission to doctoral program.

**732. Doctoral Seminar III: Special Topics in Early Childhood and Development Studies.** Specific topic announced in class schedule. Prerequisites: ECE 730 and 731. 1-3 hours.

**733. Doctoral Seminar IV. Advanced Research in Early Childhood Education.** Evaluation and planning of research in preparation for dissertation. Prerequisite: At least one course in research, measurement, or statistics. 3-9 hours.

**734. Logic and Scientific Inquiry.** Scientific investigation as applied in education. Conceptual issues in research process. Methods of analysis and presentation. Prerequisite: Master's degree.

**735. Meaning and Development of Play.** Nature of play, its importance and how it is nurtured. Prerequisite: Master's degree.

**736. Personality Development of the Young Child.** Theoretical perspectives; review of research, including cross-cultural studies. Prerequisite: Admission to doctoral program.

737. **Parent, Child, School Interface.** Historical development of parent involvement. Theoretical bases of family-school interactions. Prerequisite: Admission to doctoral program.

738. **The Consultation Process and the Young Child.** Problem areas affecting young children; skills for working with families and community agencies. Prerequisites: ECE 730 and 731.

739. **Developing Interpersonal Competence for Leaders.** Relationships with coworkers and subordinates. Various approaches to interpersonal relationships. Prerequisites: Admission to doctoral program.

740. **Research Apprenticeship.** Planning, implementation, analysis, and presentation of research. Prerequisites: ECE 730 and 731. 3 or 6 hours.

741. **Research Study: Design and Implementation.** Development of rationale, literature search, collection and analysis of data, and formal written report (according to APA guidelines). Must be completed before admission to candidacy. Prerequisites: EPR 607, 608, 609, and ECE 740.

742-745. **Piaget: Theory and Research.** Jean Piaget's theory, application to early childhood education; physical and social (conventional) knowledge. Representation and memory, logico-mathematical knowledge. Prerequisite: Master's degree and EEC 672.

746. **Contemporary Issues in American Science Education.** Crisis atmosphere surrounding science education in American classroom. Prerequisites: ECE 730, 731 and 732.

747. **Social Development of Young Children.** Factors influencing socialization of young children. Prerequisites: ECE 730 and 732.

748. **Research in Infancy.** Theoretical and empirical evidence relating to psychomotor domain. Prerequisite: Admission to doctoral program in early childhood education.

749. **Advanced Early Childhood Curriculum.** Historical, philosophical, psychological, and social thought influencing curriculum in early childhood education. Prerequisites: ECE 730, 731, and 732.

750. **Literacy Before School.** Written language development of preschool children. Prerequisites: Master's degree and two courses in language development.

751. **Schooling and Literacy Instruction.** Primary-level literacy instruction and children's literacy development. Prerequisites: Admission to doctoral program in early childhood education and two courses in language development.

752. **Theory and Research on Literacy Development and Instruction.** Philosophical and psychological beliefs regarding literacy development. Prerequisite: Admission to doctoral program in early childhood education.

753. **John Dewey and the Early Childhood Curriculum.** Dewey's philosophy, epistemology; relationship to early childhood education and development.

760. **Current Issues in Education.** 1-3 hours.

774. **Advanced Seminar in Language Development.** Relationship of thinking and knowing to language development; strategies for analysis; strengths and weaknesses of techniques of examining language development. Prerequisites: Master's degree and one course in language development or equivalent.

790. **Internship in Early Childhood Education and Development.** 6 or 9 hours.

791. **Field Studies in Early Childhood Education.** Prerequisite: Permission of instructor. 1-6 hours.

792. **Directed Readings in Research.** Review of research in early childhood education to gain understanding of conceptual and methodological basis.

793. **Individual Research in Early Childhood Education.** Recent research in early childhood education; systematic solutions to problems in education.

794. **Current Research Topics in Early Childhood Education.** Philosophical aspects of scientific methods in education; functions of paradigms, theories, and models in inquiry; theory development and validation; major types of experimental and nonexperimental inquiry appropriate to study of educational phenomena.

798. **Nondissertation Research.** 3-12 hours.

799. **Dissertation Research.** Prerequisite: Admission to candidacy. 3-12 hours.

## **Arts Education (EDA)**

583. **Methods of Teaching Art.** Learning experiences necessary for development of essential teaching competencies. Prerequisite: Admission to 5th-Year Program. 3 or 6 hours.

584. **Methods of Teaching Art Laboratory.** Required. 1 or 2 hours.

591. **Art Education Final Exhibition.** M.A. students plan and mount exhibition of work during final year. Graphic design students may prepare public portfolio presentation instead of exhibition. Art History students prepare a thesis research paper. Should be taken with the student's thesis advisor. Prerequisite: Permission of advisor.

651. **Innovative Practices in Teaching Art in the Schools.** Innovative practices in planning, instructing, and evaluating in art education. Specialized study of contemporary needs in art and art education.

680. **Art Experiences in the Teaching of Art N-12.** Concepts, methods, and skills for teaching art.

690. **Internship in Art Education N-12.** For 5th-Year Program students. Observation and student teaching in elementary and secondary schools (10 weeks or 300 clock hours). Prerequisites: Unconditional acceptance into the 5th-Year Program, completion of 9 hours in professional studies, EDA 680, and completion of 9 hours in academic courses. 9 hours.

## Curriculum (EDC)

**600. Transition into the Teaching Profession.** Introductory course in 5th-Year (nontraditional) Program for high school education. Developing basic teaching skills and understanding of interdependence among all levels within school and community. Prerequisite: Acceptance into 5th-Year Program in high school education.

**651. Innovative Practices in Curriculum.** Current issues and special topics in curriculum; topics vary. May be repeated with different subject areas.

**655. Curriculum Principles and Practices.** Current curriculum practices; concepts and principles underlying their development.

**656. Developmental Problems and Issues in Curriculum Construction.** Includes field study of curriculum in teachers' own schools.

**694. Curriculum Seminar: Special Problems in Curriculum Development.** Prerequisite: EDC 655 or permission of instructor. 1-3 hours.

**706. The Dynamics of Educational Change.** Defining roles as change agents; understanding school as unit undergoing change; guiding perspectives in making changes. Prerequisite: Admission to graduate school.

**707. Curriculum Theory.** Prerequisites: Master's degree and EDC 655.

**711. Analysis and Evaluation of Teaching.** Strategies and models for analysis of teaching. Use of data in evaluating teacher effectiveness. Prerequisite: Master's degree.

**712. Seminar in Curriculum and Instruction.** Critical issues and research. Development and discussion of individual research. Prerequisite: Master's degree.

**713. Educational Issues and Human Diversity.** Social, economic, and cultural forces contributing to deprivation; implications for teachers, administrators, and educational staff. Prerequisite: Master's degree.

**720. Problems and Issues in Education.** Exploration of problems and issues associated with education. Emphasis on needs of teachers and implications of the current problems and issues. Prerequisite: Master's degree.

**725. Advanced Study in Social Studies Curriculum.** Major problems and issues associated with social studies curriculum and instructional practices. Prerequisites: Completion of graduate course in teaching social studies and experience in teaching social studies.

**728. Ed.S. Research Project I.** Development of research proposal. Proposal must be accepted and approved by appointed faculty committee. Prerequisites: EPR 692 or equivalent, EPR 596 or EPR 608, and 12 hours in Ed.S. program.

**729. Ed.S. Research Project II.** Prerequisites: EPR 692, EDC 728, EPR 596 or EPR 608, and 12 hours in Ed.S. program.

## Reading (EDR)

540. **Developmental Reading I.** Materials and methods. Emphasis on planning balanced program and understanding reading process. Includes field experiences. Prerequisite: Admission to 5th-Year Program.

541. **Literature for Adolescents.** Literary works written for or about adolescents.

543. **Developmental Reading II: Focus on Content Areas.** Reading process as it relates to content area materials. Includes field experience. Prerequisite: Admission to 5th-Year Program.

551. **Reading in Content Areas.** Reading process; evaluation of content area materials; analysis of different content area textbooks; meeting individual differences.

640. **Reading Improvement Workshop.** For inservice teachers of reading. Specific content varies according to needs of teachers. 3 or 6 hours.

650. **Teaching Reading.** Understanding of reading process. Nature of reading programs; readiness motivation, methods, skills, assessment, evaluation, materials, and resources.

652. **Pre- and Early-Reading Instruction.** Theoretical bases, procedures, techniques, and materials for prereading and reading instruction. Prerequisite: Developmental reading course.

653. **Literature for Elementary and Middle Schools.** Emphasis on needs of children, selection of books, societal issues in children's literature.

654. **Assessment, Evaluation, and Correction of Reading Difficulties.** Observation, standardized oral and written reading tests, and informal reading inventories. Selecting learning activities based on diagnostic data. Prerequisite: Special Education majors only.

655. **Reading Assessment and Evaluation.** Examines evaluation techniques, such as observations, and standardized oral and silent reading tests, and informal reading inventories, such as miscue analysis.

656. **Reading Strategies for Students with Reading Difficulties.** Development and application strategies for remediating reading problems based on assessment data. Prerequisite: Diagnostic reading course.

657. **Supervision of Reading.** Supervisor's role in improving reading instruction; methods of supervision and evaluation. Prerequisite: Permission of instructor.

659. **Research and Problems in Reading.** For teachers in elementary and early childhood education.

690. **Internship in Remedial Reading.** Supervised experience with children with reading difficulties. Prerequisites: Admission to reading certification program, permission of instructor and department, and EDR 654.

691. **Practicum in Reading.** Prerequisite: Permission of instructor.

692. **Internship in Supervision of Reading.** Prerequisites: Admission to Reading Supervisor Program, EDR 654 and 657, and permission of instructor. 6 hours.

698. **Independent Nonthesis Research in Reading.** Prerequisite: Permission of instructor.

701. **Advanced Diagnosis and Remediation of Reading Problems.** Examination of serious reading disabilities; diagnosis, possible remediation strategies, and development; diagnosis, possible remediation strategies, and development of remediation plan in lab setting. Prerequisites: Master's degree and M.A.-level diagnostic reading course or permission of instructor.

702. **Reading: Theoretical Foundations.** Relates concepts of learning, development, and linguistics to reading-learning process; emphasis on current theory; implications for program planning and classroom practice. Prerequisites: EDR 650 or permission of instructor, and master's degree.

703. **Advanced Research in Reading.** Prerequisites: EDR 650 and master's degree.

704. **Field Experiences in Reading.** Supervised field experiences under direction of qualified reading consultant or supervisor in school setting. Prerequisites: Admission to Sixth-Year Program for Reading Teacher and permission of instructor. 3 or 6 hours.

705. **Seminar in Reading Instruction.** Examination of trends and issues in field of reading. topics determined by each class. Prerequisites: Master's degree and 9 graduate hours in reading or permission of instructor.

706. **Research.** Prerequisites: Master's degree and permission of instructor. 1-3 hours.

## **Elementary and Early Childhood Education (EEC)**

500. **Pedagogy One.** Develops candidate's knowledge, skills/performance, and dispositions in the teaching of reading and language arts in the early childhood and elementary classroom. Refines abilities in instructional planning, instructional delivery, classroom management, and assessment of learners in order to address the literacy needs of diverse learners. 9 hours.

501. **Pedagogy Two.** Curriculum and field experience of P-6 curriculum in the areas of math, science, literacy, and social studies. Emphasis is placed on the scope, sequence, and content of each content area. Extensive field experiences required. 9 hours.

505. **Children's Literature in Elementary & Early Childhood Education.** Materials and methods. Needs of children, selection of books, societal issues in children's literature, and role of media in children's literature. Field experience required. Prerequisites: Admission to 5th-Year Program, EEC 600, EEC 610, EEC 660.

506. **Language Arts in Elementary & Early Childhood Education.** Materials and methods. Communication-based approach in developing effective language arts program. All aspects of language arts program addressed. Field experiences required. Prerequisites: Admission to 5th-Year Program, EEC 600, EEC 610, EEC 660.



**512. Mathematics in Elementary & Early Childhood Education.** Material and methods of teaching mathematics. Emphasizes scope, sequence, and content of the mathematics program. Computation skills and problem solving are stressed. Includes field experiences. Prerequisite: Admission to 5th-Year Program, EEC 505, EEC 506, EEC 515.

**513. Science in Elementary & Early Childhood Education.** Scope, sequence, materials, and methods. Emphasis on teaching and the development of content and process skills. Field experiences completed in conjunction with practicum. Prerequisite: Admission to 5th-Year Program.

**514. Social Studies in Elementary & Early Childhood Education.** Scope, sequence, and content of elementary school social studies curriculum. Teaching strategies, program articulation, and instructional planning. Field experiences completed in conjunction with practicum. Prerequisite: Admission to 5th-Year Program.

**515. Learning Environments.** Theoretical approaches that focus on child-centered curriculum, classroom management, discipline strategies, and cultural, linguistic, and developmentally appropriate instruction. Prerequisites: Admission to 5th-Year Program, EEC 600, EEC 610, EEC 660.

**540. Advanced Workshop in Education.** May be repeated for total of 9 hours with various topics. 1-3 hours.

**560. Current Issues in Education.** Topics announced in class schedule. May be repeated for maximum of 6 hours with different topics. 1-3 hours.

**565. Teaching Globe and Map Skills.** Concepts and skills related to understanding functional use of globes and maps. Teaching strategies and methodologies for teaching concepts and skills. Curriculum scope, sequence, continuity, and application within social studies program.

**573. Teaching in a Multicultural Society.** Implications of cultural pluralism for teaching, student learning, curriculum planning, and instructional techniques.

**592. Individual Curriculum Projects: (Area Specified).** Field projects in curriculum modification and improvement of classroom practice. Prerequisite: Permission of instructor. 3 or 6 hours.

**593. Individual Readings.** Individualized readings on special topics. Prerequisite: Permission of instructor. 1-3 hours.

**594. Field Work in Elementary and Early Childhood Education.** Observation and participation experiences with children. Prerequisite: Permission of instructor. 1, 2, 3, or 6 hours.

**610. Curriculum Development in Elementary and Early Childhood Education.** Curriculum decisions, planning and implementation.

**611. Teacher Roles in Elementary and Early Childhood Education.** Models of instructional roles such as facilitator, program planner, curriculum designer; models of social roles. Includes practicum experiences.

612. **Models of Teaching.** Selecting and applying specific teaching strategies. Includes practicum experiences.

620. **Teaching Mathematics N-6.** Issues and approaches in early childhood and elementary mathematics; research and implementation for instruction.

621. **Teaching Language Arts N-6.** Issues and approaches in teaching early childhood and elementary school language arts. Implications of research for instruction.

622. **Teaching Social Studies N-6.** Function and organization of social studies programs in early childhood and elementary schools. Selection and adaptation of content, resources, teaching materials, and teaching strategies and methods with emphasis on current trends.

623. **Teaching Science N-6.** Issues and approaches in early childhood and elementary science. Implications of research for instruction.

625. **Critical Theory in P-6 Education.** Course encompasses current issues in education from critical, postmodern, and feminist perspectives. Issues of equity, social justice, racism, sexism, and the marginalization of minorities in education will be explored. Prerequisites: Admission to Graduate School and EEC 660, Readings in Teaching and Learning. 3 hours.

628. **Master's Project.** Course is designed for the nontraditional 5th-year student in early childhood and elementary education. This one-hour seminar must be taken concurrently with the student's internship experience. 1 hour.

632. **Advanced Children's Literature.** Course is designed to explore literature for preschool, kindergarten, and primary- and intermediate-level children. Selection, use, and integration of literature throughout the total curriculum is stressed. Prerequisites: Admission to Graduate School or permission of the instructor. 3 hours.

650. **Systematic Reflections About Teaching.** Theory and practice of reflective inquiry in the elementary classroom which includes observations, data collection, analysis, and narrative reporting. Prerequisite: Admission into Graduate School. 3 hours.

660. **Reading in Teaching and Learning.** This introductory course is designed to assist the student in locating, analyzing, and synthesizing current research in early childhood and elementary education. 3 hours.

670. **Studying the Child in School.** Analysis of child study in school; values and limitations of assessment.

671. **Creative and Affective Experiences.** Nature and nurture of creativity through creative learning experiences. Maintaining and preserving creative expression throughout curriculum.

672. **Piaget and Perspectives in Learning.** Piaget's theory of intellectual or cognitive development; applications to elementary and early childhood education. Prerequisite: Course in human growth and development.

674. **Language Development.** Developmental processes involved in language, relationship to education programs.

675. **Teaching in the Urban School.** Methods and materials; evaluation of school and school-related programs for equalizing educational opportunity.
676. **Discipline and Social Education.** Child growth and development as the basis for sound discipline in elementary school.
677. **Readiness for Learning.** Preschool and primary level language development and literacy development; assessment techniques.
678. **Primary Math: A Constructivist Approach.** New ways of teaching primary math based on Piaget's theory about how children acquire logico-mathematical knowledge.
680. **National Board Portfolio.** Course involves 18 Saturday seminars during the school year to prepare teachers for National Board Candidacy and to support candidates as they go through the certification process. Students enrolled in this course may be either precandidates or candidates for National Board Certification. Prerequisites: Admission to Graduate School and permission of candidate's advisor and course instructor. 6 hours.
690. **Internship in P-3/3-6.** Supervised teaching in an early childhood (P-3) and an elementary (3-6) program. The student gradually assumes responsibility for planning and teaching for the entire class (minimum of 12 weeks). The internship experience includes supervision in working with professional resource professionals and parents. Prerequisites: Approval of application for Internship in P-3/3-6. 9 hours.
691. **Practicum in ECE/ELE.** Prerequisite: Permission of instructor. 3 hours.
692. **Individual Curriculum Projects: (Area Specified).** Field projects in curriculum modifications and improvement of classroom practice. Prerequisite: Permission of instructor. 3 or 6 hours.
693. **Independent Study.** Prerequisite: Permission of instructor. 1-3 hours.
694. **Field Study.** Prerequisite: Permission of instructor. 1, 2, 3, or 6 hours.
695. **Practicum Supervision in ECE/ELE.** Prerequisite: Permission of instructor or advisor. 2 hours.
696. **Internship Seminar.** Prerequisite: Concurrent enrollment in EEC 690. 2 hours.
698. **Independent Nonthesis Research.** Prerequisite: Permission of instructor.
699. **Thesis Research.** Prerequisites: Admission to candidacy and permission of instructor. 6 or 9 hours.
701. **Advanced Seminar in Language Development.** Relationship of thinking and knowing to language development; strategies for analysis. Prerequisites: EEC 674 or equivalent and master's degree.
702. **Administration and Supervision of Programs for Young Children.** Evaluation, decision making, supportive services, staff development, community interaction strategies. Prerequisite: Master's degree.

710. **Research.** Prerequisite: Permission of instructor. 1-3 hours.  
Foreign Language (EFL)

585. **Teaching Strategies for Foreign Language, N-12.** Approaches and methods of teaching and testing foreign language. Selection and use of audiovisual equipment and materials. Includes structured school observations. 6 hours.

598. **Student Teaching in Foreign Languages, N-12.** Supervised teaching in foreign languages (N-12). Prerequisite: Approval of application for student teaching. 9 hours.

691. **N-12 Foreign Language Internship.** Supervised foreign language teaching in elementary and secondary schools. Prerequisite: Approval of application for internship. 9 hours.

## High School (EHS)

556. **Classroom Management in the Secondary Schools.** Designed to help teachers build their own personal system of discipline, consonant with their philosophies and personalities as well as with realities of students and schools. Emphasis on successful classroom management techniques.

558. **Science, Technology, and Society: A Primer for Education Majors.** (Also EHS 458). Explores nature of momentous changes: origin, current status, and future direction. Emphasis on role of educational community in helping young people to better understand and deal with various issues raised.

565. **Secondary School Curriculum: Mathematics.** Preparation to teach secondary school mathematics: making informed decisions about curricula, learners, and methodology in mathematics. Acquainting students with current state and national reforms in mathematics education. Problem solving, computers and calculators, and manipulatives in teaching mathematics. Developmental levels and individual differences of learners. Includes field experiences. Prerequisite: Admission to 5th-Year Program.

566. **Secondary School Curriculum: Language Arts/English.** A study of and practicum in the teaching of Language Arts and English in the secondary school; includes field experiences. Prerequisite: Admission to 5th-Year Program.

567. **Secondary School Curriculum: Science.** Teaching methods and curricula in secondary science programs. Includes field experiences. Prerequisite: Admission to 5th-Year Program.

568. **Secondary School Curriculum: Social Studies.** Understanding curriculum design and implementation as it relates to Social Studies in grades 7-12. Required demonstration of abilities to make informed decisions concerning what strategies to use with what students and how best to evaluate the students' progress in achieving the defined goals of a lesson. Includes field experiences. Prerequisite: Admission to 5th-Year Program.

569. **Secondary School Curriculum: Foreign Language.** Approaches and methods of teaching and evaluating foreign language at all levels. Includes field experiences. Prerequisite: Admission to 5th-Year Program.

570. **Practicum in Secondary Education.** Prerequisite: Concurrent enrollment in EHS 565, 566, 567, or 568. 1 hour.

571. **Special Education, Accommodation and Modification Lab.** Problems and issues in special education and the regular classroom. Concurrent enrollment in EHS 565, 566, 567, or 568. 1 hour.

597. **Special Problems in Education.** Seminar for seniors and graduate students; individualized readings and research projects based on student's special interests. May be repeated for total of 6 hours. 1-3 hours.

599. **Field Studies in Selected Educational Settings.** Field visits to locations of high educational impact, preceded by organized group meetings to develop background and concepts on which visits will be based; summation meetings follow visits. Individual projects and papers prescribed as appropriate. Credit determined by complexity of area or topic under study and necessary length of time rather than by distance involved. Cost for travel and other related arrangements to be announced for each study group. 1-3 hours.

611. **Advanced Special Methods for Teaching Foreign Languages.** Instructional objectives, classroom learning activities, utilization of differential pedagogical activities, improved use of source materials, and material sources.

612. **Teaching English, Grades 7-14.** Curriculum and instruction in English programs. Issues, materials, and methods. Field experiences required. Prerequisite: Undergraduate methods.

614. **Teaching Social and Behavioral Sciences, Grades 7-14.** Advanced course in methods and materials of teaching social and behavioral sciences in high school. General philosophy and purpose of social science disciplines. Field experiences required. Prerequisite: Undergraduate methods.

615. **Methods of Teaching Science, Grades 7-14.** Science teaching methods, classroom interaction, current research, process skills, science/society issues, and cognitive development of students. Field experiences required. Prerequisite: Undergraduate methods.

616. **Teaching Mathematics in Secondary School.** Philosophical and psychological principles applied to teaching math. Field experiences required. Prerequisite: Undergraduate methods.

644. **Workshop in Teaching (Selected Topics).** Prerequisite: Permission of instructor.

645. **Inquiry in the Social Studies.** Inquiry and discovery techniques through use of simulation, games, role playing, and other group activities. Social studies projects, programs, and materials.

647. **Secondary School Programs.** Innovations, programs, and classroom practices; forces leading to recent trends.

650. **Teaching the Emerging Adolescent.** Curriculum, materials, and methods of instruction reflecting needs and characteristics of age group.

\*651. **Innovative Practices in Teaching in Secondary School (Area Studies).** Innovative practices in planning, instructing, and evaluating high school area studies. May be repeated if taken in different areas of study.

653. **Current Issues in Secondary Education.** Critical problems affecting teacher and curriculum in grades 6-14.

681. **Special Topics in Education.** Prerequisite: Permission of instructor. 1-6 hours.

691. **Secondary School Internship.** Observation and teaching in secondary school (15 weeks minimum). Includes attendance at a weekly seminar on campus. Prerequisites: Unconditional acceptance in 5th-Year Program and approval of application for internship. 9 hours.

692. **Field Studies in (Selected Educational Settings).** 1-3 hours.

693. **Advanced Field Experience.**

695. **Secondary School Internship for Speech Communication/Theater.** Observation and teaching in secondary school (10 weeks or 300 clock hours minimum). Students also attend minimum of five 3-hour seminars designed to meet specific needs. Prerequisites: Unconditional acceptance in 5th-Year Program, completion of graduate methods course 9 hours in certification area, at least 9 hours in professional in addition to methods course, and approval of application for internship. 6 hours.

697. **Individual Readings in Education.** May be repeated for total of 6 hours. Prerequisite: Permission of advisor and instructor. 1-3 hours.

698. **Individual Research in Education.** Prerequisite: Permission of instructor. 1-6 hours.

699. **Thesis Research.** Prerequisites: Admission to candidacy and permission of instructor. 6 or 9 hours.

710. **Creative Teaching in Middle School.** Advanced methods and materials for teaching grades 6-9.

720. **Individual Research in Education.** Prerequisites: Master's degree and permission of instructor.

## **Elementary (ELE)**

620. **Teaching Mathematics in the Elementary School.** Issues and approaches in elementary mathematics; research and implementation for instruction.

621. **Teaching Language Arts in the Elementary School.** Issues and approaches in teaching elementary school language arts. Implications of research for instruction.

622. **Teaching Social Studies in the Elementary School.** Function and organization of social studies programs in elementary schools. Selection and adaptation of content, resources, teaching materials, and strategies and methods. Emphasis on current trends.

623. **Teaching Science in the Elementary School.** Issues and approaches in elementary science. Implications of research for instruction.

624. **The Elementary School.** Organizational patterns in American elementary schools.

690. **Practicum in Elementary Education.** Prerequisite: Permission of instructor. 3 or 6 hours.

691. **Internship in Elementary Education.** Full-time internship as elementary education teacher for 10 weeks (300 clock hours). Responsibility as teacher for at least 10 days. 3 or 9 hours.

721. **Developing Effective Instruction in the Elementary School.** Leadership role of senior teachers; analysis and enhancement of instructional programs; development of teaching staff. Prerequisite: Master's degree.

## **Middle School (EMS)**

590. **Middle School Internship.** Observation and teaching in middle school (10 weeks or 300 hours minimum). Students will attend a minimum of five 3-hour seminars designed to meet specific needs. Prerequisites: Unconditional acceptance in the 5th-Year Program and completion of graduate methods course, 9 hours in academic work, and at least 9 hours in professional courses in addition to the methods course.

648. **The Middle School.** Curriculum and principles in middle school education. Development of middle school from early junior high school movement. Examination of middle school programs and activities.

649. **Studies in Middle School Education I, II, III.** Advanced workshops in various phases of middle school program. Phase I foundations (history, growth and development, philosophy); Phase II, curriculum; and Phase III, instruction. 1-3 hours.

698. **Individual Research in Education.** Prerequisite: Permission of instructor. 1-6 hours.

699. **Thesis Research.** Prerequisites: Admission to candidacy and permission of instructor. 6 or 9 hours.

710. **Creative Teaching in Middle School.** Advanced methods and materials for teaching grades 6-9.

720. **Individual Research in Education.** Prerequisites: Master's degree and permission of instructor.

## **Music Education (EMU)**

502. **Methods of Teaching Music N-6.** Teaching music in the elementary school environment. Investigation of critical elements in the teaching and learning process as related to music in grades N-6. Prerequisites: Permission of instructor. 3 hours.

503. **Methods of Teaching Music N-6 Laboratory.** This lab will provide public school observation experiences for music education students enrolled in EMU 502. Prerequisites: Permission of instructor. 1 hour.

## **English as a Second Language (EESL)**

610. **Second Language Acquisition.** An in-depth look at major theories of second language acquisition. Exploration of learning environments, programs, home language, culture, and other factors that influence second language acquisition. 3 hours.

620. **Special Topics in ESL.** Overview of institutional structures that support new language learners, curriculum and teaching modifications supported by second language acquisition theory, support networks, and legal issues. 3 hours.

630. **Methods and Materials of Teaching ESL.** Course examines traditional and current approaches to teaching English to speakers of other languages and curriculum materials, texts, and other resources. 3 hours.

640. **Teaching ESL through Reading and Writing.** Theory, research and practice in reading and writing for second language learners. Implications for teaching reading and writing skills that allow second language learners to participate in the full range of academic situations. 3 hours.

690. **Internship in ESL, N-12.** The internship requires a minimum of 300 contact hours elementary (150 hours) and secondary (150 hours) settings. Interns are engaged in the full scope of teaching activities including planning and delivering lessons, evaluating students, and conducting managerial tasks and other appropriate duties. Prerequisites: Approval of internship application. 3, 6, and 9 hours.

Last modified 10/04/04



## UAB Graduate School

### Education—Human Studies

Graduate program director (Education): *Macrina*

Graduate program director (Public Health): *Kohler*

Education, Counseling (Ed.S., M.A.)

Education, Health (Ed.S., M.A.Ed.)

Education, Health Education/Health Promotion (Ph.D.)

Education, Physical (Ed.S., M.A.Ed.)

Education, School Psychology (Ed.S.)

### Faculty

**Gypsy Abbott** , Professor; Educational Psychology, Psychological Testing, Evaluation

**Angie Coker** , Assistant Professor; Counseling

**William A. Crunk, Jr.** , Associate Professor; Rehabilitation Counseling, Family Guidance, Counseling Theories

**Suzie Davies** , Assistant Professor; Health Education

**Brian F. Geiger** , Associate Professor; Health Promotion Models, Comprehensive School Health, Technology, Community Education

**Donna J. Hester** , Associate Professor; Motor Development, Elementary Physical Education, Adapted Physical Education

**Gary R. Hunter** , Professor; Exercise Physiology, Sport Conditioning, Body Composition and Energy

## Metabolism

**Maxie P. Kohler** , Associate Professor; Personality Theory, Human Development, Educational Psychology

**David M. Macrina** , Professor; Health Promotion, Community Health, Planning and Administration

**Cynthia J. Petri** , Associate Professor; Health Behavior, HIV Education and Prevention, Technology, Theory

**Jane Roy** . Assistant Professor, Exercise Physiology

**Gary L. Sapp** , Professor; Cognitive Assessment, School Psychometry, School Psychology

**Kristi Sayers Menear** , Assistant Professor, Physical Education Pedagogy, Adapted Physical Education

**Patricia M. Sheets** , Assistant Professor; Rehabilitation Counseling, Legal and Ethical Issues in Counseling, Clinical Coordinator

**Sandra K. Sims**, Assistant Professor; Physical Education Pedagogy, Athletic Coaching

**Scott W. Snyder** , Associate Professor; Child Development, Measurement, Early Childhood Special Education, Program Evaluation

**Lawrence Tyson** , Assistant Professor; School Counseling, Human Development Group

**David Whittinghill** , Assistant Professor; Career Counseling, Substance Abuse Counseling, Counseling Technology, Pharmacology

**Lesa Woodby** , Assistant Professor; Evaluation Research, Smoking Cessation, Health Education

## **M.A.Ed. Program**

### **Admission Requirement and Prerequisites**

In addition to the general admission requirements of the Graduate School, the following prerequisites apply to these programs. The prerequisites are not part of the graduate program. Applicants without the prerequisites may be admitted conditionally and take up to 12 semester hours of graduate work while completing the prerequisites. Specific course prerequisites are determined on an individual program basis by the student's advisors.

### **Exercise Physiology**

The Exercise Physiology specialization offers a master's degree option for students interested in either clinical exercise physiology or physiology research. The curriculum is multidisciplinary and comprises courses in the Schools of Education, Medicine, Health Related Professions, and Public Health. Two program plans are offered (detailed below). Plan I culminates with a thesis research project, and Plan II culminates with a written comprehensive exam. Resources for student participation in research include a Muscle Research Laboratory, a Strength Performance Laboratory, and a Body Composition/Energy Metabolism Laboratory. Wide arrays of field experiences are also available in local agencies and clinics. In addition to Graduate School admission requirements, prospective students must have completed undergraduate coursework in physiology, anatomy, and chemistry. First-year students begin in the fall term. Listed below are the courses required in the program and a sample of elective courses.

### **Plan I (27 hours and thesis)**

Major Courses (12-15 hours)

Course	Course Name	Semester Hours
PE 637	Exercise Physiology I	3
PE 638	Exercise Physiology II	3
EPR 692	Research Methods	3
PE 642	Practicum in Exercise Physiology	3
EPR 609	Statistical Methods and Research in Education	3
	Thesis	6
	Related Field	6-9

### **Plan II (36 hours of coursework)**

Major Courses (12-15 hours)

Course	Course Name	Semester Hours
PE 637	Exercise Physiology I	3
PE 638	Exercise Physiology II	3
EPR 692	Research Methods	3
EPR 609	Statistical Methods and Research in Education	3
	Elective in Major	3
	Thesis Substitution	12
	Related Field	6-9

Sample Major Electives for Plan I and II

PE 656 Advanced Sport Psychology  
PE 640 Advanced Techniques in

Conditioning the Athlete  
PE 639 Exercise Prescription for High  
Risk Populations  
PE 672 Advanced Treatment of Athletic  
Injuries  
PE 674 Sport Performance and Nutrition  
PE 645 Motor Development  
PE 695 Problems in Physical Education  
PE 630 Mechanical Analysis of Motor  
Skills  
PE 585 Principles of Fitness Leadership

Sample Courses for Related Fields, Plan I and II

NTR Medical Nutrition  
601  
NTR Nutritional Biochemistry I  
618  
NTR Nutritional Biochemistry II  
619  
NTR Body composition & energy  
650 Metabolism  
PHA Epidemiology of Chronic Disease  
602  
GER Biology of Aging  
540  
HE 502 Mental Health & Stress  
Management  
HE 532 Administration of Health &  
Fitness Programs

### **Course Descriptions**

See physical education course descriptions.

### **Health Education/Health Promotion (M.A.Ed.)**

The health education graduate program (master's) is designed to prepare individuals for advanced health education careers in agency, schools, worksites, and allied health care settings. Program options

allow students to choose between a thesis or nonthesis option and an opportunity to pursue elective course work in a related field area or allied health area.

### **Programs of Study**

Health Education Thesis & Health Education Nonthesis

#### **Plan I**

Thesis required (24 hours course work required.)

Major Courses (15 hours)

1. EPR 692. Introduction to Educational Research Design
2. HE 610. Foundations of Health Education
3. HE 640. Content Issues I or HE 641, Content Issues II
- 4-5. Choose 6 hours from the following:

HE 531 Planning and Evaluating  
Effective Health

Education and Promotion  
Programs

HE 532 Administration of Health and  
Fitness Programs

HE 642 Health Behavior and Health  
Education

HE 689 Methods and Materials for  
Planning Health

Education Programs

HE 697 Evaluation of Health Education  
Programs

Research Course (3 hours)

EPR 609 Statistical Methods and Research in Education:  
Intermediate. Prerequisite: EPR 608.

## **Plan II**

Nonthesis (33 hours course work required.)

Major Courses (15 hours)

1. EPR 692. Introduction to Educational Research Design
2. HE 610. Foundations of Health Education
3. HE 640. Content Issues I or HE 641, Content Issues II
- 4-5. Choose 6 hours from the following

HE 531 Planning and Evaluating  
Effective Health

Education and Promotion  
Programs

HE 532 Administration of Health and  
Fitness Programs

HE 642 Health Behavior and Health  
Education

HE 689 Methods and Materials for  
Planning Health

Education Programs

HE 697 Evaluation of Health Education  
Programs

HE elective (502, 508, 521, 523, 557, 592, 593, 598, 602, 606, 612).  
(3 hours)

Research Course. (3 hours)

EPR 609. Statistical Methods and Research in Education:  
Intermediate. Prerequisite: EPR 608.

## **Physical Education**

Degrees offered include the Master of Arts in Education and the Educational Specialist. At the master's degree level, students may specialize in Exercise Physiology (see listing above for more information about this program) or complete a teacher certification program. The teacher certification program links teacher certification with the graduate program in physical education. For example, the M.A. Ed. awards the level A certificate and the Ed.S. is linked to the AA certificate. Each program requires a teaching certificate in physical education at the previous level (e.g., B certificate for admission to the A level, except the Alternative A program, and the A certificate for admission to the AA certificate).

**Master of Arts in Education and "A" level teaching certificate; Nonthesis (31-37 34 hours)**

Teaching Field: At least 1/3 of the program shall be teaching field courses. (18 hours)

PE 645 Motor Development	3
PE 647 Teaching Strategies and Issues in K-12 Physical Education	3
PE 643 Curriculum Development in Physical Education	3
PE 649 Adapted Physical Education	3
600-level electives as approved by advisor	6
advisor	

Survey of Special Education Coursework: Required if not previously completed (0-3 hours)

ECY 600 Introduction to Special Education	0-3
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Additional Courses: (13 -16 hours)

EPR 608 Statistical Methods and Research in Education	3
EPR 607 Microcomputer	3 1



	Applications to Statistics	
Foundations(see approved list)		3
and		
Professional		
Studies		
EDT 610	Technology	3
	Competency	
Elective	(as approved by	3
	advisor)	

**Master of Arts in Education and "A" level teaching certificate;  
Thesis (31-34 hours)**

Teaching Field: At least 1/3 of the program shall be teaching field courses. (18 hours)

PE 645	Motor Development	3
PE 647	Teaching Strategies and	3
	Issues in K-12 Physical	
	Education	
PE 643	Curriculum Development in	3
	Physical Education	
PE 649	Adapted Physical Education	3
PE 699	Thesis	6

Survey of Special Education Coursework: Required if not previously completed (0-3 hours)

ECY	Introduction to Special	0-3
600	Education	

Additional Courses: (13 hours)

EPR 608	Statistical Methods and	3
609	Research in Education:	
	Intermediate	
EPR 607	Microcomputer	1
	Applications to Statistics	
Foundations(see approved list)		3
and		
Professional		

Studies		
EDT 610	Technology Competency	3
EPR 692	Introduction to Educational Research	3

**Alternative A (Nontraditional 5th-Year Physical Education program) Nonthesis (37-40 hours)**

Additional requirements are 49 hours of prescribed coursework. Contact Student Services in Suite 100 Education Building, UAB for specific courses required.

Curriculum and Teaching:

PE 643	Curriculum Development in Physical Education	3
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Professional Studies:

EDF 604	Social Philosophies and Education	3
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Survey of Special Education Coursework: Required if not previously completed. (0-3 hours)

ECY 600	Introduction to Exceptional Learners	0-3
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Technology:

EDT 610	Technology Competency	3
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Evaluation of Teaching and Learning:

EPR 608	Statistical Methods and Research	3
EPR 607	Microcomputer Applications in	1

## Statistical Analysis

Reading :

EDR 551	Reading in the Content Area	0-3
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Internship:

PE 696	Elementary/Secondary Physical	9
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Education Internship

Teaching Field:

At least 1/3 of the program shall be teaching field courses (12)

PE 645	Motor Development	3
PE 647	Teaching Strategies and Issues	3
PE 649	Adapted Physical Education	3
PE 607	Coaching Young Athletes	3

### **Ed.S. Degree (31-37 hours)**

Teaching Field:

At least 1/3 of the program shall be teaching field courses (21 hours)

PE 726	Supervised Research in Physical Education	3
PE 694	Seminar in Physical Education	3
	600- and 700-level Physical Education courses	15

(PE 643, 645, 647 must be taken if comparable courses were not part of the master's program)

Survey of Special Education Coursework: Required if not previously completed. (0-3 hours)

ECY 600	Introduction to Special Education	0-3
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Additional Courses:

EPR 692	Introduction to Educational Research	3
EPR 609	Statistical Methods and Research: Intermediate	3
EPR 607	Microcomputer Application Technology Competency	1 0-3
Electives with Permission of advisor	600- or 700-level Professional Studies or Teaching Field courses	3

### Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Health Education (HE)

**502. Mental Health and Stress Management.** Fundamental concepts of mental health and mental illness, with emphasis on etiology, symptomology, treatment, and prevention of mental illness. Elementary skills, dynamics of stress, and contemporary methods of stress management.

**508. Drug Use and Abuse.** Emphasis on emotional, intellectual, psychological, and social aspects of drug use. Misconceptions about drugs. Attitudes toward drugs and drug prevention and treatment programs.

521. **Health Communication.** Skills appropriate for selected health problems; problem solving and referrals.

523. **Human Sexuality.** Biological, sociological, and cultural aspects of sexuality.

531. **Planning and Evaluation.** Program planning and curriculum development for school, agency, and health care settings. Need assessment, objective setting, methodology, and evaluation are emphasized.

532. **Administration of Health and Fitness Programs.** Administrative theory applied to health and fitness settings.

593. **Educational Gerontology.** Program preparation for generic consumers. Major health concerns facing many senior citizens and ways to communicate educational interventions. Prerequisite: Permission of instructor.

598. **Issues in Women's Health.** Historical and psychosocial factors that have and may continue to influence the potential health status of the American female. Major causes of morbidity and mortality as well as tips for health care system utilization.

601. **Current Readings in Health Education.** Review of literature in health education. Development of annotated bibliography pertinent to professional practice. Prerequisite: Permission of advisor.

602. **Alcohol and Society Seminar.** Effects of alcohol on individual health, family relations, and community life. Prerequisite: Permission of instructor.

606. **Issues in Disease Control.** Nature and distribution of disease; communicable and nutritional diseases of childhood; possibilities for prevention. Prerequisite: HE 223 or permission of instructor.

610. **Foundations of Health Education.** Issues in health education; school, community, or patient health education. Prerequisite: Permission of instructor.

611. **School Health Programs.** National, state, and local factors influencing school health programs; influences of official and nonofficial agencies. Historical perspective, present and future directions of profession and school health. Prerequisites: HE 342, 343, 431, and 489.

612. **Workshop in Health.** Concepts and methods to increase proficiency. Comprehensive health education K-6 or 7-12; health education in school, community, or both. 3 to 6 hours.

640. **Content Issues I .** Drugs, death, human sexuality, nutrition, international health, legislation, and physical and spiritual dimensions of health. Decision making and problem solving. Implication of research, computer applications.

641. **Content Issues II.** Selected health issues. Personal characteristics of population (age, sex, emotional well-being) and external factors (societal and environmental); interventions and other approaches and solutions. Prerequisite: Admission to graduate program in HE and permission of instructor.

642. **Health Behavior and Health Education.** Prerequisite: HE 610.

689. **Materials and Methods of Health Education.** Ethical, theoretical, and practical aspects of health education; teaching techniques, decision-making skills, curricular development, organization skills, and techniques. Prerequisites: HE 342, 431, 434, and 489.

691. **Special Topics in Health Education.** Topics in school and community health education; development of new ways to examine situations. Prerequisite: Completion of HE core courses. 3 or 6 hours.

692. **Supervised Research in Health Education.** Research problem based on school, community, or public health education needs. Prerequisite: Permission of advisor and EPR 508 or 509. 3 or 6 hours.

693. **Advanced Field Experience.** Professional practice and research supervised by qualified health education professionals in approved health education work setting. 3 or 6 hours.

695. **Junior/Secondary Health Education.** Student teaching. Prerequisite: HE 610, 689, and other courses identified by advisor. 9 hours.

698. **Nonthesis Research.** 1-6 hours.

699. **Thesis Research.** Supervised research project. Prerequisite: Admission to candidacy and permission of advisor. 1, 2, 3, or 6 hours.

## **Health Education/Health Promotion (Ph.D.)**

The Ph.D. program in Health Education/Health Promotion has been designed to provide students with the academic and practical experiential background to become leading practitioners and researchers in health education and health promotion. The program combines the resources of academic units from the University of Alabama at Birmingham ( School of Education and School of Public Health) and the University of Alabama at Tuscaloosa ( College of Education).

### **Admission**

Student applications are reviewed by a joint admissions committee composed of members of the participating academic units. Applicants should meet the admissions requirements of the graduate school, including submittal of scores on the GRE. Admission to the program is competitive, with evidence of scholarship, career goals and research interest, professional recommendations, and professional experience among those factors receiving strong consideration. Candidates for admission must have completed a bachelor's or master's degree from an accredited institution in health education or a health-related field.

### **Program of Study**

Students may enter the program with either a bachelor's or master's degree in health education or a master's degree in a closely related health field. Prerequisite coursework includes Foundations of Health Education, Administration of Health Education, Health Education Planning and Evaluation, Health Education Methods, Materials and Delivery, and Research Design and Statistics

These requirements may be corequisite components in the program.

The Ph.D. degree program will require students to complete a minimum of 72 credit hours: 36 hours of coursework, 12 hours of research internship, and 24 hours of dissertation research.

Students entering the program with a master's degree may transfer appropriate coursework to this program, but this will not reduce the number of courses required. Students will not be required to retake coursework already completed but may be required to complete prerequisites as part of their planned course of study. A required review of student credentials prior to admission will identify strengths and needs. This review will provide students with a blueprint for their course of study and will be conducted by their advisor.

The specific components of the Ph.D. program in health Education and Health Promotion are outlined below.

#### I. Health Education/Promotion Core Courses

(UA = HHE, UAB-Public Health = HB, UAB-Education = HE)

A. Advanced Theoretical and Scientific Basis of Health Education and Health Promotion (HHE 605, HB 750, HE 705)	3 hr
B. Planning and Administration of Health Education and Health Promotion (HHE 606, HB 760, HE 710)	3 hr
C. Health Communications Research (HHE 607, HB 730, HE 710)	3 hr
D. Doctoral Studies Seminar (HHE 604, HB 770, HE 695)	3 hr
Subtotal	12 hr

#### II. Advanced Research and Statistical Methods

A. Multivariate/Multiple Regression 3 hr



Analysis	
B. Advanced Epidemiological Research Methods	3 hr
C. Data Management/Computer Technology	3 hr
D. Evaluation/Research Methods	3 hr
Subtotal	12 hr
III. Coursework in the Social and Behavioral Sciences Minor	12 hr
IV. Research Internship	24 hr
V. Dissertation	24 hr
Total	72 hr

### **Course Descriptions**

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

#### **Health Behavior (HB)**

**730. Health Communication Research.** In-depth exposure to current research involving media strategies used to persuade individuals to adopt new lifestyles. Critically examines major research conducted during last decade regarding single subjects, groups, communities, and media intervention. Focus on all media, including print, audiovisual, radio, and television.

**740. Evaluation Research: Health Promotion/Disease Prevention Research.** Theory and applications of original behavioral repopulation, selection of measurement, data collection, design and analytical techniques, and preparation of evaluation research report. NIH-type research proposal required. Prerequisite: Doctoral student or advanced master's student with permission of instructor.

#### **Health Education (Ph.D.)**

**700. Seminar in Health Education.** Presentation of health education research.

701. **Special Topic in Health Education.** Topics in school and/or community health education; development of new ways to examine situations. Prerequisite: Permission of advisor. 3 or 6 hours.

702. **Supervised Research in Health.** Research problem based on school, community, or public health education needs. Prerequisite: Permission of advisor. 3 or 6 hours.

703. **Advanced Field Experience.** Professional practice and research supervised by qualified health education professionals in approved health education work setting. 3 or 6 hours.

705. **Advanced Theoretical and Scientific Basis of Health.** Analysis of knowledge, attitude and behavior change strategies, and resulting effect on health status.

710. **Planning and Administration of Health Education/Health Promotion Programs.** Case study of school and community health education interventions. Decision making and development of program planning skills in designing interventions in a variety of health education settings.

720. **Evaluation of Health Education Programs.** Evaluation protocols in health education settings; needs assessments, process and formative evaluations, cost benefits, summary reports.

729. **Ed.S. Thesis Research.** Prerequisite: Admission to candidacy.

730. **Evaluation Research Methods.** Theory and application of behavioral evaluation research including preparation of research NIH type proposals.

731. **Health Education Planning and Promotion.**

732. **Evaluation of Health Education Programs.**

740. **Evaluation of Health Education Programs.**

\* 798. **Nondissertation Research.**

\* 799. **Dissertation Research.** Prerequisite: Admission to candidacy.

## **Physical Education (PE)**

601. **Introduction to Sport Administration.** Planning, organizing, staffing, managing, directing, and evaluating sport and athletic programs.

607. **Principles of Coaching.** Philosophy, physiology, pedagogy, athletic training, and law related to coaching.

615. **Sport Facility Planning.** Factors influencing the planning, funding, and construction of a variety of sports facilities.

630. **Mechanical Analysis of Motor Skills.** Application of principles of physics to human movement. Analysis through videotape and cinematography techniques. Prerequisite: PE 307.

631. **Foundations of Physical Education.** Overview of various subfields of physical education.

632. **Supervision of Physical Education.** Study of skills required to supervise teachers of physical education and in other related fields.

636. **Current Readings in Physical Education.** Individual readings on contemporary topics and issues in physical education. Prerequisite: Permission of advisor.

637. **Physiology of Exercise I . Description of basic organ systems and their functioning in relationship to the physiology of exercise.**

638. **Physiology of Exercise II.** Applied exercise physiology information, techniques, and research methods.

639. **Exercise Prescription for High Risk Populations.** Lecture and laboratory practice; physiological basis of exercise testing and training. (Prepares students to take ACSM Exercise Specialist certification examination.) Prerequisites: PE 400 and BY 115.

640. **Advanced Techniques in Conditioning the Athlete.** Advanced training principles; developing testing and training programs for athletes. Prerequisites: PE 400, BY 115 and 116.

**642. Practicum in Physiology.** Practical experience and observations in human physiology. Seminars by medical, dental, and nursing faculty. Effects of drugs, diet, exercise, and disease on human body. Prerequisite: PE 641. 3 or 6 hours.

**643. Curriculum Development in Physical Education.** Trends in methodology, programming, and scheduling.

**645. Advanced Motor Development.** Factors influencing development of motor skills across lifespan.

**647. Teaching Strategies and Issues in K-12 Physical Education.** Design, implementation, and evaluation of appropriate physical education programs for elementary and secondary schools.

**649. Adapted Physical Education.** Current research and teaching methodology in adapted physical education; nature of selected disabilities, implications for physical education.

**650. Social Aspects of Sport.**

**651. Issues and Problems in Coaching.**

**652. Measurement and Evaluation of Athletes.**

**655. Motor Learning.** Factors influencing learning and performance of motor skills.

**656. Advanced Sport Psychology.** Relationship of psychology to sports performance.

**672. Advanced Treatment of Athletic Injuries.** Seminar and practical experience. Conducted by certified trainers at UAB Sports Medicine Clinic.

**674. Sport Performance and Nutrition.** Nutrition, rest, and training research relating to coach-player-doctor-trainer relationship, legal implications relating to competitive athletics.

**690. Seminar in Sports Administration.**

**694. Special Projects in Physical Education.** Independent projects supervised by faculty. Prerequisite: Permission of advisor. 1, 2, 3, or 6 hours.

**695. Problems in Physical Education.** Contemporary topics in physical education (class meeting format). Prerequisite: Permission of advisor. 3 or 6 hours.

**696. Elementary/Secondary Physical Education Internship.** Clinical placement in approved school. Required in nontraditional 5th-Year Program. Prerequisite: Completion of appropriate coursework. 9 hours.

**697. Advanced Field Experience in Physical Education.** Clinical placement in approved sites. Prerequisite: PE 647 or 489. 3 or 6 hours.

**698. Coaching Internship (Individual Sport).** 100 clock hours of experience with veteran coaches. Prerequisite: PE 407 or 607.

\* **699. Thesis Research.** Supervised research project. Prerequisite: Admission to candidacy and permission of advisor. 1, 2, 3, or 6 hours.

**710. Special Topics in Physical Education.** Special courses offerings on contemporary topics. Prerequisite: Permission of instructor.

**715. Advanced Field Experience in Physical Education.** Supervised field experiences in public school clinical sites. Prerequisite: PE 488 or 647. 3 or 6 hours.

**718. Practicum in Exercise Physiology.** Practical experience and observations in human exercise physiology. Prerequisite: PE 641 and permission of advisor.

**720. Research Design and Methodology.** Measurements and research design in areas of biomechanics, motor learning, motor development, sport psychology, and exercise physiology. Prerequisite: EPR 692 or equivalent.

726. **Supervised Research in Physical Education.** Independent student research supervised by a full-time program faculty member. Prerequisite: Permission of advisor, and EPR 609 and 692. 3 or 6 hours.

728. **Ed.S. Thesis Research.** Prerequisite: Admission to candidacy, research methods and sufficient course work in area of emphasis to be able to formulate a problem, develop a research design, and write a thesis proposal. Permission of advisor and instructor. Pass/Fail. 3 or 6 hours.

729. **Seminar in Physical Education.**

## Counseling Specializations

### Counselor Education

Admission to graduate study in counseling will occur three times per year, and the completed packet of materials must have been received in the Department of Human Studies from the Graduate School by the dates shown:

<i>Term</i>	<i>Deadline</i>
Fall	July 1st
Spring	October 1st
Summer	April 1st

In addition to the transcripts and test scores required by the Graduate School, the file must include a statement of the applicant's goals or purposes to be accomplished by completing the program; an interview may also be required as a part of the admissions process. Admission is competitive and limited. Selection will be made by the counseling faculty after reviewing the applicant's credentials in their entirety, and some candidates meeting minimum requirements may not be admitted.

### Evaluation of Candidates

Master's Level: Evaluation of student counselor is an on-going process. The faculty reserves the right to determine candidate's

appropriateness as a professional. A comprehensive examination will be given upon completion of Area I and Area II. Students who do not successfully pass this examination will be given the opportunity to take the exam. Students unsuccessful in passing the comprehensive exam will be dismissed from the program. In addition, students must have demonstrated specific competencies in Area II (specifically ECG 638 and ECG 626) as evidenced by faculty approval in order to proceed in the program. This demonstrated competency is in addition to the grade received in the course.

Ed.S. Level: Students in the Ed.S. program will compile a professional portfolio and will make formal presentation of the portfolio to the faculty.

### **Clinicals**

Prerequisites for the clinical experience include successful completion of required coursework, successful completion of comprehensive exams, and demonstration of required competencies in Areas I and II. The practicum experience requires a minimum of 100 hours on-site in an agency, school, or rehabilitation setting. The internship is 600 hours on-site. Grading for the clinical is on a Pass/Fail basis. To receive a Pass grade the student must attain a B or better. **If a student fails to pass any portion of the clinical experience, he or she will not be allowed to continue in the program.** Taking the clinical experience over will **not** be an option.

### **School Counseling**

This specialization is designed to prepare individuals as counselors in grades K-12. The program leading to the Master of Arts in Counseling degree requires a minimum of 49 semester hours of prescribed coursework to meet the academic and field experience requirements for the SDE Class A Professional Certificate in school counseling.

The Educational Specialist (Ed.S.) degree in this field requires a minimum of 33 semester hours of prescribed coursework beyond the Master of Arts in Education degree and a terminal research project. This specialization meets the academic and field experience requirements for the SDE Class AA Professional Certificate in school counseling.

## **Community Counseling**

The two specializations outlined below are intended to prepare graduates to work in agency and mental health settings and lead to recommendation by the department for licensure as a Licensed Professional Counselor (LPC). Applicants to these counseling specializations should carefully identify the counseling role they intend to fulfill and choose the appropriate training.

## **Agency Counseling**

Designed to meet the needs of individuals interested in working as counselors in various community agencies, including private practice as LPC. The agency counseling specialization for the Master of Arts in Counseling degree requires 49 semester hours of planned course work. If Plan I is followed, up to 6 semester hours of thesis research credit are allowed. The program leading to the Ed.S. degree with the agency counseling major requires a minimum of 33 semester hours of planned coursework beyond the master's degree and a terminal research project.

## **Rehabilitation Counseling**

Designed to prepare individuals to work as a rehabilitation counselor in private practice or public agencies with physically, mentally, and socially impaired persons. The Master of Arts in Counseling degree with this specialization requires a minimum of 49 semester hours of planned coursework and field experiences. The content of the specialization meets the academic requirements for LPC and Certified Rehabilitation Counselor (CRC). Students who wish to go beyond the rehabilitation counseling master's degree may continue toward the Ed.S. degree in agency counseling.

## **School Psychometry**

The M.A. Ed. specialization is designed to train individuals to work as psychometrists in public schools. The program requires a minimum of 45 semester hours of planned coursework and field experiences, to include a one-term, full-time internship. This program also meets the requirements for the SDE class A Professional Certificate in school psychometry.



## **School Psychology**

This Ed.S. specialization prepares graduates to function as school psychologists in public and private schools. The program requires a minimum of 33 semester hours of planned study beyond the M.A. degree, a terminal research project, and a one-term, full-time internship. This program meets the SDE requirements for the Class AA Professional Certificate in school psychology.

### **Course Descriptions**

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

#### **Counseling and Guidance (ECG)**

**522. Strategies for Attitude Development.** Dynamics of both negative and positive attitudes. Methods for improving communications, developing empathy. Techniques for determining personal strengths, setting goals, managing time, developing strong positive attitudes and self-images.

**523. Strategies for Effective Interviewing.**

**524. Conflict Management.**

**540. Introduction to Rehabilitation.** Introduction and overview of rehabilitation process.

**570, 670. Crisis Intervention Techniques.** Overview of crisis counseling. Theory and practical application of crisis intervention.

**574, 674. Seminar on Death, Dying, and Bereavement.** Provides general knowledge of death, dying, and bereavement issues faced in today's society.

**578. Counseling the African American Client.** Dynamics of working with African American clients in counseling settings. Prerequisite: Admission to the Counseling Education Program.

**612. Professional, Ethical, and Legal Issues in Counseling.** Emphasis on understanding of professional roles and responsibilities; ethical and legal issues; historical perspectives; preparation standards; credentialing; trends and issues in the counseling profession.

**619. Special Issues for School Counselors.** Exposure to a variety of critical incidents that cover a variety of experiences will be presented in a seminar environment and will require the student counselor's expertise and proper response. Authorities from the various school systems, law enforcement agencies, counseling/mental health agencies, and child protective agencies will provide knowledge and insight from their perspectives.

**620. Foundations and Administration of Counseling Services in the Schools.** Social, psychological, economic, and philosophic trends leading to development of guidance programs in American schools. Organization and administration of guidance services.

**621. Prepracticum: Theories and Techniques in Individual Counseling.** Educational, vocational, and personal counseling. Observations and simulations.

**623. Comprehensive Counseling and Guidance in Middle and High School.** Offers an understanding of the nature of middle and high school children as related to their guidance and counseling needs. Identification of the developmental needs, problems, and issues of adolescents (ages 13-18). Identification, development, and practice of counselor interventions in individual counseling, small group counseling, large group guidance, peer facilitator training, consultation, and program coordination.

**624. Assessment in Counseling.** Using standardized tests in schools and related agencies. Prerequisites: 3 hours of statistics.

**626. Theories and Processes of Group Counseling.** Guidance and counseling in small groups. Prerequisites: ECG 621 and 638 or permission of instructor.

**627. Counseling in Elementary School.** Guidance services and activities appropriate for preschool and elementary grades; facilitating

intellectual, psychological, and social development during early school years.

**628. Societal Issues in Counseling.** Survey of issues and principles for relating professionally to individuals from diverse backgrounds and lifestyles. Includes sensitivity to differences in values, beliefs, attitudes, and culture.

**630. Career Development: Theory and Research.** Career choice; theories of career development, vocational testing, and research.

**631. Interpersonal Dynamics in Small Groups.** Experiential group designed to increase understanding of interpersonal dynamics in small groups. Prerequisite: Permission of instructor.

**632. Technology for Counselors: Case Management and Report Writing.** Emphasis on using specialized software to enhance clinical report writing: intake interviews, diagnostic workups, psychological evaluation, assessments, psychosocial narratives and histories, treatment plans, progress notes, and genograms. Practice management programs are highlighted.

**635. Medical Information for Counselors.** Medical information, terminology, body systems, and vocational implications of disability; application to problems of disabled clients.

**636. Psychological and Sociological Aspects of Rehabilitation Counseling.** Psychological aspects of disabilities and sociological reactions to disabled persons. Rehabilitation counseling. Psychological aspects of disabilities and sociological reactions to disabled persons. Rehabilitation process and psychological adjustment within world of work.

**637. Adlerian Family Counseling.** Helping parents understand children. Parent-child relationship promoting responsibility, self-reliance, cooperation, mutual respect, and self-esteem.

**638. Practicum I: Introduction to the Counseling Process.** Skills and techniques for establishing effective interpersonal relationships. Prerequisite: ECG 621.

**648. Case Management Process in Rehabilitation.** Principles and processes of case management as outlined by State Department of Vocational Rehabilitation in case service manual.

**650. Counseling the Client Who is Psychologically Impaired.** Limitations placed by certain psychiatric disorders on counseling and adjustment therapy; case management, vocational placement and stability, and family and other interpersonal relationships. Prerequisite: Course in personality theory, individual and group counseling, abnormal psychology, or advanced human development.

**660. Dynamics of Child Sexual Abuse.** Critical concerns and issues, effective techniques and practices.

**673. Counseling Needs of Women.** Women's development and needs; problems women bring to counselors and strategies for helping them; myths about women; and biases in psychological research.

**691. Seminar: Special Topics in the Helping Professions.** Emerging trends, techniques, and issues. Prerequisite: Permission of instructor. 1-3 hours.

\* **692. Independent Readings in Counselor Education.** Prerequisite: Permission of advisor and instructor. May be repeated for total of 6 hours. 1-3 hours.

**695. Practicum II: Supervised Field Experience.** A 100-hour-minimum field placement in an agency school or rehabilitation setting. Focus is on developing counseling competencies. Prerequisite: Completion of Areas I and II, and comprehensive exams; permission of clinical coordinator.

**697. Counseling Internship.** Field experience in setting appropriate to student's program; participation in activities of school or agency counseling services, within constraints of ethical practice. 3 hours for 2 terms (600 clock hours).

**698. Individual Nonthesis Research in Counseling and Guidance.** Prerequisite: Permission of instructor.

**726. Ed.S. Group Supervision.**

**795. Ed.S. Practicum Supervision.** Experiential course in which Ed.S. students are assigned to assist in master's level practicum groups in the Counseling Education program. Applied knowledge of counseling supervision theories. Prerequisite: ECG 704.

**797. Ed.S. Internship Supervision.** An experiential course in which Ed.S. students are assigned to provide supervision under faculty direction to a section of the master's level internship. Applied knowledge of supervision theories and practices are highlighted. Prerequisites: ECG 704 and 795.

### **Education Psychology (EPR)**

**510. Introduction to Measurement and Evaluation in Education.** Basic concepts and principles of measurement and evaluation of personal and academic progress in classroom. Emphasis on elementary descriptive statistics and measurement techniques used in student evaluation.

**596. Introduction to Qualitative Methods in Educational Research.** Qualitative research methods and techniques; their application to qualitative research design. Introduction to types of qualitative information, methods of data collection and analysis, and presentation of results; appropriateness of qualitative design. Prerequisite: EPR 692 or equivalent.

**600. Introduction to School Psychology.** Overview of professional practices and crucial issues in school psychology.

**607. Microcomputer Applications to Statistical Analysis.** Use of microcomputers in computations of descriptive statistics. Prerequisite or corequisite: EPR 608. 1 hour.

**608. Statistical Methods and Action Research.** Statistical methods for describing sets of data, differences and relationships infused in an action research paradigm. Included are conceptualizing, implementing action research with computer applications. Corequisite: EPR 607.

- 609. Statistical Methods and Research in Education: Intermediate.** Basic inferential techniques including hypothesis testing, parametric and nonparametric techniques. Assumptions, rationale, and interpretation of analysis of variance techniques. Prerequisites EPR 607 and EPR 608 or basic statistics course.
- 610. Child Psychology.** Human development through infancy, preschool, and preadolescence.
- 611. Adolescent Psychology.** Social, emotional, and cultural aspects of adolescence affecting classroom and school behavior.
- 614. Lifespan Human Development.** Social-emotional, intellectual-language, and physical-motor development from conception to old age. Prerequisite: General psychology.
- 616. Personality Theories for the Helping Professions.** Prerequisites: 3 hours of general psychology and 3 hours of graduate educational psychology or human development.
- 622. Learning Theories.** Application to educational practice. Behavioral theories, information processing, biochemical basis of memory and learning.
- 627. Individual Testing in Guidance III (K-ABC).** Administration, scoring, interpretation, and use of Kaufman Assessment Battery for Children (K-ABC). Prerequisite: EPR 629 and permission of instructor.
- 628. Individual Testing in Guidance I (Stanford-Binet).** Administration, interpretation, and use of Stanford-Binet intelligence scale. Prerequisite: Permission of instructor.
- 629. Individual Testing in Guidance II (Wechsler Scales).** Administration, interpretation, and use of Wechsler intelligence scales. Prerequisite: Permission of instructor.
- 630. Clinical Assessment in Education.** Individual intelligence, personality, and projective tests used by school psychologists. Prerequisite: Permission of program coordinator.

**688. Seminar on Current Issues in Measurement and Evaluation in Schools.** Issues of standardized testing and classroom assessment for teachers and administrators.

**689. Internship and Seminar in School Psychology I.** Daily, one-semester participatory experience in school setting supervised by certified school psychometrist. Prerequisite: Completion of school psychometry major. 6 hours.

\* **691. Independent Readings in Educational Psychology and Research.** Prerequisites: Permission of advisor and instructor. May be repeated for total of 6 hours. 1-3 hours.

**692. Introduction to Educational Research Design.** Literature of educational research. Rationale of library and empirical research. Research on current educational issues. Prerequisite: EPR 608.

**696. Elementary/Secondary Physical Education Internship.** Clinical placement in approved school. Required in nontraditional 5th-Year Program. Prerequisite: Completion of appropriate coursework. 9 hours.

**697. Advanced Field Experience in Physical Education.** Clinical placement in approved sites. Prerequisite: PE 647 or 488. 3 or 6 hours.

**698. Coaching Internship (Individual Sport).** 100 clock hours of experience with veteran coaches. Prerequisite: PE 407 or 607.

\* **699. Thesis Research.** Supervised research project. Prerequisite: Admission to candidacy and permission of advisor. 1, 2, 3, or 6 hours.

**710. Special Topics in Physical Education.** Special courses offerings on contemporary topics. Prerequisite: Permission of instructor.

**715. Advanced Field Experience in Physical Education.** Supervised field experiences in public school clinical sites. Prerequisite: PE 488 or 647. 3 or 6 hours.

718. **Practicum in Exercise Physiology.** Practical experience and observations in human exercise physiology. Prerequisite: PE 641 and permission of advisor.

720. **Research Design and Methodology.** Measurements and research design in areas of biomechanics, motor learning, motor development, sport psychology, and exercise physiology. Prerequisite: EPR 692 or equivalent.

726. **Supervised Research in Physical Education.** Independent student research supervised by a full-time program faculty member. Prerequisite: Permission of advisor, and EPR 609 and 692. 3 or 6 hours.

728. **Ed.S. Thesis Research.** Prerequisite: Admission to candidacy, research methods and sufficient course work in area of emphasis to be able to formulate a problem, develop a research design, and write a thesis proposal. Permission of advisor and instructor. Pass/Fail. 3 or 6 hours.

### ***Counselor Education***

The graduate programs in counseling are designed to train students to make appropriate and ethical decisions as counseling professionals. The most important of these decisions is the selection of strategies that empower clients to make personal decisions leading to the resolution of problems and resulting in an improved quality of life. Clients represent the multicultural, multiethnic, and multivalued character of a diverse American society. Thus, counselors must understand human behavior in terms of its psychological, physiological, and sociological influences and make professional decisions within the legal and ethical constraints that are applicable.

Students in the counseling programs in the department are encouraged, aided, and expected to perceive themselves as professionals who work closely and cooperatively with other professionals, such as those in public and private school systems, colleges and universities, community and private programs and agencies, and government service agencies. Professionalism in this context means that students are aware of their own knowledge and skill levels, abilities, characteristics, and perspectives, and the



respective limits thereof, and that they behave in accordance with the highest ethical and professional standards. Students are expected to demonstrate acquired knowledge and skills throughout the program. Through feedback and self-exploration, students will gain a better understanding of their responsibilities as counselors.

All counseling programs (agency, rehabilitation, school) are designed to meet the course-work and field experiences requirements outlined in the accreditation standards of the Council for Accreditation of Counseling and Related Educational Programs (CACREP). In addition, the rehabilitation counseling specialty area meets the Council on Rehabilitation Education (CORE) certification requirements. The school counseling program meets the course work and field experiences required by the Alabama State Department of Education for certification. All programs meet the academic requirements for licensure as professional counselors in Alabama. As a program strength, the faculty who teach the counseling theory and skills courses are professional counselors who participate in limited practice in their specialty areas.

### **Agency Counseling Specialty**

The role of professional counseling has become increasingly important as an effective source of personal assistance in dealing with a myriad of problems in a complex society. The counseling profession is alive with ideas and techniques based on developmental and behavioral theory and has established a rightful place among the helping professions. Counseling has a serious contribution to make toward the psychological, social, and physical well-being of members of the community. We welcome the interest and inquiry of persons who feel a dedication to helping others and who will commit to serious study of the theory, techniques, and related course work on which professional counseling practice is based.

The Master of Arts in Community Counseling is designed to prepare students to demonstrate

knowledge and skills with several counseling modalities appropriate for a broad range of clients in a multicultural society; interact effectively with other helping professionals and referral resources; make appropriate counselor-client related decisions in the context of professional, ethical, and legal guidelines; and fill effectively entry-level positions of professional responsibility within the specialization of agency counseling.

Area I: Precandidacy Requirements (28 semester hours)

EPR 607	Microcomputer Applications to Statistical Analysis
EPR 608	Statistical Methods and Action Research
ECG 612	Professional, Ethical, and Legal Issues in Counseling
EPR 614	Life-Span Human Development
ECG 621	Prepracticum: Theories and Techniques of Individual Counseling
ECG 638	Practicum I: Introduction to the Counseling Process. Prerequisite: ECG 621
ECG 624	Assessment in Counseling. Prerequisites: ECG 607 and ECG 608
ECG 626	Theories and Processes of Group Counseling. Prerequisites: ECG 621 and ECG 638
ECG 628	Societal Issues
ECG 630	Career Development: Theory and Research

Comprehensive examinations may be taken upon completion of Area I.

Area II: Precandidacy Courses (12 semester hours)

ECG 622	Group/Classroom Guidance in Schools (Prerequisite ECG 620)
ECG 623	Comprehensive Counseling and Guidance in the Middle/High School
ECG 619	Special Issues for School Counselors
ECG 627	Comprehensive Counseling and Guidance in the Elementary School

Admission to Candidacy—Completion of Areas I and II; passing qualifying examinations (comprehensive exams): and recommendation of faculty

Area III: Postcandidacy Requirements (9 semester hours)

ECG 695	Practicum II: Supervised Field Experience (Prerequisite Areas I & II; comps, approval of faculty)
ECG 697a	Counseling Internship* (Prerequisite: ECG 695)
ECG 697b	Counseling Internship* (second term)

\* Current societal standards require 600 clock hours of supervised internship to include experiences at both elementary and secondary levels. ECG 697 may be repeated for up to 9 semester hours (200 clock hours per semester), which will extend program requirements to 51 semester hours.)

Note: School Counseling Internship sites are very limited during summer terms.

Note: Special Education requirement must be met.

**Educational Specialist in Community Counseling**

## (Agency/Rehabilitation)

The Educational Specialist (Ed.S.) degree is designed to assist counselors who wish to continue their professional development. Students can choose either a clinical or research track of study.

Prerequisites for admission to the program: a Master's degree in counseling, including the following courses or their equivalent:

ECG 650	Counseling the Psychologically Impaired Client
ECG 607	Microcomputer Applications to Statistical Analysis
ECG 608	Statistical Methods in Research and Education
ECG 626	Theories and Processes of Group Guidance
EPR 614	Lifespan Human Development
EPR 616	Personality Theories

Students should meet with their advisor and discuss their professional plans before declaring a track of study. **All students will complete Area I, Core Area of Study.** In Area II, students and their advisor will map out a plan of study based on the professional needs of the student.

Area I: Counseling Core Area of Study (24 Semester Hours)

EPR 609	Statistical Methods and Research in Education: Intermediate
EPR 692	Introduction to Educational Research Design
ECG 691	Seminar on Special Topics: Teaching in Higher Education

ECG 704 Seminar on Current Issues in  
Counseling Supervision  
ECG726 Application of Small Group  
Theory  
ECG 795 Ed.S. Practicum  
ECG797 Ed.S. Internship (6 hours)

Area II: Clinical or Research Track (9 Semester  
Hours)

**Research Track:** Students interested in research  
and/or interested in pursuing a doctorate should  
consider the research track of study.

EPR 696 Qualitative Research: Inquiry  
and Analysis  
EPR 710 Computer Applications and  
Advanced Statistical Methods  
ECG 699 Individual Thesis Research in  
Counseling

**Clinical Track:** This course of study is designed to  
enhance one's clinical practice. Students may select  
courses that meet their unique needs and/or  
interests. There may be options of study outside the  
Counselor Education Program, such as the  
Gerontology Certificate Program (15 hours). Other  
examples might include areas of study in Health  
Education and Promotion, or other specially designed  
options.

ECG 632 Technology for Counselors:  
Case Management and Report  
Writing  
ECG 637 Adlerian Family Counseling  
ECG 660 Dynamics of Child Sexual  
Abuse  
ECG 670 Crisis Intervention Techniques

- ECG 673 Counseling Needs of Women
- ECG 674 Seminar on Death, Dying, and Bereavement
- ECG 691 Seminar on Special Topics: Play Therapy I
- ECG 691B Seminar on Special Topics: Sign Language
- ECG 691C Seminar on Special Topics: Preparation for the NBCC Exam
- ECG 691D Seminar on Special Topics: Play Therapy II

#### Proposed Courses Pending

- ECG Counseling Families in a Multicultural Society
- ECG Seminar in Chemical Dependency
- ECG Family Counseling: Theories and Techniques
- ECG Nontraditional Lifestyles
- ECG Creative Counseling Techniques

### **Comprehensive Examination**

Upon completion of the requisite course work, students are required to pass an oral examination, conducted by Counselor Education Faculty, to complete the Ed.S. degree.

### **Educational Specialist in School Counseling**

The Educational Specialist (Ed.S.) degree is 36-hour program, designed to assist school counselors who wish to continue their professional and academic development. Obtaining an Ed.S. degree will qualify the student to receive an AA Certificate from the Department of Education. The Ed.S. degree requires the student to participate in a research and clinical (internship) track of study. Prerequisites for admission to the Ed.S. program in School Counseling

are a master's degree in school counseling, admittance to the Graduate School, and participation in a formal application process to the Counselor Education Program.

A student's master's degree must have the following courses or their equivalent:

ECG 607	Microcomputer Applications to Statistical Analysis
ECG 608	Statistical Methods in Research and Education
ECG 626	Theories and Processes of Group Guidance
EPR 614	Lifespan Human Development
ECG 620	Foundations and Administration of Guidance Services

### **Special Education**

Students should meet with their advisor and discuss their professional plans **before** enrolling in classes.

### **Foundations of Professional Studies**

Six (6) semester hours from the following courses are required:

EPR 610	Child Psychology
EPR 611	Adolescent Psychology
EPR 616	Personality Theory for Helping Professionals
EPR 622	Learning Theories
EDF 602	American School in Crisis
ECY 600	Introduction into Special Education
ECG	Dynamics of Child Sexual

660 Abuse  
ECG Crisis Intervention Techniques  
670

### Instructional Support

Fifteen (15) semester hours from the following courses are required:

ECG Seminar on Current Issues in  
704 Counseling Supervision  
ECG Application of Small Group  
726 Theory  
ECG Ed.S. Practicum  
795

### Research

Six (6) semester hours are required:

EPR Statistical Methods & Research  
609 in Education: Intermediate  
EPR Introduction into Research  
692 Design

### Instructor-approved Electives

Six (6) semester hours are required.

### Internship, 300 Hours

ECO 797 Three (3) semester hours are required.

### Course Electives

ECG Adlerian Family Counseling  
637  
ECG Individual Nonthesis Research  
698 in Counseling and Guidance  
EGG Independent Readings in  
692 Counselor Education



ECG 691 Special Issues for School Counselors  
 ECG 623 Comprehensive Counseling & Guidance in the Middle/High School  
 ECG 627 Comprehensive Counseling & Guidance in the Elementary School  
 ECG 622 Group/Classroom Guidance in Schools  
 EGG 673 Counseling Needs of Women  
 ECG 674 Seminar on Death, Dying, and Bereavement  
 ECG 691 Seminar on Special Topics: Teaching in Higher Education  
 EGG 691 Seminar on Special Topics: Play Therapy I  
 ECG 691 Seminar on Special Topics: Sign Language  
 EGG 691 Seminar on Special Topics: Preparation for the NBCC Exam  
 ECG 691 Seminar on Special Topics: Play Therapy II  
 EGG 691 Seminar on Special Topics: Adventure-based Counseling  
 EDL 704 Educational Law and Policy Development  
 ECG 522 Strategies for Attitude Adjustment

Proposed Electives: Pending

EGG Counseling Families in a Multicultural Society  
 EGG Seminar in Chemical Dependency  
 ECG Family Counseling: Theories and Techniques  
 ECG Nontraditional Lifestyles  
 EGG Creative Counseling Techniques

## **Comprehensive Examination (Counseling)**

The written comprehensive examination is an important screening review for the student after the completing Area I. The successful completion of the qualifying examination is prerequisite to admission to candidacy for the degree. The comprehensive is an examination that is broad in scope and requires the student to synthesize and apply concepts learned from relevant course work.

\*Note: Although students are required to complete all of the classes in Area I, exceptions can be made if a student has completed **all but one** class and is enrolled in that class at the time of taking comprehensives.

Should a student not successfully pass the examination, he or she must rewrite the exam on the next scheduled date for the comprehensive examination. The comprehensive examination can be retaken a maximum of two times. If a student fails to successfully pass the comprehensive examination, he or she will be terminated from the program. Comprehensive examinations are scheduled for fall, spring, and summer semesters. The comprehensive examination should be scheduled at the time a student has met all the requirements of Precandidacy for Area I.

Last modified 10/19/04

## **UAB Graduate School**

### **Education—Leadership, Special Education, Foundations and Technology**

Educational Leadership (Ph.D., Ed.D., Ed.S., M.A.Ed.)

Education, Special (Ed.S., M.A.Ed.)

Graduate program director at UAB: Dr. Boyd *Rogan*

### **UAB Faculty**

**Carol Allison** , Instructor (Special Education); Visual Impairments

**Loucrecia Collins** , Assistant Professor (Leadership); Curriculum, Conflict Resolution

**Karen Dahle** , Assistant Professor (Special Education); Special Education Administration and Supervision, School Psychology, Autism, Counseling

**Carol Dowdy**, Professor Emeritus (Special Education)

**J. Rudolph Davidson** , Professor Emeritus (Leadership); Educational Finance, Politics of Education, Higher Education

**Richard M. Gargiulo** , Professor (Special Education); Conceptual Development of Mildly Handicapped Children, Teacher Education

**Virginia D. Gauld** , Assistant Professor (Leadership); Higher Education, Rehabilitation Counseling

**Renitta Goldman** , Professor (Special Education); Learning and Behavioral Handicaps; Assessment; Physical, Emotional and Sexual Abuse; Suicide

## Among Minority Populations

**Donald H. Henderson** , Professor Emeritus  
(Leadership); School Law, Principalship, Attendance  
Supervision

**Shirley Salloway Kahn** , Assistant Professor  
(Leadership); Higher Education, Planning

**Zachary Kelehear** , Associate Professor (Leadership);  
Human Resource Management, Mentoring, Staff  
Development

**Jennifer Kilgo** , Professor (Special Education); Early  
Childhood

**Tondra Loder**, Assistant Professor (Foundations)

**Betty Nelson** , Assistant Professor (Special  
Education); Low-Incidence and High-Incidence  
Disabilities, Administration Leadership, Collaboration  
in Schools

**Andrew McKnight** , Assistant Professor  
(Foundations)

**Jerry L. Patterson** , Professor (Leadership);  
Educational Leadership, Organizational Change,  
Supervision

**William Boyd Rogan** , Chair, Associate Professor  
(Leadership); Community Education, Educational  
Leadership

**Mary Jean Sanspree** , Research Professor (Special  
Education); Visual Impairments, Alabama Deaf-Blind  
Project

**Deborah Voltz** , Associate Professor (Special  
Education)

**Foster Watkins** , Professor (Leadership); Educational Administration, Higher Education

**Yu-Mei Wang**, Associate Professor, (Technology)

**Edward L. Whigham** , Professor Emeritus (Leadership); Educational Administration and Supervision, Administrative Theory, Superintendency

**Lou Anne Worthington** , Associate Professor (Special Education); Emotional Conflict, Collaborative Teaching

## **Participating Faculty (Doctoral Program) from the University of Alabama ( Tuscaloosa)**

**Harold L. Bishop** , Associate Professor (Educational Leadership)

**David L. Dagley** , Associate Professor (Educational Leadership)

## **Educational Leadership Graduate Programs Information**

Because admission to these programs is selective, prospective students should contact a departmental advisor to determine specific admission requirements for the degree or certificate in which they are interested.

The programs leading to the Doctor of Education (Ed.D.) and Doctor of Philosophy (Ph.D.) degrees in educational leadership are offered at UAB by the joint faculties of UAB and the University of Alabama ( Tuscaloosa). Admission is highly selective and is open only once annually; application packets must be complete in the Graduate School office by **November** for the program of study beginning the following January (spring term).

## **Additional Information**

For detailed information, contact Dr. Boyd Rogan, Chair, Department of Leadership, Special Education and Foundations, UAB School of Education, EB 213, 1530 3rd Avenue South, Birmingham, AL 35294-1250.

Telephone 205-934-4892

E-mail [brogan@uab.edu](mailto:brogan@uab.edu)

Web [www.ed.uab.edu](http://www.ed.uab.edu)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded by an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Educational Leadership (EDL)

**611. School Organization and Law.** Survey of selected theoretical and operational bases for decision making and leadership in organizational development and maintenance services for effective operation of schools. Legal framework established by local, state, and federal legislative and judicial requirements.

**612. Leadership and Administration.** Survey of selected theoretical and operational bases for decision making related to leadership, communication, and school-community relations. Prerequisite: EDL 611.

**613. Supervision and Curriculum Development.** Survey of selected theoretical and operational bases for decision making and leadership in curriculum, teaching, and learning. Prerequisites: EDL 611 and 612.

**614. Planning for Change.** Survey of selected theoretical and operational bases for decision making in problem identification and analysis, staff development, and assessment and evaluation of human and program effectiveness in grades N-12. Prerequisites: EDL 611, 612, and 613.

615. **Nonthesis Research in Educational Leadership.** Prerequisite: 12 hours in educational leadership.

617. **Politics of Education.** Education leaders learning to take action within the complex maze of political relations within schools, between school and their communities, and within levels of government. Prerequisite: Admission to master's program in educational leadership or approval by instructor.

618. **Ethics and Leadership.** An examination of ethical issues and dimensions of ethical decision making. Prerequisite: Admission to master's program in educational leadership or approval by instructor.

619. **School-Based Problem Solving.** An analysis and application of techniques for school-based problem solving. Prerequisite: Admission to master's program in educational leadership or approval by instructor.

620. **Public School Organization and Administration .**

621. **The School Principalship.** Changing role and responsibilities of school principal; organization, discipline, instructional supervision, and community relations.

622. **Clinical Supervision for Administrators and Supervisors.** Knowledge, skills, and competencies for assisting teachers in improvement of curriculum and instruction.

625. **Education Management.** An overview of education management techniques for the improvement of the education enterprise and student learning. Prerequisite: Admission to master's program in educational leadership or approval by instructor.

630. **School and Community .**

631. **Education and the Political Environment.** Educational policy making and governance as political process; political theory and structure.

635. **Survey of School Law.** Laws and court decisions affecting public education. Cases establishing mandates for public school practices.

637. **Legal Liability and the Educator.** Legal liability in administration and teaching. Cases pertaining to education.

640. **Introduction to Community Education.** Structure, purpose, and processes of community education and community schools.

641. **Community Education for School Administrators.**

642. **Operation and Administration of the Community Education Program.** Practical aspect.

643. **Community Resources Workshop.** Teaching-learning resources available in the local community.

660. **Administration Leadership I .** Practical applications in organizational management and leadership behavior.

685. **Workshop in Administration and/or Supervision.** Field workshop. 1-3 hours.

690. **Internship in Educational Leadership.** Field leadership experience; minimum of 300 clock hours of field experience in administration under direction of both field supervisor and university director. Prerequisite: Permission from director of internships. 1-6 hours.

691. **Practicum in Educational Leadership.** Field work on practical problem on project. Prerequisite: 9 hours in educational leadership at UAB. 3-6 hours.

692. **Individual Readings in Educational Leadership.** Prerequisite: Permission of instructor. 1, 3, 6 hours.

694. **Seminar in Educational Leadership I . 1-3 hours.**

695. **Seminar in Community Education.** 1-3 hours.



696. **Practicum in Community Education.** 3-6 hours.

\* 698. **Nonthesis Research in Education Leadership.** 1, 3, or 6 hours.

\* 699. **Thesis Research.** Prerequisites: Admission to candidacy and 9 hours in educational leadership.

701. **Organizational Leadership and Decision Making I .**  
**Knowledge and skills related to educational leadership.**

702. **Organizational Leadership and Decision Making II.**  
Knowledge and skills related to educational leadership.

703. **Theories and Practices for Supervision Leadership.**

704. **Education Law and Policy Development.**

705. **The Management of Educational Programs and Services.**

706. **Current Issues in Community Education.**

707. **International Aspects of Community Education.** Comparative analysis of community education worldwide.

708. **Administrative Leadership II.** Concepts and skills applied to educational administration and supervision.

709. **Theories of Educational Leadership.** Concepts and theoretical bases for practice in educational administration and supervision.

710. **Mentoring for Educational Leadership.** Preparing educational practitioners to become effective mentors for aspiring future leaders.

712. **School System Administration.**

713. **Leadership of Special Education Programs.** Comprehensive study of organization and leadership of special education programs; role of special education administrator, processes and structures for delivery of services to exceptional students.

714. **Advanced School Business Management.**

**715. Nonthesis Research in Educational Leadership.** Individual research on significant problem or development in educational leadership; proposed research plan must be approved by faculty member supervising the research.

**716. Workshop in Administration and/or Supervision.** Field workshop. 1-3 hours.

**720. Field Project in Educational Leadership.** Field work on practical problems and projects in educational leadership; plan for actual project must be approved in advance by faculty member supervising the work. 1-6 hours.

**721. Administration of Staff Personnel.** Personnel administration in public education; practices, problems, and current developments.

**722. Current Issues in Educational Leadership.** Prerequisites: Graduate standing and permission of instructor.

**723. Administration of Educational Programs and Services.** Development, implementation, and evaluation of educational programs. Primarily for Ed.S. students continuing their preparation principalship.

**724. Seminar in Educational Leadership II.** 1-3 hours.

**726. Advanced Clinical Supervision for Administrators and Supervisors.** In-depth study of competence needed by administrators and supervisors providing leadership in improvement of instruction.

**729. Advanced Research in Educational Leadership.** Field or basic research. 1, 3, or 6 hours.

**730. Advanced Focus on the Principalship.** Advanced knowledge and skills related to school leadership.

**748. Current Issues and Problems in School Administration.** Prerequisite: Admission to doctoral studies.

**750. Issues and Problems in School Finance.**

**752. Advanced Educational Planning.**

**755. Advanced School System Administration.** Duties and responsibilities of superintendent of schools. Prerequisite: Admission to doctoral studies.

**756. Current Legal Problems in Alabama Education.** Prerequisite: Admission to doctoral studies.

**762. Futurism in Community Education.** Predicting and planning; what others say about future; developing personal predictions. Prerequisite: Admission to doctoral studies.

**770. Advanced Administrative Leadership.**

**772. Advanced Technology of Educational Planning.** Quantitative techniques. Prerequisite: Admission to doctoral studies.

**792. Directed Study in Educational Leadership.** Prerequisites: Admission to doctoral studies and advance permission of instructor. 3 hours.

**796. Individual Readings in School Law.** Prerequisite: Admission to doctoral studies. 3-6 hours.

**797. Doctoral Internship in Educational Leadership.** Field leadership experience. Prerequisite: Admission to doctoral studies. 1-12 hours.

\* **798. Nondissertation Research.** Prerequisite: Admission to doctoral studies. 1-12 hours.

\* **799. Dissertation Research.** Prerequisites: Prerequisite: Admission to doctoral studies, admission to candidacy, and permission of faculty advisor. 1-12 hours.

**University of Alabama ( Tuscaloosa) Courses Offered at UAB in the Joint Doctoral Program in Educational Leadership**

AEL 590. **Research Methods in Education.** Library familiarization, types of research, measurement, data collection, and basic statistical analysis.

AEL 602. **Advanced Educational Leadership.** Basic concepts, group interaction on selected presentation of assigned research.

AAP 634. **Legal Aspects of Personnel Administration.** Principles governing personnel management in public school systems.

AEL 651. **Educational Planning II.** Processes, concepts, and tools.

### **Educational Collaborative Teacher (ECT)**

650. **Master's Seminar in Collaborative Teaching.** This is a diagnostic and evaluation course designed to ensure that students have acquired basic competencies in historical, philosophical, legal, and assessment foundations in special education. Competencies addressed in this course also include research, writing, speaking, and computer literacy.

651. **Assessment Foundations in Special Education.** This course is designed to prepare special education teachers to assess children and youth in a manner that reflects federal and state mandates and regulations. Students are prepared to appropriately select, administer, and interpret assessment instruments designed to answer questions related to eligibility determination and, to some extent, intervention programming.

652. **Characteristics of Children and Youths with Learning and Behavioral Disabilities.** This course details the characteristics, needs, and concerns related to children and youth with learning disabilities, mental retardation, and emotional-behavioral disorders. Additional issues addressed in the course are due process, inclusion, collaboration, and diversity as they pertain to these populations of students.

653. **Physical, Health, Sensory, Communication.** This course details the characteristics, needs, and concerns related to children and youth with physical, health, sensory, and communication disabilities. Additional topics covered include positioning and

handling, assessment, development of health care plans, and transdisciplinary collaboration.

**654. Instructional and Assistive Technology.** The emphasis of this course is on identifying, designing, and implementing instructional and assistive technology devices and services. Topics covered include technologies for students with high- and low-incidence disabilities, general assistive technology adaptations, augmentative and alternative communication technologies, IEPs that incorporate assistive technology services and devices, and interagency collaboration.

**655. Instructional Content and Methods.** This course provides students with knowledge and skill in instructional content and methods. Issues related to designing, implementing, and evaluating instruction are presented. Additionally, the course provides critical information regarding the informal assessment of the teaching and learning processes. Specific methods for teaching, reading, writing, mathematics, and study skills are covered.

**656. Transition of Adolescents from School to Adulthood.** This course provides students with the information and skills necessary to assist youth with disabilities to make successful transitions from school to adulthood. The course explores the processes and products needed to assist students making this critical life transition.

**657. Teaching in Inclusive Classrooms.** This course provides an in-depth examination of inclusive schooling. Collaboration, ecological assessments, integrated therapies, modifications and adaptations, planning for inclusive programming, strategy instruction, and special curricular issues are topics addressed in this course.

**658. Curriculum in General Education.** This course is designed to prepare students to utilize the general education curriculum as the foundation for educational programming for children and youth with special needs. IEP writing, using the general education curriculum, team planning, state- and district-wide assessments, and curriculum accommodations and modifications are topics addressed in this course.

**659. Planning and Managing the Teaching and Learning Environment.** This course is designed to prepare students to plan and manage the teaching and learning environment effectively. The major emphasis of the course is on the elements of classroom design and preparation. Primary and secondary academic and behavioral interventions are presented. Outcomes expected for students are related to the creation and maintenance of positive, caring classroom communities that facilitate the academic and social development of children and youth with disabilities.

**660. Providing Positive Behavior and Social Support.** This course is designed to prepare students to plan and manage the teaching and learning environment effectively. The major emphasis of the course is on the elements of classroom design and preparation. Primary and secondary academic and behavioral interventions are presented. Outcomes expected for students are related to the creation and maintenance of positive, caring classroom communities that facilitate the academic and social development of children and youth with disabilities.

**661. Communication and Collaborative Partnerships.** This course is designed to prepare students to work with children and youth with disabilities who present complex emotional, behavioral, and social problems in the classroom. Topics in the course include conducting functional assessments, designing behavior management plans, conducting manifestation determinations, and implementing and evaluating the effects of interventions. Tertiary behavioral and social interventions are presented.

**670. Practicum in Collaborative Teaching: Grades K-6.** Students seeking Collaborative Teacher certification, Grades K-6, are required to complete a practicum experience in a collaborative setting that includes children who present a wide range of disabilities. This practicum experience is tailored to the unique needs and experiences of students seeking this certification.

**671. Practicum in Collaborative Teaching: Grades 6-12.** Students seeking Collaborative Teacher certification, Grades 6-12, are required to complete a practicum experience in a collaborative setting that includes children who present a wide range of disabilities. This

practicum experience is tailored to the unique needs and experiences of students seeking this certification.

**672. Internship in Collaborative Teaching: Grades K-6.** Students in the 5th-year, nontraditional program are required to complete a 12-week internship that is to be divided between lower and upper elementary settings. This internship is designed to assist the prospective graduate in virtually all teaching responsibilities in collaborative settings.

**673. Internship in Collaborative Teaching: Grades 6-12.** Students in the 5th-year, nontraditional program are required to complete a 12-week internship that is to be divided between lower and upper secondary settings. This internship is designed to assist the prospective graduate in virtually all teaching responsibilities in collaborative settings.

**674. Advanced Readings and Research in Special Education.** This course allows the student to pursue an in-depth investigation of current and timely issues in the field of special education. The instructor and student design an individual program of study during the course, based upon student needs and interests.

**675. Survey of Attention Deficit Hyperactivity Disorder.** This course is designed to provide teachers with the knowledge and skills necessary to implement an optimal teaching-learning environment for students with attention deficit hyperactivity disorder who represent diverse backgrounds in grades K-12.

**676. Survey of Pervasive Developmental Disorders.** This course presents an in-depth examination of the characteristics, needs, and other concerns of children and youth with pervasive developmental disorders. Topics also include interventions, collaboration, and functional life-skill programming.

**677. Combating Child Abuse and Neglect.** What constitutes child abuse? Perspectives will be offered from those affected by the tragedy of abuse, including victims, perpetrators, and the community at large: the family, educational, medical, political and legal systems. Intervention and prevention strategies will be stressed.

**679. Advanced Legal Aspects of Special Education.** The purpose of this course is to provide students with an in-depth examination of legal information pursuant to individuals with disabilities. The Individuals with Disabilities Education Act and its related amendments, the Americans with Disabilities Act, and Section 504 of the Rehabilitation Act are major federal laws reviewed in this course. Special education litigation is also addressed during the course.

**681. Remedial Math for Special Needs Learners.** The purpose of this course is to prepare students in effective instructional procedures for students who exhibit deficiencies in mathematics.

### **Exceptional Children and Youth (ECY)**

**600. Introduction to Exceptional Learners.** Educational programs for various fields of exceptionality.

**601. Behavior Principles and Procedures.** Operant paradigms and treatment plans; their use in classroom management. Prerequisite: ECY 600.

**603. Transition and Career Planning.** Development of adaptive social processes. Psychological, social, and medical influences in habilitation of exceptional children. Prerequisites: ECY 600, 622, and 672.

**604. Speech and Hearing Disorders.** Evaluation and treatment of communication disorders in infants, preschool children, and early elementary grade-school children. Prerequisite: ECY 600.

**607. Counseling Parents of Exceptional Children.** Dynamics of family life and parental and sibling reactions to handicapped individuals. Prerequisite: ECY 600.

**613. Diagnosis and Prescriptive Assessment.** Case studies; parent-teacher counseling and educational diagnostic test; summarization of findings and case reporting. Prerequisite: ECY 600.

**621. Nature and Needs of the Mentally Retarded.** Social, emotional, physical, and learning characteristics of mentally retarded children and youth. Prerequisite: ECY 600.



**622. Methods and Materials for Teaching the Mentally Retarded.** Development of curriculum for mentally retarded individuals, K-12. Prerequisites: ECY 600, 621.

**624. Nature and Needs of the Severely Handicapped.** Developmental of curriculum for mentally retarded individuals, K-12. Prerequisites: ECY 600, 621.

**625. Methods and Materials for the Severely Handicapped.** Motor, social, cognitive, and language skill programs for different age levels. Prerequisites: ECY 600, 624.

**631. Nature and Needs of Children With Learning Disabilities.** Classroom organization, instructional design, and behavior management. Diagnosis and remediation. Prerequisite: ECY 600.

**632. Methods and Materials for Children With Learning Disabilities.** Diagnosis and remediation of motor, perceptual, and language development disabilities. Prerequisites: ECY 600, 613, and 631.

**635. Nature and Needs of the Young Atypical Child.** Nature of exceptionalities relating to young children with special needs. Prerequisite: ECY 600.

**636. Materials and Methods for Teaching the Young Child with Special Needs.** Prerequisites: ECY 600 and 635.

**637. Assessment and Remediation of Young Children with Special Needs.** Evaluation and referral of young children with special needs; assessments for both instructional and individual family service plan (IFSP) needs. Prerequisites: ECY 600, 635, and 636.

**653. Nature and Nurture of Creativity.** Theories underlying creative process; assessing creative potential; techniques developing children's creativity. Prerequisites: ECY 650, 651, and 652.

**654. Mild Learning Handicap: Consulting Teacher Role.** Prerequisite: ECY 600.

**661. Nature and Needs of the Visually Impaired.** Historical perspectives; definition and characteristics of blind and partially sighted; educational consideration. Prerequisite: ECY 600.

**662. Methods and Materials for Teaching the Visually Impaired.** Principles and procedures for developing and implementing curricula for visually impaired students. Prerequisites: ECY 600 and 661.

**663. Orientation and Mobility.** Dog guide, sighted guide, and cane travel techniques. Prerequisites: ECY 600, 661, and 662.

**664. Braille.** Touch reading for the blind. Prerequisites: ECY 600, 661, and 663.

**665. Anatomy and Educational Implications of the Eye.** Anatomy and physiology of the eye, process of visualization, visual perception, refraction, ophthalmologic report; etiology and symptomology of major visual disorders. Prerequisites: ECY 600, 661, 663, and 664.

**671. Nature and Needs: Seriously Emotionally Disturbed/Behaviorally Disordered.** Definitions and characteristics of children with emotional conflicts; factors contributing to and strategies for dealing with such handicaps. Prerequisite: ECY 600.

**672. Methods and Materials: Seriously Emotionally Disturbed/Behaviorally Disordered.** Informal and formal assessment techniques, intervention strategies and classroom management, media and materials analysis. Prerequisites: ECY 600, 613, and 671.

**674. Applied Theories of Classroom Management for Exceptional Students.** Classroom dynamics, teacher's communication style, and behaviors of individual learner. Prerequisite: ECY 600.

**675. Remedial Math for Special Needs Learners.** Training for MLH teacher in effective instructional procedures for students exhibiting deficiencies in mathematics. Prerequisite: ECY 600.

**676. Technology of Teaching Special Needs Learners.**

Microcomputer technology as applied to special needs population.  
Prerequisite: ECY 600.

**677. Legal Aspects of Special Needs Learners.** Litigation pertaining to the developmentally disabled. Rights and responsibilities of employees, residents, and guardians. Prerequisites: 9 hours at graduate level and approval of instructor.

**682. Practicum in Special Education: Mentally Retarded.**

Curriculum development, programming, counseling, assessment, and teaching in structured situations. Prerequisites: ECY 600, 621, 622, and 623.

**683. Practicum in Special Education: Learning Disabled.**

Resources and materials development, consultation, diagnostic-prescriptive programming. Prerequisites: ECY 600, 613, 631, and 632.

**686. Practicum in Special Education: Visually Impaired.**

Resources and materials development, consultation, diagnostic-prescriptive programming. Prerequisites: ECY 600, 613, 661, 662, 663, 664, and 665.

**687. Practicum in Special Education: Seriously Emotionally Disturbed/Behaviorally Disordered.**

Resources and materials development, consultation, diagnostic-prescriptive programming. Prerequisites: ECY 600, 613, 671, and 672.

**688. Collaboration and Consultation.** Prerequisite: ECY 600.

**689. Advanced Topics in Special Education.** Group seminars.

Prerequisites: Permission of instructor, ECY 600. 1-6 hours.

**690. Seminar: Issues and Trends in Special Education.**

Contemporary issues and trends affecting education of exceptional children. Prerequisite: ECY 600.

**691. Practicum: Mild Learning Handicapped.** Supervised working

or alternative practicum experience. Prerequisites: ECY 600, 613, 694, 695, and 696.

**694. Nature and Needs: Mild Learning Handicapped.**

Psychological, social, and emotional characteristics of learning disabled, emotionally conflicted, and educable mentally retarded students. Prerequisite: ECY 600.

**695. Mild Learning Handicapped: Elementary Methods and**

**Materials.** Theories of learning applied to behavioral/learning characteristics of elementary learning disabled, emotionally conflicted, and educable mentally retarded. Prerequisites: ECY 600 and 694.

**696. Mild Learning Handicapped: Secondary Methods and**

**Material.** Theories of learning applied to behavioral/learning characteristics of secondary learning disabled, emotionally conflicted, and educable mentally retarded. Prerequisites: ECY 600 and 694.

**697. Independent Study in Special Education.** Approved individual research by nonthesis student in area of specialization, supervised by advisor and/or committee. Prerequisite: ECY 600. 1-9 hours.

\* **698. Nonthesis Research in Special Education.** Individual readings and research in area of specialization, approved and supervised by advisor and/or committee. Prerequisite: ECY 600. 1-9 hours.

\***699. Thesis Research in Special Education.** Prerequisite: Admission to candidacy and ECY 600.

**703. Advanced Curriculum Development.** Development of teaching programs for all exceptionalities. Prerequisites: ECY 600 and admission to Ed.S. program.

**704. Advanced Assessment of Educational Needs.** Educational assessment of all types of exceptional learners. Prerequisites: ECY 600 and 703, and admission to Ed.S. program.

**705. Advanced Curriculum Development for the Learning Disabled.** Principles of curricular design; evaluation of curricula; transmission of information regarding curricula to other professionals and parents. Prerequisites: ECY 600, 703, 704, 726, admission to Ed.S. program, and permission of instructor.

**706. Advanced Topics in Instruction for the Learning Disabled.** Principles and evaluation of instruction; transmission of information regarding instructional principles to other professionals and parents. Prerequisites: ECY 600, admission to Ed.S. program, and permission of instructor.

**708. Mild Learning Handicapped Thesis Research Seminar.** Research in learning disabilities, emotional conflict and mental retardation and related areas, as well as techniques for interpreting and critiquing research. Prerequisites: ECY 600 and 707, and admission to Ed.S. program.

**709. Mild Learning Handicapped Thesis Field Project.** Principles and skills necessary to design, implement, and evaluate a significant question or problem in a specific area pertaining to learning disabilities, emotional conflict, and mental retardation. Prerequisite: ECY 600, admission to Ed.S. program, and permission of instructor.

**710. Advanced Practicum: Collaboration and Consultation.** Assisting individuals in programming for learning disabled, emotionally conflicted, and educable mentally retarded students. Prerequisites: ECY 600, admission to Ed.S. program, and permission of instructor.

**711. Mild Learning Handicapped: Advanced Topics in Instruction.** Advanced principles and instruction in learning disabled, emotionally conflicted, and mentally retarded. Prerequisites: ECY 600, admission to Ed.S. program, and permission of instructor.

**712. Mild Learning Handicapped: Curriculum Design.** Planning, implementing, and evaluating educational services for learning disabled, emotionally conflicted, and educable mentally retarded students. Prerequisites: ECY 600, admission to Ed.S. program, and permission of instructor.

**713. Advanced Curriculum Development and Instructional Procedures for the Visually Impaired.** Principles and the visually impaired. Principles and evaluation of instruction; transmission of information regarding instructional principles to other professional and parents. Prerequisite: ECY 600.

**715. Administration and Supervision of Programs for the Learning Disabled.** Prerequisites: ECY 600, admission to Ed.S. program, and permission of instructor.

**716. Advanced Topics in Instruction for Students With Emotional Conflicts/Behavior Disorders.** Seminar on interdisciplinary theoretical and therapeutic perspectives and practice. Prerequisites: ECY 600, admission to Ed.S. program, and permission of instructor.

**717. Advanced Curriculum Development of Children and Youth: Emotionally Conflicted and Behaviorally Disordered.** Prerequisites: ECY 600, admission to Ed.S. program, and permission of instructor.

**718. Advanced Theories and Techniques for Cognitive Modification.** Verbal mediation as cognitive and behavioral organizer. Prerequisites: ECY 600, admission to Ed.S. program, and permission of instructor.

**719. Field Project in Mental Retardation.** Design, implementation, and evaluation major project; investigation of a significant question or problem in specific areas of interest pertaining to moderate handicaps. Prerequisites: ECY 600, 721, 722, 723, admission to Ed.S. program, and permission of instructor.

**720. Field Project in Learning Disabilities.** Investigation of a problem in specific areas of interest pertaining to severe or profound handicaps. Prerequisites: ECY 600, admission to Ed.S. program, and permission of instruction.

**721. Advanced Curriculum Development for Mentally Retarded Students.** Curricular design; evaluation of curricula; transmission of information regarding curricula to other professionals and parents. Prerequisites: M.A. degree in special education, admission to Ed.S. program, and permission of instructor.

**722. Advanced Topics in Instruction for the Mentally Retarded Student.** Principles and evaluation of instruction; transmission of information regarding instructional principles to other professionals and parents. Prerequisites: ECY 721, admission to Ed.S. program, and permission of instructor.

**723. Administration and Supervision of Programs for the Mentally Retarded.** Principles of administration and supervision of educational programs for mentally retarded children. Prerequisites: ECY 703, 704, 721, admission to Ed.S. program, and permission of instructor.

**725. Thesis: Field Project in Emotional Conflict.** Demonstration by student of acquired skills, knowledge, and techniques as culminating training activity. Prerequisites: ECY 600, 671, 672, 687, 716, 717, 731, admission to Ed.S. program, and permission of instructor.

**726. Professional Seminar.** Professional behaviors and developmental sensitivity to past, current, and future needs, trends, and concerns of profession. Prerequisites: ECY 600.

**727. Research Seminar in Mental Retardation.** Techniques for interpreting and critiquing research. Prerequisites: ECY 600, admission to Ed.S. program, and permission of instructor.

**728. Research Seminar in Learning Disabled.** Techniques for interpreting and critiquing research. Prerequisites: ECY 600, admission to Ed.S. program, and permission of instructor.

**730. Research and Program Development, Management, and Evaluation.** Development, management, and evaluation of programs for visually impaired. Prerequisites: ECY 600, admission to Ed.S. program, and permission of instructor.

**731. Thesis Research Seminar in Emotional Conflict.** Research designs, evaluating research, adapting and replicating research. Prerequisites: ECY 600, 671, 672, 687, 716, 717, admission to Ed.S. program, and permission of instructor.

**733. Thesis Seminar in Visual Impairment.** Prerequisites: ECY 600 and permission of instructor.

**740. Early Childhood Education for the Handicapped.** Developmental and educational needs of young handicapped children. Prerequisites: ECY 600, admission to Ed.S. program, and permission of instructor.

## **Educational Foundations (EDF)**

600. **The Urban School.** Social and psychological forces of urban ghetto and suburbia; implications for education. Problems of inner city school. Opportunities for field work.

601. **The History of Western Education.** Functions of and influences exerted upon school.

602. **The American School in Crisis.** Critical problems facing American public education; approaches to managing such problems.

603. **Contemporary Philosophies of Education.** Impact of three major schools of philosophical thought on American education.

604. **Social Philosophies and Education.** Socioeconomic class structure, ethnic heritage, and peer group as social theories; implications for educational programs.

606. **The Progressive Education Movement.** Influence of movement upon contemporary American educational developments.

608. **The Pursuit of Knowledge.** Education versus common sense; ways of knowing, esoteric and public knowledge; useful knowledge; possible worlds.

616. **Comparative Education.** Cultural forces influencing structure and function of educational system in selected countries.

620. **Race and Ethnicity in American Education.** Historical study of racial and ethnic group; race, ethnicity, assimilation, pluralism, community, and university.

624. **Moral Education.** Philosophical consideration of nature of value, morality, and moral judgment; problems and issues of moral education.

697. **Individual Readings in Foundations of Education.**  
Prerequisite: Permission of instructor. 1-3 hours.



**698. Individual Nonthesis Research in Foundations of Education.** Prerequisite: Permission of instructor. 1-3 hours.

**703. Advanced Philosophy of Education.** Educational implications of one of the following: etiology, ontology, epistemology, and logic. Prerequisite: Ed.S. or doctoral status.

**706. Progressive Education Movement.** Prerequisite: Ed.S. or doctoral status.

**708. Ethic Dilemmas in Educational Administration.** Relationships among disciplines; application of concepts in individual disciplines to interdisciplinary problems. Prerequisite: Ed.S. or doctoral status.

**710. Special Problems in the Foundations of Education.** Individual readings. Prerequisites: Master's degree and permission of advisor and educational foundations faculty member.

**711. Pursuit of Knowledge.** Prerequisite: Ed.S. or doctoral status.

**713. Modern Philosophy of Education.** Seminar on educational theories of seven outstanding educational philosophers: Comenius, Locke, Rousseau, Pestalozzi, Froebel, Herbart, and Spencer. Prerequisite: Ed.S. or doctoral status.

**716. Comparative Education.** Prerequisite: Ed.S. or doctoral status.

**720. Race and Ethnicity in American Education.** Prerequisite: Ed.S. or doctoral status.

**724. Moral Education.** Prerequisite: Ed.S. or doctoral status.

**750. Special Problems in the Foundations of Education.** Prerequisite: Doctoral status.

**797. Individuals Readings in the Foundations of Education.** Prerequisite: Doctoral status and permission of instructor.

**798. Individual Research in the Foundations of Education.** Prerequisite: Doctoral status and permission of instructor.

## **Educational Technology (EDT)**

**610. Computer-Based Instructional Technologies.** The first course in a series of three to familiarize classroom teachers with computer-based instruction technologies as they are applied to educational settings. Students are introduced to the historical and social context within which computer technologies are developed, as well as to the knowledge of computer hardware and software. Students will learn basic skills of microcomputer operation and applications.

**620. Current and Emerging Instructional Technologies.** The second course in a three-course series designed to provide inservice teachers with knowledge and skills in the use of computing and other new technologies. Prerequisite: EDT 610.

**630. Curriculum Integration of Technology.** This is the third course in a three-course series designed to provide inservice teachers with knowledge and skills in the use of computing and other new technologies. Prerequisites: EDT 610 and 620.

Last modified 10/19/04

## UAB Graduate School

### Education—Psychology and Research

Graduate program director (Education): *Macrina*

Graduate program director (Public Health): *Kohler*

Education, Counseling (Ed.S., M.A.)

Education, Health (Ed.S., M.A.Ed.)

Education, Health Education/Health Promotion (Ph.D.)

Education, Physical (Ed.S., M.A.Ed.)

Education, School Psychology (Ed.S.)

### Faculty

**Gypsy Abbott** , Professor; Educational Psychology, Psychological Testing, Evaluation

**Terry Conkle** , Assistant Professor; Physical Education Pedagogy

**Angie Coker** , Assistant Professor; Counseling

**William A. Crunk, Jr.** , Associate Professor; Rehabilitation Counseling, Family Guidance, Counseling Theories

**Suzie Davies** , Assistant Professor; Health Education

**Brian F. Geiger** , Associate Professor; Health Promotion Models, Comprehensive School Health, Technology, Community Education

**Donna J. Hester** , Associate Professor; Motor Development, Elementary Physical Education,

Adapted Physical Education

**Gary R. Hunter** , Professor; Exercise Physiology, Sport Conditioning, Body Composition and Energy Metabolism

**Nataliya Ivankova**, Assistant Professor; Qualitative Research, Mixed Methods Research

**Maxie P. Kohler** , Associate Professor; Personality Theory, Human Development, Educational Psychology

**David M. Macrina** , Professor; Health Promotion, Community Health, Planning

**Cynthia J. Petri** , Associate Professor; Health Behavior, HIV Education and Prevention, Technology, Theory

**Jane Roy** . Assistant Professor, Exercise Physiology

**Gary L. Sapp** , Professor; Cognitive Assessment, School Psychometry, School Psychology, Personality Theories

**Kristi Sayers** , Assistant Professor, Physical Education Pedagogy, Adapted Physical Education

**Patricia M. Sheets** , Assistant Professor; Rehabilitation Counseling, Legal and Ethical Issues in Counseling, Clinical Coordinator

**Scott W. Snyder** , Associate Professor; Child Development, Measurement, Early Childhood Special Education, Program Evaluation

**Lawrence Tyson** , Assistant Professor; School Counseling, Human Development Group

**David Whittinghill** , Assistant Professor; Career Counseling, Substance Abuse Counseling, Counseling

Technology, Pharmacology

**Lesa Woodby** , Assistant Professor; Evaluation  
Research, Smoking Cessation, Health Education

## **M.A.Ed. Program**

### **Admission Requirement and Prerequisites**

In addition to the general admission requirements of the Graduate School, the following prerequisites apply to these programs. The prerequisites are not part of the graduate program. Applicants without the prerequisites may be admitted conditionally and take up to 12 semester hours of graduate work while completing the prerequisites. Specific course prerequisites are determined on an individual program basis by the student's advisors.

### **Exercise Physiology**

The Exercise Physiology specialization offers a master's degree option for students interested in either clinical exercise physiology or physiology research. The curriculum is multidisciplinary and comprises courses in the Schools of Education, Medicine, Health Related Professions, and Public Health. Two program plans are offered (detailed below). Plan I culminates with a thesis research project, and Plan II culminates with a written comprehensive exam. Resources for student participation in research include a Muscle Research Laboratory, a Strength Performance Laboratory, and a Body Composition/Energy Metabolism Laboratory. Wide arrays of field experiences are also available in local agencies and clinics. In addition to Graduate School admission requirements, prospective students must have completed undergraduate coursework in physiology, anatomy, and chemistry. First-year students begin in the fall term. Listed below are the courses required in the program and a sample of elective courses.

### **Plan I (27 hours and thesis)**

Major Courses (12-15 hours)

Course	Course Name	Semester Hours
PE 637	Exercise Physiology I	3
PE 638	Exercise Physiology II	3
EPR 692	Research Methods	3
PE 642	Practicum in Exercise Physiology	3
EPR 609	Statistical Methods and Research in Education	3
	Thesis	6
	Related Field	6-9

### **Plan II (36 hours of coursework)**

Major Courses (12-15 hours)

Course	Course Name	Semester Hours
PE 637	Exercise Physiology I	3
PE 638	Exercise Physiology II	3
EPR 692	Research Methods	3
EPR 609	Statistical Methods and Research in Education	3
	Elective in Major	3
	Thesis Substitution	12
	Related Field	6-9

Sample Major Electives for Plan I and II

PE 656 Advanced Sport Psychology  
PE 640 Advanced Techniques in

Conditioning the Athlete  
PE 639 Exercise Prescription for High  
Risk Populations  
PE 672 Advanced Treatment of Athletic  
Injuries  
PE 674 Sport Performance and Nutrition  
PE 645 Motor Development  
PE 695 Problems in Physical Education  
PE 630 Mechanical Analysis of Motor  
Skills  
PE 585 Principles of Fitness Leadership

Sample Courses for Related Fields, Plan I and II

NTR Medical Nutrition  
601  
NTR Nutritional Biochemistry I  
618  
NTR Nutritional Biochemistry II  
619  
NTR Body composition & energy  
650 Metabolism  
PHA Epidemiology of Chronic Disease  
602  
GER Biology of Aging  
540  
HE 502 Mental Health & Stress  
Management  
HE 532 Administration of Health &  
Fitness Programs

### **Course Descriptions**

See physical education course descriptions.

### **Health Education/Health Promotion (M.A.Ed.)**

The health education graduate program (master's) is designed to prepare individuals for advanced health education careers in agency, schools, worksites, and allied health care settings. Program options

allow students to choose between a thesis or nonthesis option and an opportunity to pursue elective course work in a related field area or allied health area.

### **Programs of Study**

Health Education Thesis & Health Education Nonthesis

#### **Plan I**

Thesis required (24 hours course work required.)

Major Courses (15 hours)

1. EPR 692. Introduction to Educational Research Design
2. HE 610. Foundations of Health Education
3. HE 640. Content Issues I or HE 641, Content Issues II
- 4-5. Choose 6 hours from the following:

HE 531 Planning and Evaluating  
Effective Health

Education and Promotion  
Programs

HE 532 Administration of Health and  
Fitness Programs

HE 642 Health Behavior and Health  
Education

HE 689 Methods and Materials for  
Planning Health

Education Programs

HE 697 Evaluation of Health Education  
Programs

Research Course (3 hours)

EPR 609 Statistical Methods and Research in Education:  
Intermediate. Prerequisite: EPR 608.



## **Plan II**

Nonthesis (33 hours course work required.)

Major Courses (15 hours)

1. EPR 692. Introduction to Educational Research Design
2. HE 610. Foundations of Health Education
3. HE 640. Content Issues I or HE 641, Content Issues II
- 4-5. Choose 6 hours from the following

HE 531 Planning and Evaluating  
Effective Health

Education and Promotion  
Programs

HE 532 Administration of Health and  
Fitness Programs

HE 642 Health Behavior and Health  
Education

HE 689 Methods and Materials for  
Planning Health

Education Programs

HE 697 Evaluation of Health Education  
Programs

HE elective (502, 508, 521, 523, 557, 592, 593, 598, 602, 606, 612).  
(3 hours)

Research Course. (3 hours)

EPR 609. Statistical Methods and Research in Education:  
Intermediate. Prerequisite: EPR 608.

## **Physical Education**

Degrees offered include the Master of Arts in Education and the Educational Specialist. At the master's degree level students may specialize in Exercise Physiology (see listing above for more information about this program) or complete a teacher certification program. The teacher certification program links teacher certification with the graduate program in physical education. For example, the M.A. Ed. awards the level A certificate and the Ed.S. is linked to the AA certificate. Each program requires a teaching certificate in physical education at the previous level (e.g., B certificate for admission to the A level, except the Alternative A program, and the A certificate for admission to the AA certificate).

Master of Arts in Education and "A" level teaching certificate;  
Nonthesis (31-37 hours)

Teaching Field: At least 1/3 of the program shall be teaching field courses. (18 hours)

PE 645 Motor Development	3
PE 647 Teaching Strategies and Issues in K-12 Physical Education	3
PE 643 Curriculum Development in Physical Education	3
600-level electives as approved by  advisor	9

Survey of Special Education Coursework: Required if not previously completed (0-3 hours)

ECY 600 Introduction to Exceptional Learners

Additional Courses: (13-16 hours)

EPR 608 Statistical Methods and Research in Education	3
EPR 607 Microcomputer Applications to Statistics	3
Foundations(see approved list)	3

and  
Professional  
Studies

	Technology	0-3
Elective	Competency (as approved by advisor)	3

### **Alternative A (Nontraditional 5th-Year Physical Education program) Nonthesis**

Additional requirements are 59 hours of prescribed coursework. Contact Student Services in Suite 100 Education Building, UAB for specific courses required.

Curriculum and Teaching:

PE 643 Curriculum Development in  
Physical Education 3

Professional Studies:

EDF Social Philosophies and 3  
604 Education

Survey of Special Education Coursework: Required if not previously completed. (0-3 hours)

ECY Introduction to Exceptional 0-3  
600 Learners

Technology:

Competency in technology 0-3

Evaluation of Teaching and Learning:

EPR	Statistical Methods and	3
608	Research	
EPR	Microcomputer	1
607	Applications in	

## Statistical Analysis

Reading :

Reading in Content Area 3

Internship:

PE 696 Elementary/Secondary      9  
Physical

Education Internship

Teaching Field:

At least 1/3 of the program shall be teaching field courses (12)

PE 645 Motor Development      3

PE 647 Teaching Strategies and      3  
Issues

Additional hours of      6  
Physical Education

## **Ed.S. Degree**

Teaching Field:

At least 1/3 of the program shall be teaching field courses (21-24 hours)

PE 726 Supervised Research in      3  
Physical

Education

PE 694 Seminar in Physical      3  
Education

600- and 700-level      15-18  
Physical Education  
courses

(PE 643, 645, 647 must be taken if comparable courses were not part of the master's program)

## Survey of Special Education Coursework:

ECY 600 Introduction to Special Education 0-3

### Additional Courses:

EPR 692 Introduction to Educational Research 3  
EPR 609 Statistical Methods and Research: Intermediate Technology Competency 0-3  
Electives 600- or 700-level 3-6  
with Professional Studies or Teaching Field courses  
Permission of advisor

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Health Education (HE)

**502. Mental Health and Stress Management.** Fundamental concepts of mental health and mental illness, with emphasis on etiology, symptomology, treatment, and prevention of mental illness. Elementary skills, dynamics of stress, and contemporary methods of stress management.

**508. Drug Use and Abuse.** Emphasis on emotional, intellectual, psychological, and social aspects of drug use. Misconceptions about drugs. Attitudes toward drugs and drug prevention and treatment programs.

521. **Health Communication.** Skills appropriate for selected health problems; problem solving and referrals.

523. **Human Sexuality.** Biological, sociological, and cultural aspects of sexuality.

531. **Planning and Evaluation.** Program planning and curriculum development for school, agency, and health care settings. Need assessment, objective setting, methodology, and evaluation are emphasized.

532. **Administration of Health and Fitness Programs.** Administrative theory applied to health and fitness settings.

593. **Educational Gerontology.** Program preparation for generic consumers. Major health concerns facing many senior citizens and ways to communicate educational interventions. Prerequisite: Permission of instructor.

598. **Issues in Women's Health.** Historical and psychosocial factors that have and may continue to influence the potential health status of the American female. Major causes of morbidity and mortality as well as tips for health care system utilization.

601. **Current Readings in Health Education.** Review of literature in health education. Development of annotated bibliography pertinent to professional practice. Prerequisite: Permission of advisor.

602. **Alcohol and Society Seminar.** Effects of alcohol on individual health, family relations, and community life. Prerequisite: Permission of instructor.

606. **Issues in Disease Control.** Nature and distribution of disease; communicable and nutritional diseases of childhood; possibilities for prevention. Prerequisite: HE 223 or permission of instructor.

610. **Foundations of Health Education.** Issues in health education; school, community, or patient health education. Prerequisite: Permission of instructor.

611. **School Health Programs.** National, state, and local factors influencing school health programs; influences of official and nonofficial agencies. Historical perspective, present and future directions of profession and school health. Prerequisites: HE 342, 343, 431, and 489.

612. **Workshop in Health.** Concepts and methods to increase proficiency. Comprehensive health education K-6 or 7-12; health education in school, community, or both. 3 to 6 hours.

640. **Content Issues I .** Drugs, death, human sexuality, nutrition, international health, legislation, and physical and spiritual dimensions of health. Decision making and problem solving. Implication of research, computer applications.

641. **Content Issues II.** Selected health issues. Personal characteristics of population (age, sex, emotional well-being) and external factors (societal and environmental); interventions and other approaches and solutions. Prerequisite: Admission to graduate program in HE and permission of instructor.

642. **Health Behavior and Health Education.** Prerequisite: HE 610.

689. **Materials and Methods of Health Education.** Ethical, theoretical, and practical aspects of health education; teaching techniques, decision-making skills, curricular development, organization skills, and techniques. Prerequisites: HE 342, 431, 434, and 489.

691. **Special Topics in Health Education.** Topics in school and community health education; development of new ways to examine situations. Prerequisite: Completion of HE core courses. 3 or 6 hours.

692. **Supervised Research in Health Education.** Research problem based on school, community, or public health education needs. Prerequisite: Permission of advisor and EPR 508 or 509. 3 or 6 hours.

693. **Advanced Field Experience.** Professional practice and research supervised by qualified health education professionals in approved health education work setting. 3 or 6 hours.

**695. Junior/Secondary Health Education.** Student teaching. Prerequisite: HE 610, 689, and other courses identified by advisor. 9 hours.

**698. Nonthesis Research.** 1-6 hours.

**699. Thesis Research.** Supervised research project. Prerequisite: Admission to candidacy and permission of advisor. 1, 2, 3, or 6 hours.

## **Health Education/Health Promotion (Ph.D.)**

The Ph.D. program in Health Education/Health Promotion has been designed to provide students with the academic and practical experiential background to become leading practitioners and researchers in health education and health promotion. The program combines the resources of academic units from the University of Alabama at Birmingham ( School of Education and School of Public Health) and the University of Alabama at Tuscaloosa ( College of Education).

### **Admission**

Student applications are reviewed by a joint admissions committee composed of members of the participating academic units. Applicants should meet the admissions requirements of the graduate school, including submittal of scores on the GRE. Admission to the program is competitive, with evidence of scholarship, career goals and research interest, professional recommendations, and professional experience among those factors receiving strong consideration. Candidates for admission must have completed a bachelor's or master's degree from an accredited institution in health education or a health-related field.

### **Program of Study**

Students may enter the program with either a bachelor's or master's degree in health education or a master's degree in a closely related health field. Prerequisite coursework includes Foundations of Health Education, Administration of Health Education, Health Education Planning and Evaluation, Health Education Methods, Materials and Delivery, and Research Design and Statistics



These requirements may be corequisite components in the program.

The Ph.D. degree program will require students to complete a minimum of 72 credit hours: 36 hours of coursework, 12 hours of research internship, and 24 hours of dissertation research.

Students entering the program with a master's degree may transfer appropriate coursework to this program, but this will not reduce the number of courses required. Students will not be required to retake coursework already completed but may be required to complete prerequisites as part of their planned course of study. A required review of student credentials prior to admission will identify strengths and needs. This review will provide students with a blueprint for their course of study and will be conducted by their advisor.

The specific components of the Ph.D. program in health Education and Health Promotion are outlined below.

#### I. Health Education/Promotion Core Courses

(UA = HHE, UAB-Public Health = HB, UAB-Education = HE)

A. Advanced Theoretical and Scientific Basis of Health Education and Health Promotion (HHE 605, HB 750, HE 705)	3 hr
B. Planning and Administration of Health Education and Health Promotion (HHE 606, HB 760, HE 710)	3 hr
C. Health Communications Research (HHE 607, HB 730, HE 710)	3 hr
D. Doctoral Studies Seminar (HHE 604, HB 770, HE 695)	3 hr
Subtotal	12 hr

#### II. Advanced Research and Statistical Methods

A. Multivariate/Multiple Regression Analysis	3 hr
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B. Advanced Epidemiological Research Methods	3 hr
C. Data Management/Computer Technology	3 hr
D. Evaluation/Research Methods	3 hr
Subtotal	12 hr
III. Coursework in the Social and Behavioral Sciences Minor	12 hr
IV. Research Internship	24 hr
V. Dissertation	24 hr
Total	72 hr

### **Course Descriptions**

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

#### **Health Behavior (HB)**

**730. Health Communication Research.** In-depth exposure to current research involving media strategies used to persuade individuals to adopt new lifestyles. Critically examines major research conducted during last decade regarding single subjects, groups, communities, and media intervention. Focus on all media, including print, audiovisual, radio, and television.

**740. Evaluation Research: Health Promotion/Disease Prevention Research.** Theory and applications of original behavioral repopulation, selection of measurement, data collection, design and analytical techniques, and preparation of evaluation research report. NIH-type research proposal required. Prerequisite: Doctoral student or advanced master's student with permission of instructor.

#### **Health Education (Ph.D.)**

**700. Seminar in Health Education.** Presentation of health education research.

701. **Special Topic in Health Education.** Topics in school and/or community health education; development of new ways to examine situations. Prerequisite: Permission of advisor. 3 or 6 hours.

702. **Supervised Research in Health.** Research problem based on school, community, or public health education needs. Prerequisite: Permission of advisor. 3 or 6 hours.

703. **Advanced Field Experience.** Professional practice and research supervised by qualified health education professionals in approved health education work setting. 3 or 6 hours.

705. **Advanced Theoretical and Scientific Basis of Health.** Analysis of knowledge, attitude and behavior change strategies, and resulting effect on health status.

710. **Planning and Administration of Health Education/Health Promotion Programs.** Case study of school and community health education interventions. Decision making and development of program planning skills in designing interventions in a variety of health education settings.

720. **Evaluation of Health Education Programs.** Evaluation protocols in health education settings; needs assessments, process and formative evaluations, cost benefits, summary reports.

729. **Ed.S. Thesis Research.** Prerequisite: Admission to candidacy.

730. **Evaluation Research Methods.** Theory and application of behavioral evaluation research including preparation of research NIH type proposals.

731. **Health Education Planning and Promotion.**

732. **Evaluation of Health Education Programs.**

740. **Evaluation of Health Education Programs.**

\* 798. **Nondissertation Research.**

\* 799. **Dissertation Research.** Prerequisite: Admission to candidacy.

## **Physical Education (PE)**

601. **Introduction to Sport Administration.** Planning, organizing, staffing, managing, directing, and evaluating sport and athletic programs.

607. **Principles of Coaching.** Philosophy, physiology, pedagogy, athletic training, and law related to coaching.

615. **Sport Facility Planning.** Factors influencing the planning, funding, and construction of a variety of sports facilities.

630. **Mechanical Analysis of Motor Skills.** Application of principles of physics to human movement. Analysis through videotape and cinematography techniques. Prerequisite: PE 307.

631. **Foundations of Physical Education.** Overview of various subfields of physical education.

632. **Supervision of Physical Education.** Study of skills required to supervise teachers of physical education and in other related fields.

636. **Current Readings in Physical Education.** Individual readings on contemporary topics and issues in physical education. Prerequisite: Permission of advisor.

637. **Physiology of Exercise I . Description of basic organ systems and their functioning in relationship to the physiology of exercise.**

638. **Physiology of Exercise II.** Applied exercise physiology information, techniques, and research methods.

639. **Exercise Prescription for High Risk Populations.** Lecture and laboratory practice; physiological basis of exercise testing and training. (Prepares students to take ACSM Exercise Specialist certification examination.) Prerequisites: PE 400 and BY 115.

640. **Advanced Techniques in Conditioning the Athlete.** Advanced training principles; developing testing and training programs for athletes. Prerequisites: PE 400, BY 115 and 116.

**642. Practicum in Physiology.** Practical experience and observations in human physiology. Seminars by medical, dental, and nursing faculty. Effects of drugs, diet, exercise, and disease on human body. Prerequisite: PE 641. 3 or 6 hours.

**643. Curriculum Development in Physical Education.** Trends in methodology, programming, and scheduling.

**645. Advanced Motor Development.** Factors influencing development of motor skills across lifespan.

**647. Teaching Strategies and Issues in K-12 Physical Education.** Design, implementation, and evaluation of appropriate physical education programs for elementary and secondary schools.

**649. Adapted Physical Education.** Current research and teaching methodology in adapted physical education; nature of selected disabilities, implications for physical education.

**650. Social Aspects of Sport.**

**651. Issues and Problems in Coaching.**

**652. Measurement and Evaluation of Athletes.**

**655. Motor Learning.** Factors influencing learning and performance of motor skills.

**656. Advanced Sport Psychology.** Relationship of psychology to sports performance.

**672. Advanced Treatment of Athletic Injuries.** Seminar and practical experience. Conducted by certified trainers at UAB Sports Medicine Clinic.

**674. Sport Performance and Nutrition.** Nutrition, rest, and training research relating to coach-player-doctor-trainer relationship, legal implications relating to competitive athletics.

**690. Seminar in Sports Administration.**

**694. Special Projects in Physical Education.** Independent projects supervised by faculty. Prerequisite: Permission of advisor. 1, 2, 3, or 6 hours.

**695. Problems in Physical Education.** Contemporary topics in physical education (class meeting format). Prerequisite: Permission of advisor. 3 or 6 hours.

**696. Elementary/Secondary Physical Education Internship.** Clinical placement in approved school. Required in nontraditional 5th-Year Program. Prerequisite: Completion of appropriate coursework. 9 hours.

**697. Advanced Field Experience in Physical Education.** Clinical placement in approved sites. Prerequisite: PE 647 or 488. 3 or 6 hours.

**698. Coaching Internship (Individual Sport).** 100 clock hours of experience with veteran coaches. Prerequisite: PE 407 or 607.

\* **699. Thesis Research.** Supervised research project. Prerequisite: Admission to candidacy and permission of advisor. 1, 2, 3, or 6 hours.

**710. Special Topics in Physical Education.** Special courses offerings on contemporary topics. Prerequisite: Permission of instructor.

**715. Advanced Field Experience in Physical Education.** Supervised field experiences in public school clinical sites. Prerequisite: PE 488 or 647. 3 or 6 hours.

**718. Practicum in Exercise Physiology.** Practical experience and observations in human exercise physiology. Prerequisite: PE 641 and permission of advisor.

**720. Research Design and Methodology.** Measurements and research design in areas of biomechanics, motor learning, motor development, sport psychology, and exercise physiology. Prerequisite: EPR 692 or equivalent.

726. **Supervised Research in Physical Education.** Independent student research supervised by a full-time program faculty member. Prerequisite: Permission of advisor, and EPR 609 and 692. 3 or 6 hours.

728. **Ed.S. Thesis Research.** Prerequisite: Admission to candidacy, research methods and sufficient course work in area of emphasis to be able to formulate a problem, develop a research design, and write a thesis proposal. Permission of advisor and instructor. Pass/Fail. 3 or 6 hours.

729. **Seminar in Physical Education.**

## Counseling Specializations

### Counselor Education

Admission to graduate study in counseling will occur three times per year, and the completed packet of materials must have been received in the Department of Human Studies from the Graduate School by the dates shown:

<i>Term</i>	<i>Deadline</i>
Fall	July 1st
Spring	October 1st
Summer	April 1st

In addition to the transcripts and test scores required by the Graduate School, the file must include a statement of the applicant's goals or purposes to be accomplished by completing the program; an interview may also be required as a part of the admissions process. Admission is competitive and limited. Selection will be made by the counseling faculty after reviewing the applicant's credentials in their entirety, and some candidates meeting minimum requirements may not be admitted.

## Evaluation of Candidates

Master's Level: Evaluation of student counselor is an on-going process. The faculty reserves the right to determine candidate's appropriateness as a professional. A comprehensive examination will be given upon completion of Area I and Area II. Students who do not successfully pass this examination will be given the opportunity to take the exam. Students unsuccessful in passing the comprehensive exam will be dismissed from the program. In addition, students must have demonstrated specific competencies in Area II (specifically ECG 638 and ECG 626) as evidenced by faculty approval in order to proceed in the program. This demonstrated competency is in addition to the grade received in the course.

Ed.S. Level: Students in the Ed.S. program will compile a professional portfolio and will make formal presentation of the portfolio to the faculty.

## Clinicals

Prerequisites for the clinical experience include successful completion of required coursework, successful completion of comprehensive exams, and demonstration of required competencies in Areas I and II. The practicum experience requires a minimum of 100 hours on-site in an agency, school, or rehabilitation setting. The internship is 600 hours on-site. Grading for the clinical is on a Pass/Fail basis. To receive a Pass grade the student must attain a B or better. **If a student fails to pass any portion of the clinical experience, he or she will not be allowed to continue in the program.** Taking the clinical experience over will **not** be an option.

## School Counseling

This specialization is designed to prepare individuals as counselors in grades K-12. The program leading to the Master of Arts in Counseling degree requires a minimum of 49 semester hours of prescribed coursework to meet the academic and field experience requirements for the SDE Class A Professional Certificate in school counseling.

The Educational Specialist (Ed.S.) degree in this field requires a minimum of 33 semester hours of prescribed coursework beyond the



Master of Arts in Education degree and a terminal research project. This specialization meets the academic and field experience requirements for the SDE Class AA Professional Certificate in school counseling.

### **Community Counseling**

The two specializations outlined below are intended to prepare graduates to work in agency and mental health settings and lead to recommendation by the department for licensure as a Licensed Professional Counselor (LPC). Applicants to these counseling specializations should carefully identify the counseling role they intend to fulfill and choose the appropriate training.

### **Agency Counseling**

Designed to meet the needs of individuals interested in working as counselors in various community agencies, including private practice as LPC. The agency counseling specialization for the Master of Arts in Counseling degree requires 49 semester hours of planned course work. If Plan I is followed, up to 6 semester hours of thesis research credit are allowed. The program leading to the Ed.S. degree with the agency counseling major requires a minimum of 33 semester hours of planned coursework beyond the master's degree and a terminal research project.

### **Rehabilitation Counseling**

Designed to prepare individuals to work as a rehabilitation counselor in private practice or public agencies with physically, mentally, and socially impaired persons. The Master of Arts in Counseling degree with this specialization requires a minimum of 49 semester hours of planned coursework and field experiences. The content of the specialization meets the academic requirements for LPC and Certified Rehabilitation Counselor (CRC). Students who wish to go beyond the rehabilitation counseling master's degree may continue toward the Ed.S. degree in agency counseling.

## **Counseling and Guidance (ECG)**

522. **Strategies for Attitude Development.** Dynamics of both negative and positive attitudes. Methods for improving communications, developing empathy. Techniques for determining personal strengths, setting goals, managing time, developing strong positive attitudes and self-images.

523. **Strategies for Effective Interviewing.**

524. **Conflict Management.**

540. **Introduction to Rehabilitation.** Introduction and overview of rehabilitation process.

570, 670. **Crisis Intervention Techniques.** Overview of crisis counseling. Theory and practical application of crisis intervention.

574, 674. **Seminar on Death, Dying, and Bereavement.** Provides general knowledge of death, dying, and bereavement issues faced in today's society.

578. **Counseling the African American Client.** Dynamics of working with African American clients in counseling settings. Prerequisite: Admission to the Counseling Education Program.

612. **Professional, Ethical, and Legal Issues in Counseling.** Emphasis on understanding of professional roles and responsibilities; ethical and legal issues; historical perspectives; preparation standards; credentialing; trends and issues in the counseling profession.

619. **Special Issues for School Counselors.** Exposure to a variety of critical incidents that cover a variety of experiences will be presented in a seminar environment and will require the student counselor's expertise and proper response. Authorities from the various school systems, law enforcement agencies, counseling/mental health agencies, and child protective agencies will provide knowledge and insight from their perspectives.

**620. Foundations and Administration of Counseling Services in the Schools.** Social, psychological, economic, and philosophic trends leading to development of guidance programs in American schools. Organization and administration of guidance services.

**621. Prepracticum: Theories and Techniques in Individual Counseling.** Educational, vocational, and personal counseling. Observations and simulations.

**623. Comprehensive Counseling and Guidance in Middle and High School.** Offers an understanding of the nature of middle and high school children as related to their guidance and counseling needs. Identification of the developmental needs, problems, and issues of adolescents (ages 13-18). Identification, development, and practice of counselor interventions in individual counseling, small group counseling, large group guidance, peer facilitator training, consultation, and program coordination.

**624. Assessment in Counseling.** Using standardized tests in schools and related agencies. Prerequisites: 3 hours of statistics.

**626. Theories and Processes of Group Counseling.** Guidance and counseling in small groups. Prerequisites: ECG 621 and 638 or permission of instructor.

**627. Counseling in Elementary School.** Guidance services and activities appropriate for preschool and elementary grades; facilitating intellectual, psychological, and social development during early school years.

**628. Societal Issues in Counseling.** Survey of issues and principles for relating professionally to individuals from diverse backgrounds and lifestyles. Includes sensitivity to differences in values, beliefs, attitudes, and culture.

**630. Career Development: Theory and Research.** Career choice; theories of career development, vocational testing, and research.

**631. Interpersonal Dynamics in Small Groups.** Experiential group designed to increase understanding of interpersonal dynamics in small groups. Prerequisite: Permission of instructor.

**632. Technology for Counselors: Case Management and Report Writing.** Emphasis on using specialized software to enhance clinical report writing: intake interviews, diagnostic workups, psychological evaluation, assessments, psychosocial narratives and histories, treatment plans, progress notes, and genograms. Practice management programs are highlighted.

**635. Medical Information for Counselors.** Medical information, terminology, body systems, and vocational implications of disability; application to problems of disabled clients.

**636. Psychological and Sociological Aspects of Rehabilitation Counseling.** Psychological aspects of disabilities and sociological reactions to disabled persons. Rehabilitation counseling. Psychological aspects of disabilities and sociological reactions to disabled persons. Rehabilitation process and psychological adjustment within world of work.

**637. Adlerian Family Counseling.** Helping parents understand children. Parent-child relationship promoting responsibility, self-reliance, cooperation, mutual respect, and self-esteem.

**638. Practicum I: Introduction to the Counseling Process.** Skills and techniques for establishing effective interpersonal relationships. Prerequisite: ECG 621.

**648. Case Management Process in Rehabilitation.** Principles and processes of case management as outlined by State Department of Vocational Rehabilitation in case service manual.

**650. Counseling the Client Who is Psychologically Impaired.** Limitations placed by certain psychiatric disorders on counseling and adjustment therapy; case management, vocational placement and stability, and family and other interpersonal relationships. Prerequisite: Course in personality theory, individual and group counseling, abnormal psychology, or advanced human development.

**660. Dynamics of Child Sexual Abuse.** Critical concerns and issues, effective techniques and practices.

**673. Counseling Needs of Women.** Women's development and needs; problems women bring to counselors and strategies for helping them; myths about women; and biases in psychological research.

**691. Seminar: Special Topics in the Helping Professions.** Emerging trends, techniques, and issues. Prerequisite: Permission of instructor. 1-3 hours.

\* **692. Independent Readings in Counselor Education.** Prerequisite: Permission of advisor and instructor. May be repeated for total of 6 hours. 1-3 hours.

**695. Practicum II: Supervised Field Experience.** A 100-hour-minimum field placement in an agency school or rehabilitation setting. Focus is on developing counseling competencies. Prerequisite: Completion of Areas I and II, and comprehensive exams; permission of clinical coordinator.

**697. Counseling Internship.** Field experience in setting appropriate to student's program; participation in activities of school or agency counseling services, within constraints of ethical practice. 3 hours for 2 terms (600 clock hours).

**698. Individual Nonthesis Research in Counseling and Guidance.** Prerequisite: Permission of instructor.

**726. Ed.S. Group Supervision.**

**795. Ed.S. Practicum Supervision.** Experiential course in which Ed.S. students are assigned to assist in master's level practicum groups in the Counseling Education program. Applied knowledge of counseling supervision theories. Prerequisite: ECG 704.

**797. Ed.S. Internship Supervision.** An experiential course in which Ed.S. students are assigned to provide supervision under faculty direction to a section of the master's level internship. Applied knowledge of supervision theories and practices are highlighted. Prerequisites: ECG 704 and 795.

## **Education Psychology (EPR)**

### **School Psychometry**

The M.A. Ed. specialization is designed to train individuals to work as psychometrists in public schools. The program requires a minimum of 34 semester hours of planned coursework and field experiences and includes a 300-hour , full-time internship. This program also meets the requirements for the SDE class A Professional Certificate in school psychometry.

### **School Psychology**

This Ed.S. specialization prepares graduates to function as school psychologists in public schools. The program requires a minimum of 42 semester hours of planned study beyond the M.A. degree, a terminal research project, and a 1200-hour , full-time internship. This program meets the SDE requirements for the Class AA Professional Certificate in school psychology.

### **Course Descriptions**

Unless otherwise noted, all courses are offered for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

**510. Introduction to Measurement and Evaluation in Education.** Basic concepts and principles of measurement and evaluation of personal and academic progress in classroom. Emphasis on elementary descriptive statistics and measurement techniques used in student evaluation.

**596. Introduction to Qualitative Methods in Educational Research.** Use of qualitative methods in education. Exploration of theoretical premises, philosophical assumptions, and ethical issues. Examination of traditions of qualitative inquiry, methods of data collection and analysis. Applied knowledge in designing and conducting an qualitative mini-research project: Prerequisite: EPR 692.

600. **Introduction to School Psychology.** Overview of professional practices and crucial issues in school psychology.

607. **Microcomputer Applications to Statistical Analysis.** Use of microcomputers in computations of descriptive statistics. Prerequisite or corequisite: EPR 608. 1 hour.

608. **Statistical Methods and Action Research.** Statistical methods for describing sets of data, differences and relationships infused in an action research paradigm. Included are conceptualizing, implementing action research with computer applications. Corequisite: EPR 607.

609. **Statistical Methods and Research in Education: Intermediate.** Basic inferential techniques including hypothesis testing, parametric and nonparametric techniques. Assumptions, rationale, and interpretation of analysis of variance techniques. Prerequisites EPR 607 and EPR 608 or basic statistics course.

610. **Child Psychology.** Human development through infancy, preschool, and preadolescence.

611. **Adolescent Psychology.** Social, emotional, and cultural aspects of adolescence affecting classroom and school behavior.

614. **Lifespan Human Development.** Social-emotional, intellectual-language, and physical-motor development from conception to old age. Prerequisite: General psychology.

616. **Personality Theories for the Helping Professions.** Introduction to major theories of personality as applied to psychoeducational settings: Prerequisites: 3 hours of general psychology and 3 hours of graduate educational psychology or human development.

622. **Learning Theories.** Application to educational practice. Behavioral theories, information processing, biochemical basis of memory and learning.

**627. Practicum in Individual Assessment.** Forty-hour supervised experience in administering individualized cognitive ability and achievement tests . Prerequisite : Permission of Instructor. 1 hour.

**628. Individual Assessment in School Psychology I.**

Administration, interpretation, and use of WISC-IV, WAIS-III, and Stanford-Binet V intelligence scales. Prerequisite: Permission of instructor. 4 hours.

**629. Individual Assessment in School Psychology II.**

**Administration, interpretation, and use of WJ-III Cognitive, WJ-III Achievement, and UNIT scales.** Prerequisite: Permission of instructor and completion of EPR 628. 4 hours

**630. Clinical Assessment in Education.** Individual intelligence, personality, and projective tests used by school psychologists. Prerequisite: Permission of program coordinator.

**688. Seminar on Current Issues in Measurement and Evaluation in Schools.** Issues of standardized testing and classroom assessment for teachers and administrators.

**689. Internship and Seminar in School Psychology I.** Daily, one-semester participatory experience in school setting supervised by certified school psychometrist. Prerequisite: Completion of school psychometry major.

\* **691. Independent Readings in Educational Psychology and Research.** Prerequisites: Permission of advisor and instructor. May be repeated for total of 6 hours. 1-3 hours.

**692. Introduction to Educational Research Design.** Literature of educational research. Rationale of library and empirical research. Research on current educational issues. Prerequisite : EPR 607/608.

**696. Qualitative Research Methods: Inquiry and Analyses.** History and philosophy of qualitative research. Traditions of qualitative inquiry: biography, case study, ethnography, grounded theory, and phenomenology. Development of skills necessary to conduct qualitative research: data collection, use of software, analysis, and interpretation. Prerequisites: EPR 596,



**710. Computer Applications and Advanced Statistical Methods.** Multivariate procedures, experimental designs, and data analysis. Prerequisite: EPR 609.

**719. Internship and Seminar in School Psychology II.** Twelve hundred hours of supervision in an applied setting. Prerequisite: Completion of all content courses and permission of program director.

**792. Mixed Methods Approaches Educational Research.** History and philosophy of mixed methods research, types of problems addressed, mixed methods designs, data collection and analysis, reporting and analyzing mixed method studies, selecting and designing a mixed method study. EPR 596, 609, 692.

**793. Doctoral Seminar in Research Evaluation and Design.** Development of a draft of a dissertation proposal. Formulation of a research problem and stipulation of a quantitative research design and procedures for doctoral candidates completing a quantitative or mixed methods dissertation. Collaboration of dissertation chairperson required. Prerequisites: EPR 609

**796 Qualitative Research: Doctoral Seminar.** Development of a draft of a dissertation proposal using qualitative methodology for doctoral candidates completing a qualitative dissertation. Collaboration of dissertation chairperson required Prerequisites: EPR 696

## **PHYSICAL EDUCATION**

**696. Elementary/Secondary Physical Education Internship.** Clinical placement in approved school. Required in nontraditional 5th-Year Program. Prerequisite: Completion of appropriate coursework. 9 hours.

**697. Advanced Field Experience in Physical Education.** Clinical placement in approved sites. Prerequisite: PE 647 or 488. 3 or 6 hours.

**698. Coaching Internship (Individual Sport).** 100 clock hours of experience with veteran coaches. Prerequisite: PE 407 or 607.

\* 699. **Thesis Research.** Supervised research project. Prerequisite: Admission to candidacy and permission of advisor. 1, 2, 3, or 6 hours.

710. **Special Topics in Physical Education.** Special courses offerings on contemporary topics. Prerequisite: Permission of instructor.

715. **Advanced Field Experience in Physical Education.** Supervised field experiences in public school clinical sites. Prerequisite: PE 488 or 647. 3 or 6 hours.

718. **Practicum in Exercise Physiology.** Practical experience and observations in human exercise physiology. Prerequisite: PE 641 and permission of advisor.

720. **Research Design and Methodology.** Measurements and research design in areas of biomechanics, motor learning, motor development, sport psychology, and exercise physiology. Prerequisite: EPR 692 or equivalent.

726. **Supervised Research in Physical Education.** Independent student research supervised by a full-time program faculty member. Prerequisite: Permission of advisor, and EPR 609 and 692. 3 or 6 hours.

728. **Ed.S. Thesis Research.** Prerequisite: Admission to candidacy, research methods and sufficient course work in area of emphasis to be able to formulate a problem, develop a research design, and write a thesis proposal. Permission of advisor and instructor. Pass/Fail. 3 or 6 hours.

### ***Counselor Education***

The graduate programs in counseling are designed to train students to make appropriate and ethical decisions as counseling professionals. The most important of these decisions is the selection of strategies that empower clients to make personal decisions leading to the resolution of problems and resulting in an improved quality of life. Clients represent the multicultural, multiethnic, and multivalued character of a diverse American society. Thus, counselors must understand human behavior in terms of its psychological,

physiological, and sociological influences and make professional decisions within the legal and ethical constraints that are applicable.

Students in the counseling programs in the department are encouraged, aided, and expected to perceive themselves as professionals who work closely and cooperatively with other professionals, such as those in public and private school systems, colleges and universities, community and private programs and agencies, and government service agencies. Professionalism in this context means that students are aware of their own knowledge and skill levels, abilities, characteristics, and perspectives, and the respective limits thereof, and that they behave in accordance with the highest ethical and professional standards. Students are expected to demonstrate acquired knowledge and skills throughout the program. Through feedback and self-exploration, students will gain a better understanding of their responsibilities as counselors.

All counseling programs (agency, rehabilitation, school) are designed to meet the course-work and field experiences requirements outlined in the accreditation standards of the Council for Accreditation of Counseling and Related Educational Programs (CACREP). In addition, the rehabilitation counseling specialty area meets the Council on Rehabilitation Education (CORE) certification requirements. The school counseling program meets the course work and field experiences required by the Alabama State Department of Education for certification. All programs meet the academic requirements for licensure as professional counselors in Alabama. As a program strength, the faculty who teach the counseling theory and skills courses are professional counselors who participate in limited practice in their specialty areas.

### **Agency Counseling Specialty**

The role of professional counseling has become increasingly important as an effective source of personal assistance in dealing with a myriad of problems in a complex society. The counseling profession is alive with ideas and techniques based on developmental and behavioral theory and has established a rightful place among the helping professions. Counseling has a serious contribution to make toward the psychological, social, and physical

well-being of members of the community. We welcome the interest and inquiry of persons who feel a dedication to helping others and who will commit to serious study of the theory, techniques, and related course work on which professional counseling practice is based.

The Master of Arts in Community Counseling is designed to prepare students to demonstrate knowledge and skills with several counseling modalities appropriate for a broad range of clients in a multicultural society; interact effectively with other helping professionals and referral resources; make appropriate counselor-client related decisions in the context of professional, ethical, and legal guidelines; and fill effectively entry-level positions of professional responsibility within the specialization of agency counseling.

#### Area I: Precandidacy Requirements (28 semester hours)

EPR 607	Microcomputer Applications to Statistical Analysis
EPR 608	Statistical Methods and Action Research
ECG 612	Professional, Ethical, and Legal Issues in Counseling
EPR 614	Life-Span Human Development
ECG 621	Prepracticum: Theories and Techniques of Individual Counseling
ECG 638	Practicum I: Introduction to the Counseling Process. Prerequisite: ECG 621
ECG 624	Assessment in Counseling. Prerequisites: ECG 607 and ECG 608
ECG 626	Theories and Processes of Group Counseling. Prerequisites: ECG 621 and ECG 638
ECG 628	Societal Issues
ECG	Career Development: Theory and

630 Research

Comprehensive exams may be taken only upon completion of courses in Area I.

Area II: Precandidacy Requirements (12 semester hours)

- EPR Personality Theories  
616  
ECG Development and Treatment of  
650 the Psychologically Impaired  
Client. Prerequisite: ECG 624

**Electives:** 6 semester hours—Graduate level courses related to the student's specialty area and/or interest, and approved by an advisor.

Note: Students may enroll in a maximum of 3 semester hours of independent study course work.

Admission to Candidacy Following Completion of Areas I & II

Upon completion of Areas I and II, students admitted to candidacy must pass the qualifying examination (comprehensive exam) and obtain the recommendation of the faculty.

Area III: Postcandidacy Requirements (9 semester hours)

- ECG Practicum II: Supervised Field  
695 Experience. Prerequisites: Areas  
I and II; successful completion of  
comprehensive examination;  
admission to candidacy  
ECG Counseling Internship.  
697a Prerequisite: ECG 695. 30  
hours/week for 2 terms  
ECG Counseling Internship (second  
697b term)

**Note:** Until the fall of 2001, students have the option of taking the internship over 3 terms, working 20 hours per week each term. After

the fall of 2001, students will not have the option of a three-term internship.

Current standards require 100 clock hours minimum for practicum and 600 clock hours of supervised internship. ECG 697 may be taken for up to 9 semester hours (20 hours/week over 3 terms), which will extend program requirements to 51 semester hours.

### **Rehabilitation Counseling Specialty**

The "State of the Art" in rehabilitation has changed as a result of economic, social, and legal influences. The private rehabilitation sector, the holistic medical approach, along with the traditional rehabilitation program, have brought about a new mission to the rehabilitation program at UAB. The UAB Rehabilitation Counseling Training Program's mission includes a specific focus upon preparing students to meet the demands of private and public rehabilitation.

The teaching mission is to provide knowledge, develop skills, and influence attitudes of graduates who will work in private or public rehabilitation settings. This is accomplished through a multifaceted approach to learning that combines the many resources of a major university, medical center, and large urban area. The program is designed to accommodate a student's past work and academic experiences, present work experience, and future professional goals. In addition to the teaching mission, each member of the faculty performs a service function for area agencies, institutions, and facilities serving children and adults with disabilities.

The Rehabilitation Counseling Program is accredited nationally by the Council On Rehabilitation Education (CORE).

The program in Rehabilitation Counseling requires a *minimum* of **49 semester hours** of course work. This includes 3 semester hours (120 clinical hours) of practicum and 6 to 9 semester hours (600 clinical hours) of internship. In addition, students can specialize in areas such as Deafness, Substance Abuse Counseling, and Mental Health Counseling. *This would increase the number of required hours beyond the 49 credit hour minimum.*

The Rehabilitation Counseling faculty is committed to the enhancement of rehabilitation counselor effectiveness. The last decade has seen an increase in opportunity for those trained in rehabilitation. With the advent of the private rehabilitation sector, graduating students have opportunities to apply their skills and knowledge in both the private and public sector of service.

Students graduating from the UAB Rehabilitation Counseling Training Program find jobs in the following settings: Alabama Department of Rehabilitation Services, International Rehabilitation Associates (Private Rehabilitation), Sheltered Workshop Facilities, Higher Education–Disability Support Services, Independent Living Centers, Drug and Alcohol Treatment Centers, Correctional Facilities, Employee Assistance Programs, Mental Health Facilities, Disability Determination, Private Practice–Sole Practitioners, and Children's Hospital.

#### Area I: Precandidacy Requirements (22 semester hours)

- EPR 607     Microcomputer Applications to Statistical Analysis (must be taken with EPR 608)
- EPR 608     Statistical Methods in Research and Education (must be taken with EPR 607)
- ECG 628     Societal Issues in Counseling
- EPR 614     Life-Span Human Development
- ECG 621     Prepracticum: Theories and Techniques of Individual Counseling
- ECG 638     Practicum I: Introduction to the Counseling Process (Prerequisite: ECG 621)
- ECG 624     Assessment in Counseling (Prerequisite: 3 hours of statistics)
- ECG 626     Theory and Processes of Group Counseling (Prerequisites: ECG

621 and ECG 638)

Area II: Precandidacy Discretionary Courses (12 semester hours)

- ECG 540 Introduction to Rehabilitation Counseling
- ECG 635 Medical and Psychosocial Information for Counselors
- ECG 630 Career Development: Theory and Research
- ECG 650 Counseling the Psychologically Impaired Client

Area III: Postcandidacy Requirements (9 semester hours)

- ECG 695 Practicum II: Supervised Field Experience (Prerequisite: Areas I and II and faculty approval)
- EGG 697 Counseling Internship\* (Prerequisite: ECG 695 and approval of Internship Coordinator).

\*Current societal standards require 600 clock hours of supervised internship. Case management skills are a part of the internship experience. ECG 697 may be repeated for up to 9 semester hours, which will extend program requirements to 52 semester hours. Internship requirements also include a research paper.

Area IV: Electives (6 semester hours)

**School Counseling Specialty**

According to the American School Counseling Association, "the purpose of a counseling program in a school setting is to promote and enhance the learning process." The goal of the program is to enable all students to achieve success in school and to develop into contributing member of our society.



- We believe that professional school counselors value and honor diversity, equity, and equality of all people.
- We believe that professional school counselors must be proactive change agents and advocates for all people.
- We believe that professional school counselors are obligated to confront their own beliefs and assumptions and change biased behavior regarding sexism, ageism, racism, and homophobia.
- We believe that professional school counselors are ethically obligated to strive toward optimum psychological health and to engage in self-care activities which attend to the physical, mental, spiritual, and psychological dimensions.
- We believe that academic preparation process must emphasize the application of theory to practice and encompass opportunities for experiential learning throughout the program.

The program of study will prepare students to

1. address student and family issues of concern that have adverse affect on student achievement and success.
2. promote, plan, and implement prevention programs regarding personal/social management and decision-making, college/career, and course selection and placement.
3. demonstrate leadership by promoting, planning, and implementing programs that are comprehensive, developmental, and integrated into the total school curriculum.
4. participate in the development for all students of follow-up activities that enhance personal growth and academic success.
5. consult and participate with teams and individuals to ensure responsiveness and equity to cultural diversity issues as well as learning styles of all students.
6. collaborate with other helping agents (parents, agencies, community members).

7. participate in coordinating resources for all students, families, and staff.

8. be seen as a leader by faculty, parents, and students in defining and carrying out the role and function of school counselor.

9. demonstrate appropriate documentation relating to student success and well-being.

10. establish and assess measurable goals for student outcomes from counseling programs, activities, interventions, and exercises.

11. collaborate with staff members in developing staff training regarding issues related to student academic, social, emotional, and developmental needs on a school-wide basis.

**Prerequisites to Certification:** The student must meet requirements for admission to the master's program in school counseling; however, to be certified in this field upon completion of the master's degree, he or she must also hold Alabama Class B certification in a teaching field. Additionally, any other certification prerequisites—such as special education requirements—must be met in addition to the master's degree requirements.

#### Area I: Precandidacy Requirements (28 semester hours)

EPR 607	Microcomputer Applications to Statistical Analysis
EPR 608	Statistical Methods and Research in Education
EPR 614	Life-Span Human Development
ECG 620	Foundations and Administration of Guidance Services
ECG 621	Prepracticum: Theories and Techniques of Individual Counseling
ECG 638	Practicum I: Introduction to the Counseling Process (Prerequisite: ECG 621)
ECG	Assessment in Counseling

- 624 (Prerequisite: EPR 608)  
 ECG Theories and Techniques of  
 626 Group Counseling (Pre: ECG  
 621 and 638)  
 ECG Societal Issues  
 628  
 ECG Career Development: Theory  
 630 and Research

Comprehensive examinations may be taken upon completion of Area I.

Area II: Precandidacy Courses (12 semester hours)

- ECG Group/Classroom Guidance in  
 622 Schools (Prerequisite ECG 620)  
 ECG Comprehensive Counseling and  
 623 Guidance in the Middle/High  
 School  
 ECG Special Issues for School  
 619 Counselors  
 ECG Comprehensive Counseling and  
 627 Guidance in the Elementary  
 School

Admission to Candidacy—Completion of Areas I and II; passing qualifying examinations (comprehensive exams): and recommendation of faculty

Area III: Postcandidacy Requirements (9 semester hours)

- ECG Practicum II: Supervised Field  
 695 Experience (Prerequisite Areas I  
 & II; comps, approval of faculty)  
 ECG Counseling Internship\*  
 697a (Prerequisite: ECG 695)  
 ECG Counseling Internship\* (second  
 697b term)

\* Current societal standards require 600 clock hours of supervised internship to include experiences at both elementary and secondary

levels. ECG 697 may be repeated for up to 9 semester hours (200 clock hours per semester), which will extend program requirements to 51 semester hours.)

Note: School Counseling Internship sites are very limited during summer terms.

Note: Special Education requirement must be met.

### **Educational Specialist in Community Counseling (Agency/Rehabilitation)**

The Educational Specialist (Ed.S.) degree is designed to assist counselors who wish to continue their professional development. Students can choose either a clinical or research track of study. Prerequisites for admission to the program: a Master's degree in counseling, including the following courses or their equivalent:

ECG 650	Counseling the Psychologically Impaired Client
ECG 607	Microcomputer Applications to Statistical Analysis
ECG 608	Statistical Methods in Research and Education
ECG 626	Theories and Processes of Group Guidance
EPR 614	Lifespan Human Development
EPR 616	Personality Theories

Students should meet with their advisor and discuss their professional plans before declaring a track of study. **All students will complete Area I, Core Area of Study.** In Area II, students and their advisor will map out a plan of study based on the professional needs of the student.

#### Area I: Counseling Core Area of Study (24 Semester Hours)

EPR 609	Statistical Methods and Research in Education:
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Intermediate  
EPR Introduction to Educational  
692 Research Design  
ECG Seminar on Special Topics:  
691 Teaching in Higher Education  
ECG Seminar on Current Issues in  
704 Counseling Supervision  
ECG726 Application of Small Group  
Theory  
ECG Ed.S. Practicum  
795  
ECG797 Ed.S. Internship (6 hours)

Area II: Clinical or Research Track (9 Semester Hours)

**Research Track:** Students interested in research and/or interested in pursuing a doctorate should consider the research track of study.

EPR Qualitative Research: Inquiry  
696 and Analysis  
EPR Computer Applications and  
710 Advanced Statistical Methods  
ECG Individual Thesis Research in  
699 Counseling

**Clinical Track:** This course of study is designed to enhance one's clinical practice. Students may select courses that meet their unique needs and/or interests. There may be options of study outside the Counselor Education Program, such as the Gerontology Certificate Program (15 hours). Other examples might include areas of study in Health Education and Promotion, or other specially designed options.

ECG 632 Technology for Counselors:  
Case Management and Report  
Writing  
ECG 637 Adlerian Family Counseling  
ECG 660 Dynamics of Child Sexual  
Abuse  
ECG 670 Crisis Intervention Techniques  
ECG 673 Counseling Needs of Women

- ECG 674 Seminar on Death, Dying, and Bereavement
- ECG 691 Seminar on Special Topics: Play Therapy I
- ECG 691B Seminar on Special Topics: Sign Language
- ECG 691C Seminar on Special Topics: Preparation for the NBCC Exam
- ECG 691D Seminar on Special Topics: Play Therapy II

#### Proposed Courses Pending

- ECG Counseling Families in a Multicultural Society
- ECG Seminar in Chemical Dependency
- ECG Family Counseling: Theories and Techniques
- ECG Nontraditional Lifestyles
- ECG Creative Counseling Techniques

### **Comprehensive Examination**

Upon completion of the requisite course work, students are required to pass an oral examination, conducted by Counselor Education Faculty, to complete the Ed.S. degree.

### **Educational Specialist in School Counseling**

The Educational Specialist (Ed.S.) degree is 36-hour program, designed to assist school counselors who wish to continue their professional and academic development. Obtaining an Ed.S. degree will qualify the student to receive an AA Certificate from the Department of Education. The Ed.S. degree requires the student to participate in a research and clinical (internship) track of study. Prerequisites for admission to the Ed.S. program in School Counseling are a master's degree in school counseling, admittance to

the Graduate School, and participation in a formal application process to the Counselor Education Program.

A student's master's degree must have the following courses or their equivalent:

ECG 607	Microcomputer Applications to Statistical Analysis
ECG 608	Statistical Methods in Research and Education
ECG 626	Theories and Processes of Group Guidance
EPR 614	Lifespan Human Development
ECG 620	Foundations and Administration of Guidance Services

### **Special Education**

Students should meet with their advisor and discuss their professional plans **before** enrolling in classes.

### **Foundations of Professional Studies**

Six (6) semester hours from the following courses are required:

EPR 610	Child Psychology
EPR 611	Adolescent Psychology
EPR 616	Personality Theory for Helping Professionals
EPR 622	Learning Theories
EDF 602	American School in Crisis
ECY 600	Introduction into Special Education
ECG 660	Dynamics of Child Sexual Abuse
ECG 670	Crisis Intervention Techniques

## Instructional Support

Fifteen (15) semester hours from the following courses are required:

ECG Seminar on Current Issues in  
704 Counseling Supervision  
ECG Application of Small Group  
726 Theory  
ECG Ed.S. Practicum  
795

## Research

Six (6) semester hours are required:

EPR Statistical Methods & Research  
609 in Education: Intermediate  
EPR Introduction into Research  
692 Design

## Instructor-approved Electives

Six (6) semester hours are required.

## Internship, 300 Hours

ECO 797 Three (3) semester hours are required.

## Course Electives

ECG Adlerian Family Counseling  
637  
ECG Individual Nonthesis Research  
698 in Counseling and Guidance  
EGG Independent Readings in  
692 Counselor Education  
ECG Special Issues for School  
691 Counselors  
ECG Comprehensive Counseling &  
623 Guidance in the Middle/High  
School



- ECG 627 Comprehensive Counseling & Guidance in the Elementary School
- ECG 622 Group/Classroom Guidance in Schools
- EGG 673 Counseling Needs of Women
- ECG 674 Seminar on Death, Dying, and Bereavement
- ECG 691 Seminar on Special Topics: Teaching in Higher Education
- EGG 691 Seminar on Special Topics: Play Therapy I
- ECG 691 Seminar on Special Topics: Sign Language
- EGG 691 Seminar on Special Topics: Preparation for the NBCC Exam
- ECG 691 Seminar on Special Topics: Play Therapy II
- EGG 691 Seminar on Special Topics: Adventure-based Counseling
- EDL 704 Educational Law and Policy Development
- ECG 522 Strategies for Attitude Adjustment

Proposed Electives: Pending

- EGG Counseling Families in a Multicultural Society
- EGG Seminar in Chemical Dependency
- ECG Family Counseling: Theories and Techniques
- ECG Nontraditional Lifestyles
- EGG Creative Counseling Techniques

### **Comprehensive Examination (Counseling)**

The written comprehensive examination is an important screening review for the student after the completing Area I. The successful

completion of the qualifying examination is prerequisite to admission to candidacy for the degree. The comprehensive is an examination that is broad in scope and requires the student to synthesize and apply concepts learned from relevant course work.

\*Note: Although students are required to complete all of the classes in Area I, exceptions can be made if a student has completed **all but one** class and is enrolled in that class at the time of taking comprehensives.

Should a student not successfully pass the examination, he or she must rewrite the exam on the next scheduled date for the comprehensive examination. The comprehensive examination can be retaken a maximum of two times. If a student fails to successfully pass the comprehensive examination, he or she will be terminated from the program. Comprehensive examinations are scheduled for fall, spring, and summer semesters. The comprehensive examination should be scheduled at the time a student has met all the requirements of Precandidacy for Area I.

Last modified 10/28/04

## UAB Graduate School

### Engineering, Biomedical (Ph.D., M.S.B.M.E.)

Graduate program director: *Pollard*

## Faculty

**Rigoberto Advincula**, Assistant Professor, (Natural Science and Math); Polymer Synthesis

**Franklin Amthor**, Professor, (Psychology); Neurophysiology of Vision Computer Graphics

**Andreas Anayiotos**, Associate Professor, (Mechanical Engineering); Biofluids, Dynamics of the Vascular System

**Susan L. Bellis**, Assistant Professor, (Physiology Biophysics); Integrin Biology/Implant Surfaces

**Terry Bray**, Research Assistant Professor, (Biomedical Engineering); Drug Design

**David T. Curiel**, Professor, (Pulmonary and Critical Care); Gene Therapy

**John M. Cuckler**, Professor, (Orthopedic Surgery); Skeletal Implants, Effects on Cells of Mechanical Stress

**James Davidson**, Associate Professor (Civil and Environmental Engineering); Injury Mechanics

**Lawrence J. DeLucas**, Professor, (Optometry); Drug Design

**Allan C. Dobbins**, Associate Professor, (Biomedical Engineering); Human and Machine Vision, Neural Computation, Brain Imaging, Scientific Visualization

**Joanne T. Douglas**, Assistant Professor (Pathology); Gene Therapy

**Alan Eberhardt**, Associate Professor, (Biomedical Engineering); Solid Mechanics, Analytical and Numerical Methods in Biomechanics

**Evangelos Eleftheriou**, Associate Professor, (Mechanical Engineering); Mechanical Systems, Automated Manufacturing, and Mechanical Design

**Vladimir G. Fast**, Associate Professor (Biomedical Engineering); Cardiac Electrophysiology

**Dale S. Feldman**, Associate Professor, (Biomedical Engineering); Biomaterials, Soft-Tissue Biomechanics, Polymeric Implants

**Paul Gamlin**, Professor, (Physiological Optics); Vision Research

**Timothy J. Gawne**, Associate Professor, (Physiological Optics); Neural Dynamics of Form Perception

**Richard A. Gray**, Associate Professor (Biomedical Engineering); Optical Mapping of Re-Entry Fibrillation and Defibrillation

**Raymond E. Ideker**, Professor, (Cardiovascular Disease); Study of Cardiac Arrhythmia, Cardioversion and Electrical Ablation for Treatment Of Arrhythmia

**Kent T. Keyser**, Professor, (Physiological Optics); Physiology Optics

**John S. Kirkpatrick**, Associate Professor, (Orthopedics); Orthopedic Surgery

**Dennis F. Kucik**, Assistant Professor, (Pathology); Laser Tweezers

**William Lacefield**, Associate Professor, (Dental Biomaterials); Ceramic Biomaterials and Coatings for Dental And Orthopedic Applications

**Chris M. Lawson**, Professor (Natural Science and Math, Physics); Nonlinear Optics, Fiber Optics, Optical Sensor

**Jack E. Lemons**, Professor, (Dental Biomaterials); Biological Tissue Reaction to Synthetic Materials, Biomechanics

**Michael S. McCracken**, Associate Professor, (Dentistry); Dental Implants, Biomaterials

**Andrew E. Pollard**, Associate Professor, (Biomedical Engineering); Simulation and Modeling of Electrical Signals of the Heart

**Charles W. Prince**, Professor, (Nutrition Sciences); Dental Nutrition, Bone Biochemistry, Vitamin D, Calcium and Phosphorus Metabolism

**Firoz Rahemtulla**, Professor, (Oral Biology); Connective Tissue Biochemistry

**Jack M. Rogers**, Associate Professor, (Biomedical Engineering); Computer Simulations of Re-Entry, Signal Analysis of Cardiac Arrhythmias

**William M. Smith**, Professor, (Cardiovascular Disease); Bioinstrumentation, Multichannel Cardiac Mapping, ECG Mapping and Signal Analysis

**Donald B. Twieg**, Associate Professor, (Biomedical Engineering); Medical Imaging, Magnetic Resonance Imaging (MRI) Techniques, Functional MRI of Brain and Heart

**Yogesh Vohra**, Professor (Physics); Biotechnology, Nanostructured Materials

**Edward Walsh**, Research Assistant Professor, (Biomedical Engineering); Medical Imaging (Brain, Muscle and Heart)

## Program Information

## **M.S.B.M.E. Program**

The Master of Science in Biomedical Engineering may be a terminal degree or pursued as part of the doctoral program. With the terminal degree, employment is usually found in medical centers or with manufacturers of medical products, government agencies, health care groups, or computer application groups. Doctoral candidates prepare for courses in industry or academics. Primary research areas are biomedical implants and devices, electrophysiology, and medical imaging. Other research areas available to students include biofluids, biocontrols, bioinstrumentation, injury biomechanics, and biomaterials-enhanced regeneration.

For admission to the program, a student should have earned a bachelor's degree in a field of engineering. Students with undergraduate degrees in the physical sciences, life sciences, or mathematics will also be considered for admission; however, such students will be required to demonstrate competence in engineering areas usually found in an undergraduate engineering curriculum. In most cases, preparatory courses in engineering are required, with specific recommendations made by the student's Graduate Study Committee. Admission is competitive, and successful applicants will usually present scores of at least 600 on the verbal, quantitative, and analytical sections of the GRE General Test.

Applicants are strongly encouraged (but not required) to take the GRE subject test. Applicants are normally required to personally interview the Admissions Committee on campus before they can be considered for admission.

Program requirements include the following:

1. The student must complete three 1-hour seminar courses.
2. The student must complete an additional 24 hours of coursework. Course requirements vary depending on the research focus.
3. Plan I (thesis option) students must register for at least 6 semester hours of BME 699 (thesis research) and successfully defend a thesis based on independent research. Plan II (nonthesis option) students must take an additional 9 semester hours of graduate courses approved by the Graduate Study Committee and successfully defend an independent study project.

## **Ph.D. Program**

All students entering the doctoral program will possess an M.S., D.M.D, or M.D. Degree. Admission is competitive, and successful applicants will usually present scores of at least 650 on the verbal, quantitative, and analytical sections of the GRE General Test. Applicants are normally required to interview the Admissions Committee on campus before they can be considered for admission. Coursework in engineering and related medical or life science areas is required (a minimum of 24 semester hours after completion of the master's degree, or 48 after the bachelor's degree). Additional coursework may be required in conjunction with the student's dissertation research. The program of study for each student is defined by the Graduate Study Committee during the student's first year of doctoral study. Near the completion of the course plan, a written and oral comprehensive qualifying exam will be administered by the Committee and a written proposal for the dissertation research must be

presented before the student can be admitted to candidacy for the degree. A dissertation that presents the results of the student's original research must be successfully defended.

## Additional Information

For detailed information, contact Director, UAB Department of Biomedical Engineering, Hoehn Bldg. Rm. 370, 1075 13th Street South, Birmingham, Alabama 35294-4440.

Telephone 205-934-8420

E-mail [apollard@uab.edu](mailto:apollard@uab.edu)

Web [www.eng.uab.edu](http://www.eng.uab.edu)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

Biomedical Engineering (BME)

605, 705. **Medical Device Industry Issues.** FDA requirements, medical product design and production, marketing, documentation requirements, product liability. Prerequisite: Permission of instructor. Variable credit.

640, 740. **Imaging Brain Function.** Introduction to functional MRI, introduction to imaging brain function in human subjects. Prerequisite: Permission of instructor. Variable credit.

641, 741. **Medical Imaging: Introduction to fMRI Principles of magnetic resonance imaging.** Overview of how fMRI images are made; limitations and advantages of MR imaging to image brain function. Prerequisite: Permission of instructor. Variable credit.

664, 764. **Neural Computation.** The principal theoretical underpinnings of computation in neural networks: understanding the relationship between the different approaches: dynamical systems, statistical mechanics, logic, Kalman filters, and likelihood/Bayesian estimation. Prerequisite: Permission of instructor. Variable credit.

665, 765. **Computational Vision.** Study of biological and artificial vision from a theoretical perspective. Begins with a comparative survey of visual systems and examines vision algorithms and architectures. Prerequisite: Permission of instructor. Variable credit.

601, 701. **Seminars in Biomedical Engineering.** Current topics in biomedical engineering technology and applications. Pass/Fail. 1 hour each.

603, 604. **Human Physiology I, II.** Human physiological systems and associated biomedical engineering applications; control systems approach to fundamental concepts. Prerequisite: permission of instructor. 3 hours each.

606, 706. **Introduction to Biomedical Instrumentation.** Instrumentation used in measurement of physiological parameters. Prerequisites: EE 351 and permission of instructor.

607, 608. **Biomedical Instrumentation and Signal Processing I, II.** Bioelectric signals. Transduction devices and processes; analog and digital signal processing; system response characteristics. Prerequisite: BME 630 and permission of instructor. Variable credit.

610-612. **Biomaterials. Metals, Ceramics, Polymers.** Introduction to a wide range of metallic, ceramic and polymeric materials used for biomedical applications. Cover physical, chemical, and mechanical properties of biomaterials. Prerequisite: Permission of instructor. Variable credit.

613, 713. **Biomaterials. Animal Research.** Ethics of animal research in biomaterials research. Prerequisite: Permission of instructor. Variable credit.

614, 714. **Biomaterials. Human Research.** Ethical considerations and issues related to human research, scientific integrity, and the FDA.

615, 715. **Biomaterials. Clinical Research.** Ethical considerations related to clinical trials and product liability. Prerequisite: Permission of instructor. Variable credit.

616, 716. **Biomaterials. Analytical Techniques.** Techniques for biomaterials research. Techniques used to evaluate biomaterials: FTIR, AES/XPS, AFM/STM, electrochemical corrosion evaluations, and mechanical testing. Prerequisite: Permission of instructor. Variable credit.

620, 720. **Biocompatibility. Introduction.** Basic concepts and principles of implant biocompatibility will be addressed. Prerequisite: Permission of instructor. Variable credit.

621, 721. **Biocompatibility. Biomaterials Enhanced Regeneration.** Study of implants used to regenerate tissue. Prerequisite: Permission of instructor. Variable credit.

622, 722. **Biocompatibility. Growth Factors.** Study of biological response modifiers used to augment implant response. Prerequisite: Permission of instructor. Variable credit.

623, 723. **Biocompatibility. Wound Healing.** Study of principles of healing, methods to enhance, and clinical applications. Prerequisite: Permission of instructor. Variable credit.

624, 724. **Biocompatibility. Histology.** Study of techniques to evaluate the tissue response to implants. Prerequisite: Permission of instructor. Variable credit.

625, 725. **Biocompatibility. Culture Systems.** An introduction to the use of in vitro cell culture systems for addressing the cellular response to implant materials and devices. Hands-on laboratory investigations. Prerequisite: Permission of instructor. Variable credit.

626, 726. **Biocompatibility. Tissue Evaluation.** Biocompatibility of implant materials (metals, ceramics, polymers). Standard analyses for evaluating the tissue response to biomaterials. Prerequisite: Permission of instructor. Variable credit.

630, 730. **Joint Mechanics.** Study of joint anatomy, joint biomechanics, joint repair, implant evaluation. Prerequisite: Permission of instructor. Variable credit.

633, 733. **Biomechanics: Tissue Mechanics I.** Fundamentals of hard and soft tissue mechanics. Introduction to biomechanical problems, with emphasis on bone, ligament, tendon and cartilage. Prerequisite: Permission of instructor. Variable credit.

636, 736. **Introduction to Biofluids.** Study modeling and analysis of the properties of biofluids. MRI and Doppler ultrasound measurement techniques. Prerequisite: Permission of instructor. Variable credit.

637, 737. **Biomechanics: Tissue Mechanics II.** Advanced topics in tissue mechanics, including structure-function analysis and modeling of trabecular bone, biphasic theory for articular cartilage.

642, 742. **Medical Imaging I. Physics of Ionizing Radiation.** For medical imaging energies: The principles and physics of the interaction of ionizing radiation with matter, bremsstrahlung, attenuation coefficients, Compton scatter, nuclear disintegration of radionuclides, generation of medical radionuclides. Prerequisite: Permission of instructor. Variable credit.

643, 743. **Medical Imaging: Principles of Nuclear Medicine.** Radionuclides used for medical imaging, positron-producing radionuclides: ionization chambers, scintillation, and solid-state detectors: principles of angler scintillation cameras and coincidence detection: collimators and collimator and collimator design issues: attenuation effects relating to image formation principles. Prerequisite: Permission of instructor. Variable credit.

644, 744. **Medical Imaging: Principles of Radiography.** X-ray production, basics of X-ray tubes, heat loading; generators; use of film and film-screen combinations for X-ray imaging; components of radiographic systems; digital X-ray techniques; issues affecting contrast; measuring resolution; fluoroscopy; observer performance using ROC curves. Prerequisite: Permission of instructor. Variable credit

645, 745. **Medical Imaging: Computed Tomography.** Fourier slice theorem; back-projection-filtered back-projection, back-projection filtering, iterative algorithms (ART): X-ray CT systems; attenuation problems peculiar to SPECT; SPECT systems; PET systems and attenuation correction with PET. Prerequisite: Permission of instructor. Variable credit.

646, 746. **Medical Imaging: Principles of MRI.** Biomaterials experimental design. Prerequisite: Permission of instructor. Variable credit.

647, 747. **Medical Imaging: Advanced MRI.** Advanced MRI techniques, functional MRI methods including spectroscopy, perfusion and diffusion imaging. Prerequisite: Permission of instructor. Variable credit.

648, 748. **Advanced FMRI.** Study of advanced FMRI. Prerequisite: Permission of instructor.

650, 750. **Implants in Dentistry.** Biomechanics and biocompatibility of dental implant. Prerequisite: Permission of instructor.



651, 751. **Laboratory Methods in Biomaterials Research.** Casting, metallography, photography, electron microscopy mechanical testing, corrosion, and surgery technique. Prerequisite: Permission of instructor.

661, 761. **Bioelectric Phenomena: Membrane Action Potentials.** A derivation of the Nernst and Goldman equations relative to steady-state membrane transport phenomena and an examination of the Hodgkin and Huxley equations to study the time course in the generation of membrane action potentials. Prerequisite: Permission of instructor.

662, 762. **Bioelectric Phenomena: Propagation.** Numerical and analytical methods to study propagation of action potentials down fibers with a consideration of the generated potentials in the passive extracellular volume conductor.

663, 763. **Bioelectric Phenomena: Stimulation.** The response of fibers to external stimuli, including field stimulation and current injection in finite-length and infinite-length fibers.

670, 770. **Cardiac Electrophysiology I: Ionic Currents.** Examination of the membrane ionic currents responsible for the initiation and maintenance of cardiac action potentials and the changes to the membrane ionic currents with rate and during myocardial ischemia. Prerequisite: Permission of instructor.

671, 771. **Cardiac Electrophysiology I: Tissue Surface.** The role of the cellular architecture in the propagation of cardiac action potentials, and the influence of the membrane currents and the tissue structure on the electrical behavior of the heart under normal and pathophysiological conditions. Prerequisite: Permission of instructor.

672, 772. **Cardiac Electrophysiology I: Activation Detection.** The analysis of isochrone maps constructed from extracellular or transmembrane potential recordings, pattern analysis and the coherence/correlation of cardiac electrical activity with underlying membrane-level processes. Prerequisite: Permission of instructor.

673, 773. **Math Modeling in Cardiac Electrophysiology.** Propagation. Multidimensional solutions of the monodomain and bidomain problems, explicit and implicit solution techniques and the use of large-scale computing techniques to determine time-dependent potential distributions. Prerequisite: Permission of instructor.

674, 774. **Math Modeling in Cardiac Electrophysiology, Forward Solutions.** Matrix methods for the recovery of field potentials given a cardiac source potential distribution. Prerequisite: Permission of instructor.

675, 775. **Math Modeling in Cardiac Electrophysiology, Inverse Solutions.** Matrix methods for the recovery of cardiac source potential distributions given a field potential distribution. Prerequisite: Permission of instructor.

680, 780. **Cardiac Electrophysiology II: Arrhythmias.** Reentry, automaticity, triggered activity, tachycardia and the decay into fibrillation. Prerequisite: Permission of instructor.

681, 781. **Cardiac Electrophysiology II: Stimulation and Defibrillation** Cardiac pacing, catheters, lead configurations and electrical waveforms for defibrillation.

682, 782. **Cardiac Electrophysiology II: Clinical Treatment.** Clinical trials for automatic implantable defibrillators and pacemakers, including design and implementation, follow-up, analysis of FDA requirements, and exposure to clinical treatment of arrhythmias through surgery and ablation.

690, 790. **Special Topics in (Area).** Course syllabus and grading policy required. 1-6 hours.

692, 792. **Journal Club in Computational Neuroscience.**

694, 695. **Journal Club in Cardiac Electrophysiology.**

695, 795. **Journal Club in Biomaterials Interface.**

696, 796. **Journal Club in Biomaterials-Enhanced Regeneration.**

697, 797. **Journal Club in Medical Imaging.**

698. **Nonthesis Research.** Pass/Fail, 1-6 hours.

699. **Thesis Research.** Prerequisite: Admission to candidacy. Pass/Fail. 1-6 hours.

703, 704. **Human Physiology I, II.** Human physiological systems and associated biomedical engineering applications; control systems approach to fundamental concepts. Prerequisite: Permission of instructor. 3 hours each.

707, 708. **Biomedical Instrumentation and Signal Processing I, II.** Bioelectric signals. Transduction devices and processes; analog and digital signal processing; system response characteristics. Prerequisite: BME 630. 3 hours each.

710-712. **Biomaterials.** Metals, ceramics, polymers, The objective of these courses is to introduce students to a wide range of metallic, ceramic and polymeric materials used for biomedical applications. These courses will cover physical, chemical, and mechanical properties of biomaterials. Prerequisite: Permission of instructor. Variable credit.

798. **Nondissertation Research.** Pass/Fail. 1-6 hours.

799. **Dissertation Research.** Prerequisite: Admission to candidacy. Pass/Fail. 1-6 hours.

Last modified 09/30/04

## UAB Graduate School

### Engineering, Civil (M.S.C.E., Ph.D.\*)

\* The Ph.D. is offered through a joint program with the University of Alabama in Huntsville.

**Graduate program director: Fouad**

#### Primary Faculty

**Shen-en Chen**, Assistant Professor (Civil and Environmental Engineering); Geotechnical Engineering, Soil Structure Interaction, Nondestructive Testing, Soil Dynamics, Foundation Design

**James S. Davidson**, Associate Professor (Civil and Environmental Engineering); Structural Engineering, Structural Mechanics, Numerical Methods, Structural Dynamics, Bridge Design

**Fouad H. Fouad**, Chair and Professor (Civil and Environmental Engineering); Structural Engineering, Prestressed Concrete, Concrete Materials, By-Products Utilization, Computer Applications

**Steven L. Jones, Jr.**, Assistant Professor (Civil and Environmental Engineering); Transportation Engineering, Traffic Engineering

**Melinda M. Lalor**, Associate Professor (Civil and Environmental Engineering); Environmental Engineering, Surface Water Quality, Watershed Management, Pollution Prevention, Sustainable Development

**Robert W. Peters**, Associate Professor (Civil and Environmental Engineering); Environmental Engineering, Water and Wastewater Treatment, Physical/Chemical Treatment, Soil and Ground Water Remediation, Sonication/Acoustic Cavitations, Advanced Oxidation Processes, Water Chemistry

**Tarek Rizk**, Assistant Professor (Civil and Environmental Engineering); Fiber Reinforced Composites, Construction Engineering, Structural Analysis Design

**Virginia P. Sisiopiku**, Associate Professor (Civil and Environmental Engineering); Traffic Engineering, Intelligent Transportation Systems, Traffic Operations, Traffic Safety.

**Nasim Uddin**, Assistant Professor (Civil and Environmental Engineering); Structural Engineering, Structural Dynamics, Infrastructure Rehabilitation, Hazard

Mitigation

## Secondary Appointment Faculty

**Joseph H. Appleton**, Distinguished Service Professor (Civil and Environmental Engineering); Structural Engineering, Structural Mechanics, Computer Methods in Design.

**Heng Ban**, Associate Professor (Mechanical Engineering); Pollution Control, Combustion, Thermal-Fluid Science

**Kenneth Dillon**, Associate Professor (Environmental Health Sciences); Water Chemistry, Air Pollution

**Alan Eberhardt**, Associate Professor (Biomedical Engineering); Solid Mechanics, Biomechanics, Analytical and Numerical Methods

**Jay Goldman**, Professor (Engineering); Industrial Engineering, Injury Control, and Transportation Systems

**Reidar K. Oestenstad**, Associate Professor (Environmental Health Sciences); Industrial Hygiene

**Loring Rue**, Professor (Department of Surgery); Chief, Section of Trauma, Burns, and Surgical Critical Care (injury and crash injury research)

**Edmund P. Segner, Jr.**, Professor Emeritus, (Civil and Environmental Engineering); Structural Engineering, Structural Mechanics

## Admission Requirements

In addition to the Graduate School admission requirements, requirements for admission to the program leading to the Master of Science in Civil Engineering degree include the following five criteria:

1. An undergraduate engineering degree from a program accredited by the Accreditation Board for Engineering and Technology. Applicants who do not meet this criterion but who have an outstanding academic record in an engineering degree program not accredited by ABET, or in a baccalaureate degree program in a related field, may be admitted on probation. Students admitted in this category will be required to complete a sequence of undergraduate courses in addition to the normal requirements of the M.S.C.E. degree. This set of extra requirements will be specified in writing

at the time of admission to the program.

2. 3.0 (A = 4.0) or better GPA in all undergraduate degree major courses attempted;
3. Three letters of evaluation concerning the applicant's previous academic and professional work; and
4. Submission of scores achieved on the GRE General Test. Admission to the program is competitive and is based on all available evidence; for admission in good academic standing, scores above 500 on each component of GRE General Test are preferred. Minimum scores of 550 on the Test of English as a Foreign Language (TOEFL) and a 3.5 on the Test of Written English (TWE) are also required for those applicants whose native language is not English. These test scores will be used primarily if an applicant fails to meet minimum standards for admission in good standing and is being considered for admission on probation.
5. Verification of registration by examination as a Professional Engineer (P.E.) will satisfy criteria 2, 3, and 4 above.

### **M.S.C.E. Program Requirements**

The following minimum requirements apply to the plan of study for a student who has earned a baccalaureate degree in civil engineering. A student with an undergraduate degree in another field may also be accepted into the civil engineering program but will normally have to take additional preparatory coursework as part of an expanded plan of study. Continuous enrollment for at least 3 units per term is required. Enrollment in CE 641/741 is required at least once per academic year.

### **Plan I (Thesis Option)**

In addition to the general Graduate School requirements, the student must successfully complete at least 33 semester hours of graduate credit, including:

1.
  - (a) A minimum of 18 to 21 semester hours in civil engineering; and up to
  - (b) 3 to 6 semester hours in disciplines outside civil engineering, such as other engineering disciplines, mathematics, earth science, physics, urban affairs, or public health.
  - (c) A minimum of 9 hours of CE 699 - Masters Thesis Research, in addition to the 24 hours of graduate credit.
2. The student must pass a comprehensive examination on the content of the program. This examination may be written, oral, or both and shall include

an oral defense of a thesis.

### **Plan II (Nonthesis Option): Research/Design Emphasis**

1. The student must successfully complete at least 33 semester hours of graduate credit including:
  - a) A minimum of 18 to 21 semester hours in civil engineering;
  - b) 3 to 6 semester hours in disciplines outside civil engineering, such as; other engineering disciplines, mathematics, earth sciences, physics, chemistry, or public health; and
  - c) A minimum 3 hours of independent study under the direction of the graduate study committee chair, resulting in an acceptable written report (this requirement may involve registration for CE 691 and/or CE 698).
2. The student must pass a comprehensive examination on the content of the program. This examination may be written, oral, or both and shall include an oral defense of the independent study project.

### **Plan II (Nonthesis Option): Technology/Engineering Management Emphasis**

1. The student must successfully complete at least 33 semester hours of graduate credit, including the following:
  - a) 12 semester hours in a specific specialization program area of civil engineering;
  - b) 6 semester hours in one of the following two mathematical application areas: MBA 660 and MBA 661 or MBA 660 and an advanced applied mathematics course;
  - c) 12 semester hours in the Engineering Management concentration area, which may be satisfied from among the following courses: CE 658, CE 631, MBA 609, MBA 610, MBA 611, MBA 632; MBA 640, or an approved course in Engineering Management; and
  - d) 3 semester hours in a non-thesis design project (usually undertaken after completion of all courses). This may be satisfied by registration in CE 691 or CE 698.
2. The student must pass a comprehensive examination on the content of the program. This examination may be written, oral, or both and shall include an oral defense of the independent study project.

### **Areas of Specialization**

Specialization programs are available in the fields of environmental engineering, structural engineering/structural mechanics, and transportation engineering. Supporting courses are offered in geotechnical engineering, optimization, and other areas. Enrollment in the Civil and Environmental Engineering Seminar series (CE 641/741) will be expected of all graduate students.

### **Required Courses for Specialization in Environmental Engineering**

In addition to the M.S.C.E. program requirements, the following undergraduate classes (plus all associated prerequisites) are generally required of all M.S.C.E. students specializing in environmental engineering:

CE 236	Environmental Engineering
CE 337	Hydraulics
CE 344	Civil Engineering Analysis
CE 480	Introduction to water and Wastewater Treatment

### **Required Courses for Specialization in Structural Engineering/Structural Mechanics**

In addition to the M.S.C.E. program requirements, the following undergraduate classes (plus all associated prerequisites) are generally required of all M.S.C.E. students specializing in structural engineering/structural mechanics:

CE 332	Soil Engineering
CE 344	Civil Engineering Analysis
CE 360	Structural Analysis
CE 450	Structural Steel Design
CE 455	Reinforced Concrete Design

### **Required Courses for Specialization in Transportation Engineering**

In addition to the M.S.C.E. program requirements, the following undergraduate classes (plus all associated prerequisites) are generally required of all M.S.C.E. students specializing in transportation engineering.

CE 344	Civil Engineering Analysis
CE 345	Transportation Engineering

### **Ph.D. Programs**

The two following Ph.D. programs are offered by the Department of Civil and Environmental Engineering.

1. **Ph.D. Program in Civil Engineering** – This is a joint program with the University of Alabama in Huntsville. A typical student entering the program would already have a degree in Civil Engineering. Students with outstanding records in related fields or from a non-accredited engineering program will be considered for admission on conditional standing, and must remedy deficiencies in their preparation after the start of their academic program. They may then be granted unconditional standing in the doctoral program.

The program requires 48 credit hours of classroom work, plus 24 credit hours of dissertation research beyond the baccalaureate level. Enrollment in CE 741 at least once per academic year is required.

A comprehensive examination is required of all doctoral candidates. This examination is given after (a)

2. **Ph.D. Program in Environmental Health Engineering** – This unique, interdisciplinary program takes advantage of UAB's diversified engineering school, and nationally renowned health sciences center, to produce Ph.D. candidates cross-trained in public health and environmental engineering from a variety of disciplines. The program provides students with an understanding of basic mechanisms through which agents alter environmental, human, and ecosystem health, and the skills needed to evaluate and implement remediation for environmental problems, in the context of engineering and public health.

For more detailed information, please refer to the listing under Engineering, Environmental Health, or contact Dr. Melinda M. Lalor, Program Director for Environmental Health Engineering, 210C Hoehn Engineering Building, 1075 13<sup>th</sup> Street South, telephone (205) 934-8438, e-mail [mlalor@uab.edu](mailto:mlalor@uab.edu).

## CEE Specialty Certificate Program

Category A certificates are offered by the Civil and Environmental Engineering Department. These certificates are listed on student transcripts and in the university graduation bulletin. Certificates can be earning in:

- Environmental Engineering
- Geotechnical Engineering
- Structural Engineering
- Transportation Engineering
- Construction Engineering Management

Civil Engineering (BSCE) graduates who complete the Certificate Program will have greater depth in specific technical areas. The certificates also allow a means for practicing engineers to acquire expertise beyond a Bachelor degree, and have it formally recognized, without completing a program leading to a master's degree. This technical expertise will enhance their proficiency and marketability. Courses taken for a certificate may be applied toward a MSCE degree.

Students must be admitted to the Department as either undergraduate or graduate students (BSCE or MSCE program).

Certificates require a minimum of 15 semester hours. They consist of one required course (which may also count toward the BSCE degree at UAB) and four graduate level elective courses.



For more information, please contact Dr. Virginia P. Sisiopiku, Ph.D., Program Coordinator, 311B Hoehn Engineering Building, 1075 13<sup>th</sup> Street South, telephone (205) 934-9912, e-mail [vsisiopi@eng.uab.edu](mailto:vsisiopi@eng.uab.edu) .

## Additional Information

For detailed information, contact Dr. Fouad H. Fouad, Chair or Jennifer A. Vinson, Administrative Associate, UAB Department of Civil and Environmental Engineering, HOEN 140, 1530 3<sup>rd</sup> Ave. S., Birmingham, AL 35294-4440. Physical location: 140 Hoehn Building, 1075 13th Street South.

Telephone 205-934-8430

Email [ffouad@eng.uab.edu](mailto:ffouad@eng.uab.edu)

Web [www.eng.uab.edu](http://www.eng.uab.edu)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

## Civil Engineering (CE)

### Environmental Engineering

**530. Water Supply and Drainage Design.** Water requirements; wastewater characteristics. Hydraulics and design of sewers; distribution, and reuse of water. Development of water supplies; design considerations. Prerequisite: CE 337

**533. Solid and Hazardous Waste Management.** Overview of waste characterizations, regulations, and management options.

**534. Air Quality Modeling and Monitoring.** Atmospheric pollutants, effects, reactions, and sources. Air pollution meteorology and dispersion modeling. Ambient monitoring. Prerequisite: ME 250

**537. Environmental Experimental Design and Field Sampling.** Experimental design, sensitivity analyses, water sampling, and flow monitoring. Receiving water chemical reactions. Field investigations. Lecture and laboratory. Prerequisite: CE 344.

**580. Introduction to Water and Wastewater Treatment.** Physical unit operations, and chemical and biological unit processes for water and wastewater treatment. Design of facilities for treatment. Treatment and disposal of sludge. Prerequisite: CE 336

**631. Environmental Law.** Law as it applies to the practicing environmental engineer. New and emerging regulations.

**632. Industrial Water and Wastewater Treatment.** Solid wastes and wastewaters from various industries. Assessment of treatability, system design, and equipment selection. Prerequisite: CE 480

**636. Stormwater Pollution Management.** Quality and quantity of stormwater. Receiving water problems and sources of pollutants. Runoff quality and quantity characterizations. Erosion control. Selection and design of controls; regulations. Prerequisite: CE 430.

**638. Water and Wastewater Chemistry.** Aquatic chemistry. Chemical behavior of pollutants in receiving waters. Fate of common pollutants. Chemical kinetics in natural waters. Photochemical reactions. Modeling of wastewater discharges. Prerequisite: ENH 601 or CH 235

**639. Sediment Sources and Controls.** Erosion and sediment transport in urban areas; design of common erosion control practices. Prerequisite: CE 430.

**640. Wastewater Treatment Engineering.** Wastewater sources and characteristics. Design and operation of wastewater treatment facilities, including grit removal, oil and grease removal, dissolved air floatation, activated sludge process, trickling filters, and rotating biological contactors, stabilization ponds and aerated lagoons, anaerobic processes for wastewater treatment and sludge digestion. Ultimate disposal of wastewater residues and considerations of discharge criteria. Prerequisite: CE 480.

**681. Environmental Chemistry.** Chemical equilibrium, acid/base, chemical concepts in pollutant behavior. Chemical kinetics, redox system, hydrolysis; pesticides, chemical wastes. Prerequisite: CE 638.

**682. Water Treatment Engineering.** Water sources and characteristics. Design and operation of water treatment facilities including lime softening operations, coagulation, flocculation, clarification, dissolved air floatation, filtration, disinfection, absorption, ion exchange, and sludge disposal. Prerequisite: CE 480.

**683. Water and Wastewater Treatment Processes Laboratory.** Construction and evaluation of bench-scale treatment processes. Treatability of water and wastewater. Coagulation of sedimentation, settleability of biological sludges, aerobic biological treatment, chemical treatment, water softening toxicity, disinfection; and sludge treatment processes. Prerequisite: CE 682.

**685. Engineering Hydrology.** Hydrologic principles: hydrologic cycle, precipitation data, stream flow measurements. Applications to engineering problems: stream flow analysis, watershed management. Prerequisite: CE 236

**686. Engineering Hydrogeology.** Groundwater movement, natural quality, contamination, and restoration. Physical and chemical properties of groundwater. Well hydraulics and flow net analyses. Prevention and control of groundwater contamination. Prerequisites: CE 485 & MA 252.

**687. Stormwater Detention Pond Design.** Stormwater problems and control methods, urban hydrology prediction procedures for drainage and water quality studies. Detention pond design basics, limitations and multiple benefits.

**731. Environmental Law.** Law as it applies to the practicing environmental engineer. New and emerging regulations.

**732. Industrial Water and Wastewater Treatment.** Solid wastes and waste waters from various industries; assessment of treatability, system design and equipment selection. Prerequisite: CE 480.

**736. Stormwater Pollution Management.** Quality and quantity of urban stormwater. Receiving water problems and sources of pollutants. Runoff quality and quantity characterizations. Erosion control. Selection and design of controls; regulations. Prerequisite: CE 430.

**738. Water and Wastewater Chemistry.** Aquatic chemistry. Chemical behavior of pollutants in receiving waters. Fate of common pollutants. Chemical kinetics in natural waters. Photochemical reactions. Modeling of wastewater discharges. Prerequisite: ENH 601 or CH 235

**739. Sediment Sources and Controls.** Erosion and sediment transport in urban areas; design of common erosion control practices. Prerequisite: CE 430.

**740. Wastewater Treatment Engineering.** Wastewater sources and characteristics. Design and operation of wastewater treatment facilities, including grit removal, oil and grease removal, dissolved air floatation, activated sludge process, trickling filters, and rotating biological contactors, stabilization ponds and aerated lagoons, anaerobic processes for wastewater treatment and sludge digestion. Ultimate disposal of wastewater residues and considerations of discharge criteria. Prerequisite: CE 480.

**781. Environmental Chemistry.** Chemical equilibrium, acid/base, chemical concepts in pollutant behavior. Chemical kinetics, redox system, hydrolysis, pesticides, chemical wastes. Prerequisite: CE 638

**782. Water Treatment Engineering.** Water sources and characteristics. Designs and operation of water treatment facilities including lime softening operations, coagulation, flocculation, clarification, dissolved air floatation, filtration, disinfection, adsorption, ion exchange, and sludge disposal. Prerequisite: CE 480.

**783. Water and Wastewater Treatment Processes Laboratory.** Construction and evaluation of bench-scale treatment processes. Treatability of water and wastewater. Coagulation of sedimentation, settleability of biological sludges, aerobic biological treatment, chemical treatment, water softening toxicity, disinfection, sludge treatment processes. Prerequisite: CE 682.

**785. Engineering Hydrology.** Hydrologic principles: hydrologic cycle, precipitation data, stream flow measurements. Applications to engineering problems; stream flow analysis, watershed management. Prerequisite: CE 236.

**786. Engineering Hydrogeology.** Groundwater movement, natural quality, contamination, and restoration. Physical and chemical properties of groundwater. Well hydraulics and flow net analyses. Prevention and control of groundwater contamination. Prerequisites: CE 485 & MA 252.

## **Structural Engineering and Structural Mechanics**

**516. Mechanical Vibrations.** Free and forced single-degree-of-freedom systems. Multiple-degree-of-freedom systems. Damped, forced two-degree-of-freedom systems. Single continuous systems. Prerequisites: CE 215 and CE 220.

**520. Advanced Mechanics.** Variation of stress at a point, including determination of principal and maximum shear stress. Basic problems involving symmetrical deformation; thick-wall cylinders, sphere, and rotating disk. Torsions of noncircular sections. Curved beams. Failure theories. Unsymmetrical bending, shear center. Prerequisites: CE 220.

**526. Foundation Engineering.** Application of principles of soil mechanics to determine bearing capacity and settlement of spread footings, mats, single piles and pile groups; site investigation, evaluate data from field and laboratory tests; estimate stresses in soil masses; lateral resistance of piles and pile group; retaining walls, sheetpiles and coffer-dams. Prerequisite: CE 332.

**553. Design of Wood Structures.** This course will address design and detailing of timber structures. Properties and specifications for dimension and glulam timbers. Design of beams, columns, beam-columns, connections (nails and bolts), roof diaphragms, and shear walls. Design of timber structures to meet the requirements of the National Design Specification standards. Prerequisite: CE 360

**554. Design of Masonry Structures.** Design and detailing of masonry structures. Nomenclature, properties, and specifications for components. Design of assemblages, simple masonry structures, unreinforced and reinforced elements, and complex masonry structures. Prerequisite: CE 360.

**556. Prestressed Concrete Design.** Principles and concepts of design in prestressed concrete including elastic and ultimate strength analyses for flexural, shear, bond, and deflection. Principles of concordancy and linear transformation for indeterminate prestressed structures. Prerequisite: CE 455.

**557. Concrete Technology.** Properties of concrete in relation to specifying, purchasing and evaluating concrete materials. Fresh and hardened concrete properties. Concrete mix design procedures. Effects of finishing, curing, weather conditions, and various construction procedures. Ready mix concrete production and field placement techniques. Specification writing to ensure good quality concrete and field inspection procedures. Case studies of problems in concrete construction. Prerequisite: CE 222.

**561. Introduction to the Finite Element Method.** Concepts and applications of the finite element method. Development and applications of basic finite elements. Software use. Prerequisite: CE 220.

**564. Structural Dynamics.** Closed form and numerical solutions to single degree-of-freedom structural modals. Analysis of multistory frames. Computed applications and seismic analysis. Techniques of modal analysis. Prerequisites: CE 215 and 360.

**567. Wind and Seismic Loads.** Methods of calculating loads on structures caused by extreme winds and earthquakes. Calculation of wind loads on various types of structures according to theory and code. Determination of earthquakes loads on structures using structural dynamics and codes. Prerequisite: CE 360.

**568. Bridge Engineering.** Bridge loads, steel beam bridges, composite beam bridges, bridge bearings, reinforced and prestressed concrete slab and T-beam bridges, bridge evaluations and ratings, upgrade methodologies, computer applications. Prerequisites: CE 450 and CE 455.

**612. Theory of Elasticity.** Equations of linear reduction to plane stress, plane strain, and generalized plane strain. Airy and Love stress functions in solution of problems. Prerequisite: CE 220.

**615. Theory of Elastic Stability.** Static stability of bars, beams, trusses, and rigid frames. Dynamic stability of bars. Energy method applied to buckling problems. General theory of elastic stability. Prerequisite: CE 220.

**617. Theory of Plates and Shells.** Linear theory and solutions of plates of various shapes. Large deflection theory and solutions of rectangular and circular plates. Membrane and bending theories of shells. Solutions of problems in conical, cylindrical, and spherical shells. Prerequisite: CE 220.

**649. Engineering Liability.** Laws related to liability for engineering design in the context of products liability and construction projects; roles and liabilities between various parties involved in construction projects.

**650. Advanced Structural Steel Design.** Beams, columns, tension members, and connections; current research. Prerequisite: CE 450.

**655. Advanced Reinforced Concrete.** Beam, column, and slab actions; current research. Prerequisite: CE 455.

**658. Engineering Management.** Management techniques for practicing engineers.

**660. Structural Mechanics.** Elastic beam deflections, beam columns, lateral torsional buckling, column stability, plastic design, plate bending, yield line theory. Prerequisite: CE 360.

**662. Advanced Structural Analysis.** Analysis of indeterminate structures using classical and matrix methods. Use of large-scale computer programs. Prerequisite: CE 360.

**663. Finite Element Methods.** Theory and applications in structural mechanics. Plane stress, plane strain, axisymmetric problems, solids, plates, shells, nonlinear systems. Prerequisite: CE 561 or CE 661.

**712. Theory of Elasticity.** Equations of linear reduction to plane stress, plane strain, and generalized plane strain. Airy and Love stress functions in solution of problems. Prerequisite: CE 220.

**715. Theory of Elastic Stability.** Static stability of bars, beams, trusses, and rigid frames. Dynamic stability of bars. Energy method applied to bucking problems. General theory of elastic stability. Prerequisite: CE 220.

**717. Theory of Plates and Shells.** Linear theory and solutions of plates of various shapes. Large deflection theory and solutions of rectangular and circular plates. Membrane and bending theories of shells. Solutions of problems in conical, cylindrical, and spherical shell. Prerequisite: CE 612 or CE 712.

**749. Engineering Liability.** Laws related to liability for engineering design in the context of products liability and construction projects; roles and liabilities between various parties involved in construction projects.

**750. Advanced Structural Steel Design.** Beams, columns, tension members, and connections; current research. Prerequisite: CE 450.

**755. Advanced Reinforced Concrete.** Beam, column, and slab actions; current research. Prerequisite: CE 455.

**758. Engineering Management.** Management techniques for practicing engineers.

**763. Finite Element Methods.** Theory and applications in structural mechanics. Plane stress, plane strain, axisymmetric problems, solids, plates, shells, nonlinear systems. Prerequisite: CE 561.

## **Transportation, Materials, and Supporting Courses**

**557. Concrete Technology.** Properties of concrete in relation to specifying, purchasing, and evaluating concrete materials. Fresh and hardened concrete properties. Concrete mix design procedures. Effects of finishing, curing, weather conditions, and various construction procedures. Ready-mix concrete production and field placement techniques. Specification writing to ensure good quality concrete and field inspection procedures. Case studies of problems in concrete construction. Prerequisite: CE 455.

**622. Traffic Flow Theory.** . Microscopic and macroscopic traffic flow characteristics. Traffic flow analytical techniques including care-following models, traffic stream models, shock wave analysis. Queuing analysis and gap acceptance. Simulation models for network analysis.

**623. Non-Motorized Transportation Design and Planning.** . Urban planning principles that support non-motorized transportation, local bicycle or pedestrian plans, non-motorized transportation safety related considerations, non-motorized transportation design including traffic calming techniques, procedures for capacity analysis of pedestrian facilities.

**624. Simulations Models for Transportation Applications.** . Basic concepts of simulation models for analysis and optimization of transportation systems. Experimentation with planning simulation models and traffic models for signal timing and capacity analysis.

**625. Intelligent Transportation Systems\*, Graduate.** . Legal, institutional and planning issues. System Architecture, telecommunication technologies. Advanced user services, intermodal systems. Deployment programs, cost and benefit evaluation.

**641. Civil and Environmental Engineering Graduate Seminar.** Seminar focusing on student research and guest presentations of various topics of interest to Civil and Environmental Engineering students. 1 hour.

**642. Highway Materials and Construction.** Properties of materials used in highway construction. Construction methods and management. Prerequisites: CE 322 and CE 345.

**643. Pavement Design and Construction.** Analysis of stresses and strains in pavement systems. Design and construction of flexible and rigid pavement systems. Effects of loading on pavement life. Prerequisites: CE 345.

**644. Civil Engineering Analysis II.** Sampling and experimental design. Hypotheses testing. Decision analyses. Multiple regression analyses. Nonparametric methods. Analysis of experimental data in civil engineering research; hypothesis testing, regression, experimental design, nonparametrical analysis. Prerequisite: CE 344.

**646. Traffic Engineering Operations.** Traffic signal timing and phasing, coordination, signal networks, freeway operations, nonsignalized traffic control techniques. Prerequisite: CE 345.

**647. Engineering Optimization and Modeling.** Mathematical techniques for analysis of systems. Project scheduling, optimization, and simulation applied to civil engineering system analysis. Prerequisite: CE 344, EE 130 or EE 134.

**648. Urban and Transportation Planning.** Land use planning for transportation systems; trip generation, trip distribution, and traffic assignment. Prerequisite: CE 345.

**649. Engineering Liability.** Laws related to liability for engineering design in the context of products liability and construction projects; roles and liabilities between various parties involved in construction projects.

**658. Engineering Management.** Management techniques for practicing engineers.

**693. Applied Research in Civil and Environmental Engineering.** Research tools, including elements of experimental design and proposal preparation. Effective communication, literature searches, and exploratory data analysis. Prerequisite: Permission of instructor.

**721. Transportation Engineering Seminar.** Seminar focusing on student research and guest presentations of various topics of interest to Transportation Engineering students.

**722. Traffic Flow Theory.** Microscopic and macroscopic traffic flow characteristics. Traffic flow analytical techniques including care-following models, traffic stream models, shock wave analysis. Queuing analysis and gap acceptance. Simulation models for network analysis.

**723. Non-Motorized Transportation Design and Planning.** Urban planning principles that support non-motorized transportation, local bicycle or pedestrian plans, non-motorized transportation safety related considerations, non-motorized transportation design including traffic calming techniques, procedures for capacity analysis of pedestrian facilities.

**724. Simulation Models for Transportation Applications.** Basic concepts of simulation models for analysis and optimization of transportation systems. Experimentation with planning simulation models and traffic models for signal timing and capacity analysis.

**725. Intelligent Transportation Systems\*, Graduate.** Legal, institutional and planning issues. System Architecture, telecommunication technologies. Advanced user services, intermodal systems. Deployment programs, cost and benefit evaluation.

**741. Civil and Environmental Engineering Graduate Seminar.** Seminar focusing on student research and guest presentations of various topics of interest to Civil and Environmental Engineering students. Mandatory enrollment for all Civil and Environmental Engineering students. 1 hour.

**748. Urban and Transportation Planning.** Land use planning for transportation systems; trip generation, trip distribution, and traffic assignment. Prerequisite: CE 345.

**749. Engineering Liability.** Laws related to liability for engineering design in the context of products liability and construction projects; roles and liabilities between various parties involved in construction projects

**758. Engineering Management.** *Management techniques for practicing engineers.*

### **Other Courses**

**690. Special Topics in (Area). 1-4 hours.**

**691. Individual Study in (Area). 1-4 hours.**

**698. Nonthesis Research. 1-6 hours.**

**699. Thesis Research. Prerequisite: Admission to candidacy. 1-6 hours.**

**790. Special Topics in (Area). 1-4 hours.**

**791. Individual Study in (Area). 1-4 hours.**

**798. Nondissertation Research. 1-6 hours.**

**799. Doctoral Dissertation. Prerequisite: Admission  
to candidacy. 1-6 hours.**

Last modified 12/10/04



## UAB Graduate School

### Engineering, Computer (Ph.D.\*)

Graduate program director: *Jannett*

## Faculty

**Dale W. Callahan**, Assistant Professor (Electrical and Computer Engineering); Wireless Communications, Digital Signal Processing, Telecommunications.

**David A. Conner**, Professor Emeritus (Electrical and Computer Engineering); Electrical Networks, Electromagnetics, Mathematical Modeling of Electrical Phenomena

**David G. Green**, Instructional Associate Professor (Electrical and Computer Engineering); Computer Networking, Software Engineering, Computer Applications

**Gary J. Grimes**, Wallace R. Bunn Chair of Telecommunications and Professor (Electrical and Computer Engineering); Telecommunications, Optics, Photonics, Switching

**Henry J. Holley**, Professor Emeritus (Electrical and Computer Engineering); Electric Power Systems

**Thomas C. Jannett**, Professor (Electrical and Computer Engineering); Control Systems, Biomedical Instrumentation, Modeling and Simulation, Intelligent Sensor Systems

**James R. Jones**, Associate Professor (Retired) (Electrical and Computer Engineering); Commercial/Industrial and Utility Power Systems

**Dennis G. Smith**, Associate Professor (Electrical and Computer Engineering); Computer Systems, Computer Graphics, Neural Networks, Digital Control

**Murat M. Tanik**, Professor (Electrical and Computer Engineering); Software Systems Engineering, Integrated Systems Design, Process Engineering

**Gregg L. Vaughn**, Associate Professor and Chair (Electrical and Computer Engineering); Digital Signal Processing, Applications of Microprocessors, Digital Communications

See the graduate catalog of the University of Alabama at Huntsville (UAH) for the faculty of that university.

## Program Information

The Ph.D. in Computer Engineering is awarded by UAB and is offered through a program shared with the University of Alabama in Huntsville (UAH), allowing both UAB and UAH to contribute to the program.

## Admission Requirements

Each application will be reviewed on an individual basis in view of multiple factors including grades, GPA, prior academic experience, references, independent and supervised research, and test scores.

Requirements for admission to the computer engineering Ph.D. program include the following:

1. A bachelor's degree in an accredited electrical or computer engineering program or a bachelor's degree in a related program acceptable to the graduate faculty in Electrical and Computer Engineering;
2. A score of at least 550 on the verbal and quantitative sections of the Graduate Record Examination (GRE);
3. A score of at least 500 on the TOEFL examination for international students whose native language is not English;
4. An overall GPA of at least 3.0 on a 4.0 point scale, or at least 3.0 for the last 60 semester hours completed; and
5. Three letters of evaluation concerning the applicant's previous academic and professional work.

Conditional admission may be given to students who fail to meet one or more of the requirements for unconditional admission. Students not having a bachelor's degree in electrical or computer engineering may be required to complete prerequisite courses.

## Program Requirements

The course of study leading to the Ph.D. in computer engineering includes a minimum of 60 semester hours of course work beyond the bachelor's degree (excluding dissertation research). A student's advisory committee may allow appropriate course work pursued in completing a master's degree to be counted towards the 60 hour requirement, but a maximum of nine semester hours credit in thesis/ research work from the master's degree may be allowed to count toward the 60 hour requirement for the Ph.D. Requirements include the following:

1. A major consisting of a minimum of 18 semester hours of approved coursework in computer engineering;

A minor consisting of a minimum of 15 semester hours of approved coursework in mathematics, theoretical or formal methods as related to computer engineering;

3. A minor consisting of a minimum of 12 semester hours of approved coursework in electrical or computer engineering;
4. Additional coursework consisting of a minimum of 15 semester hours of approved coursework in supportive fields;
5. Successful completion of a preliminary examination;
6. Successful completion of a qualifying examination with a presentation of the dissertation topic;
7. A research dissertation consisting of a minimum of 18 semester hours in electrical and computer engineering; and
8. Successful completion of a final examination consisting of a presentation of the dissertation.

## Additional Information

For detailed information, contact UAB Department of Electrical and Computer Engineering.

Telephone 205-934-8440

E-mail [eceweabc@eng.uab.edu](mailto:eceweabc@eng.uab.edu)

Web [www.eng.uab.edu](http://www.eng.uab.edu)

## Course Descriptions

See the graduate catalog of the University of Alabama at Huntsville (UAH) for doctoral courses that university.

See the listing for the master's degree in electrical and computer engineering for courses at the 500 level.

Unless otherwise noted, all courses are for 3 semester hours of credit. Courses numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Electrical and Computer Engineering (EE)

**601. Electrical & Computer Engineering Seminar.** Consists of research presentations and colloquia delivered by faculty, research assistants, and invited guests in various state-of-the-

art and popular topics related to Electrical and Computer Engineering. Maximum of 3 credit hours applicable toward M.S.E.E. degree. 1-3 hours.

**610. Technical Communication for Engineers.** Workshop-oriented course producing technical memoranda, proposals, and conference and/or refereed-journal papers with oral presentations related to these work products. Prerequisite: Graduate standing in Engineering and successful pretest performance.

**621. Random Variables and Processes. Theory** underlying analysis and design of communication, stochastic control, data gathering, and data analysis systems. Prerequisite: EE 421 or permission of instructor.

**622. Advanced Communication Theory.** Analysis of performance of analog modulation techniques in presence of noise. Prerequisites: EE 421 and 621, or permission of instructor.

**624. Digital Communications.** Design of digital communications systems. Prerequisites: EE 621 and 622.

**625. Coding and Information Theory.** Entropy, channels and channel capacity, RLL codes, error correcting codes, cyclic codes, cryptography, convolutional codes, trellis coded modulation. Prerequisite: graduate standing.

**626. Digital Image Processing.** Digital image processing fundamentals, image transformations, image enhancement, image restoration, image compression, image segmentation, and image presentation. Prerequisite: EE 423 or 523.

**628. Telecommunications I.** Advanced topics. Prerequisite: Permission of instructor.

**629. Telecommunications II.** Advanced topics. Prerequisite: Permission of instructor.

**632. Introduction to Computer Networking.** Computer networking and engineering standards related to networking. Network hardware, ethernet, token ring, ISDN, ATM, networking protocols including TCP/IP protocol suite, internetworking, LANs, and typical applications. Permission of instructor.

**633. Experiments in Computer Networking.** Detailed exploration of particular issues in network protocols and network application models. Development of series of programs to explore the details of network protocols and network application models. Prerequisite: EE 532 or permission of instructor.

**634. Introduction to Neural Networks.** Neural network topologies and learning algorithms with an emphasis on back propagation. Applications and limitations of networks. Designing networks for specific uses. Individual software project. Prerequisites: EE 210 or permission of instructor.

**635. Telecommunication Systems.** System organization and structure; data transmission. Prerequisite: Permission of instructor.

**636. Advanced Digital Design.** Large-scale class project. Sample topics include math coprocessors, text coprocessors, CRT controllers, and data encryption devices. Prerequisite: Permission of instructor.

637. **Computer Graphics I.** Graphic devices, drawing curves, interactive graphics, transforms, and three-dimensional graphics. Projects involving hardware and software. Prerequisite: EE 337, or permission of instructor.

638. **Computer Graphics II.** Raster graphics, faces, coloring faces, hidden-surface elimination, ray tracing, and image enhancement. Projects involving hardware and software. Prerequisite: EE 637.

639. **Advanced Microprocessors.** Topics covering both hardware and software issues. Individual or group term project. Prerequisite: EE 438 or 538 or permission of instructor.

640. **Object-Oriented Design.** Study and practice of the object-oriented methodology for developing software designs. Implementation consequences. Application of object-oriented methodologies to specific problems using object-oriented language. Prerequisite: EE 233 or other software design experience using C, or permission of instructor.

641. **Modern Control I.** Sampled-data and discrete-time systems. State variable models, state feedback and estimation. Optimal control and estimation. Predictive control. Introduction to system identification. Prerequisite: EE 426 or permission of instructor.

642. **Modern Control II.** Selected advanced topics including intelligent and fuzzy control. Prerequisite: EE 641 or permission of instructor.

643. **System Identification and Adaptive Control.** Modeling of systems using structure identification, parameter estimation, and model validation. Controller design based on input-output models. Parameter adaptive control. Prerequisite: Permission of instructor.

650. **Software Engineering.** Introduces classical software lifecycles and software development paradigms. Proposal development and software design. Integrates experience from computer science, communication, systems engineering, and problem solving. Prerequisite: Permission of instructor.

651. **Software Engineering Large Systems I.** Notions of process and integrated system views. Software architecture and modeling are discussed and related to levels in Object Oriented Design. Java is used as the programming paradigm. Prerequisite: EE 650 or permission of instructor.

652. **Software Engineering Large Systems II.** Components are introduced as elements of software system implementations. Object-oriented design patterns and techniques are reviewed. Java components are used for programming. Prerequisites: EE 650 and EE 651 or permission of instructor.

657. **Enterprise Information Architecture Engineering.** Development and management of distributed computing including hardware, software, and communications. Prerequisite: Permission of instructor.

661. **Advanced Electrical Machinery I.** Synchronous machine theory. Prerequisites: EE 461 or 561, and 472 or 572, or permission of instructor.

662. **Advanced Electrical Machinery II.** Induction machine theory. Prerequisite: EE 661.

663. **Control of Synchronous Machines.** Prerequisite: Permission of instructor.
671. **Computer Applications in Power Systems.** Analysis of power systems operation. Prerequisite: Permission of instructor.
672. **Power System Overvoltages.** Events causing overvoltages; protection of system. Prerequisite: EE 472 or 572 or permission of instructor.
673. **Reliability of Power Systems.** Component reliability using standard industrial techniques. Prerequisite: EE 471 or 571 or permission of instructor.
674. **Economic Operation and Control of Power Systems.** Economic control of thermal generating stations and hydrothermal stations. Computer control of power systems. Prerequisite: EE 472 or 572, or permission of instructor.
682. **Multivariable Systems.** Analysis and design of multiple-output, multiple-input control systems. Prerequisite: Permission of instructor.
684. **Engineering Management of Information Resources.** Management of critical information and information intensive change, management of quality, information flow and use and process improvement. Permission of instructor.
685. **Advanced Engineering Operations.** Procedural, planning, and control aspects of engineering projects. Project management of teams. Prerequisite: Permission of instructor.
686. **Technical Entrepreneurship I.** Entrepreneurship and intrapreneurship in venture capital financed companies. Management teams are formed, and ventures are selected and simulated over an extended period of time. Prerequisite: Permission of instructor.
687. **Technical Entrepreneurship II.** Continuation of EE 686. Prerequisite: EE 686.
688. **Advanced Information Engineering.** Applications of information engineering in partnership with local industries. planning and problem solving or information engineering design. Prerequisite: Permission of instructor.
- \*690. **Special Topics in (Area).** Prerequisite: Permission of instructor. 1-12 hours.
- \*691. **Special Problems in (Area).** Prerequisite: Permission of instructor. 1-12 hours.
697. **Project. Project for Plan II Master's students.** Prerequisite: Permission of instructor. 3 hours.
- \*698. **Nonthesis Research.** 1-12 hours.
- \*699. **Thesis Research.** Thesis for Plan I Master's students. Prerequisite: Admission to candidacy. 1-12 hours.
701. **Electrical Engineering Seminar.** 1-3 hours.

724. **Digital Communications.** Design of digital communication systems. Prerequisites: EE 621 and 622.

725. **Coding and Information Theory.** Entropy, channels and channel capacity, RLL codes, error correcting codes, cyclic codes, cryptography, convolutional codes, trellis coded modulation. Prerequisite: graduate standing.

726. **Digital Image Processing.** Digital image processing fundamentals, image transformations, image enhancement, image restoration, image compression, image segmentation, and image presentation. Prerequisite: EE 623.

728. **Telecommunications I.** Advanced topics. Prerequisite: Permission of instructor.

729. **Telecommunications II.** Advanced topics. Prerequisite: Permission of instructor.

733. **Experiments in Computer Networking.** Detailed exploration of particular issues in network protocols and network application models. Development of series of programs to explore the details of network protocols and network application models. Prerequisite: EE 532 or permission of instructor.

734. **Introduction to Neural Networks.** Neural network topologies and learning algorithms with an emphasis on back propagation. Applications and limitations of networks. Designing networks for specific uses. Individual software project. Prerequisites: EE 210 or permission of instructor.

737. **Computer Graphics I.** Graphic devices, drawing curves, interactive graphics, transforms, and three-dimensional graphics. Projects involving hardware and software. Prerequisite: Permission of instructor.

738. **Computer Graphics II.** Raster graphics, faces, coloring faces, hidden-surface elimination, ray tracing, and image enhancement. Projects involving hardware and software. Prerequisite: EE 637 or 737.

740. **Object-Oriented Design.** Study and practice of the object-oriented methodology for developing software designs. Implementation consequences. Application of object-oriented methodologies to specific problems using object-oriented language. Prerequisite: EE 233 or other software design experience using C, or permission of instructor.

742. **Modern Control II.** Selected advanced topics including intelligent and fuzzy control. Prerequisite: EE 641 or permission of instructor.

743. **System Identification and Adaptive Control.** Modeling of systems using structure identification, parameter estimation, and model validation. Input/output models. Parameter adaptive control. Prerequisite: Permission of instructor.

747. **Distributed Control Systems.** Application of distributed control to process, integration, and operator interfaces. Prerequisite: Permission of instructor.

750. **Software Engineering.** Introduces classical software lifecycles and software development paradigms. Proposal development and software design. Integrates experience

from computer science, communication, systems engineering, and problem solving.  
Prerequisite: Permission of instructor.

**751. Software Engineering Large Systems I.** Notions of process and integrated system views. Software architecture and modeling are discussed and related to levels in Object Oriented Design. Java programming is used as the programming paradigm. Prerequisite: EE 650 or 750 or permission of instructor.

**752. Software Engineering Large Systems II.** Components are introduced as elements of software system implementations. Object-oriented design patterns and techniques are reviewed. Java components are used for programming. Prerequisites: EE 650 or 750 and EE 651 or 751 or permission of instructor.

**761. Advanced Electrical Machinery I.** Synchronous machine theory. Prerequisites: EE 461 or 561 and 472 or 572, or permission of instructor.

**762. Advanced Electrical Machinery II.** Induction machine theory. Prerequisite: EE 661 or 761.

**763. Control of Synchronous Machines.** Prerequisite: Permission of instructor.

**771. Computer Applications in Power Systems.** Analysis of power systems operation. Prerequisite: Permission of instructor.

**772. Power System Overvoltages.** Events causing overvoltages, and protection of system. Prerequisite: EE 472 or 572, or permission of instructor.

**773. Reliability of Power Systems.** Component reliability using standard industrial techniques. Prerequisite: EE 471 or 571, or permission of instructor.

**774. Economic Operation and Control of Power Systems.** Economic control of thermal generating stations and hydrothermal stations. Computer control of power systems. Prerequisite: EE 472 or 572, or permission of instructor.

**782. Multivariable Systems.** Analysis and design of multiple-output, multiple-input control systems. Prerequisite: Permission of instructor.

\*790. **Special Topics in (Area).** 1-12 hours.

\*791. **Individual Study in (Area).** 1-12 hours.

\*798. **Nondissertation Research.** 1-12 hours.

\*799. **Dissertation Research.** Prerequisite: Admission to candidacy. 1-12 hours.

Last modified 10/04/04



## UAB Graduate School

### Engineering, Electrical (Ph.D.\*, M.S.E.E.)

\* Degree awarded by either the University of Alabama or the University of Alabama in Huntsville.

Graduate program director: *Jannett*

## Faculty

**Dale W. Callahan**, Assistant Professor (Electrical and Computer Engineering); Wireless Communications, Digital Signal Processing, Telecommunications.

**David A. Conner**, Professor Emeritus (Electrical and Computer Engineering); Electrical Networks, Electromagnetics, Mathematical Modeling of Electrical Phenomena

**David G. Green**, Instructional Associate Professor (Electrical and Computer Engineering); Computer Networking, Software Engineering, Computer Applications

**Gary J. Grimes**, Wallace R. Bunn Chair of Telecommunications and Professor (Electrical and Computer Engineering); Telecommunications, Optics, Photonics, Switching

**Henry J. Holley**, Professor Emeritus (Electrical and Computer Engineering); Electric Power Systems

**Thomas C. Jannett**, Professor (Electrical and Computer Engineering); Control Systems, Biomedical Instrumentation, Modeling and Simulation, Intelligent Sensor Networks

**James R. Jones**, P.E., Associate Professor (Electrical and Computer Engineering); Commercial/Industrial and Utility Power Systems

**Dennis G. Smith**, Associate Professor (Retired) (Electrical and Computer Engineering); Computer Systems, Computer Graphics, Neural Networks, Digital Control

**Murat M. Tanik**, Professor (Electrical and Computer Engineering); Software Systems Engineering, Integrated Systems Design, Process Engineering

**Gregg L. Vaughn**, Associate Professor and Chair (Electrical and Computer Engineering); Digital Signal Processing, Applications of Microprocessors, Digital Communications

# Program Information

## M.S.E.E. Program Admission Requirements

Requirements for admission to the electrical engineering master's degree program include the following:

1. A bachelor's degree in electrical or computer engineering. Applicants not holding an electrical or computer engineering B.S. degree will be considered for probationary admission on an individual basis. If admitted, student will be advised of measures necessary to correct deficiencies;
2. A 3.0 (A = 4.0) or better GPA in all junior and senior electrical and computer engineering and mathematics courses attempted;
3. Three letters of evaluation concerning the applicant's previous academic and professional work; and
4. An acceptable score on the GRE General Test and the TOEFL, if applicable.

(Verification of registration by examination as a Professional Engineer [P.E.] will satisfy Admission Criteria 3 and 4.)

## M.S.E.E. Program Requirements

Assuming that a student possesses appropriate academic preparation for this degree, 33 semester hours of course work will be required beyond the bachelor's degree. This work must be distributed as follows:

### Plan I (Thesis Option)

1. Twelve semester hours of graduate-level courses appropriate to the student's area of technical specialization;
2. Six semester hours of graduate-level courses in an area related to the student's area of technical specialization; and
3. Six semester hours of courses having a mathematical emphasis; and
4. Successful completion and oral defense of a thesis developed through registration for at least nine semester hours of EE 699.

### Plan II (Nonthesis Option)

Twelve semester hours of graduate-level courses appropriate to the student's area of technical specialization;

Twelve semester hours of graduate-level courses in an area related to the student's area of professional emphasis (these courses may address technical subjects or subject matter appropriate to an emphasis in engineering management;

Six semester hours of courses having a mathematical emphasis;

Successful completion of a project developed through registration for at least 3 semester hours of EE 697; and

Successful completion of an examination on the project.

## **Ph.D. Program**

UAB cooperates in programs leading to the Ph.D. in electrical engineering awarded by the University of Alabama (Tuscaloosa) or by the University of Alabama in Huntsville. The student's advisory committee will be composed of faculty from the UAB graduate program in electrical engineering, together with graduate faculty from the cooperating institution. In determining the student's program, the advisory committee will consider the student's academic objectives and background. Coursework may be taken at UAB, the cooperating institution, or both.

## **Cooperative Ph.D. Admission Requirements**

Requirements for admission to the electrical engineering Ph.D. degree program include the following:

1. A bachelor's degree from an ABET-accredited electrical or computer engineering program or a program deemed by the Electrical and Computer Engineering graduate faculty to be equivalent *and* a master's degree in electrical or computer engineering that contains appropriate preparatory course work to pursue the Ph.D. Degree;
2. A 3.5 (A = 4.0) or better GPA in all master's degree course work attempted; and
3. An acceptable score on the GRE General Test. Verification of registration by examination as a Professional Engineer will satisfy this criterion.

## **Cooperative Ph.D. Program Requirements**

A minimum of 74 semester hours of course work will be required beyond the bachelor's degree. Requirements include the following:

1. A minimum of 24 semester hours of graduate-level courses (with sufficient depth) appropriate to the student's area of technical specialization (defined as the Major);
2. A minimum of 12 semester hours for The University of Alabama program and a minimum of 15 semester hours for The University of Alabama in Huntsville program of graduate-level courses (with sufficient depth) in an area related to the student's area of technical specialization (defined as Minor 1);
3. A minimum of 12 semester hours of approved courses having a mathematical emphasis (defined as Minor 2);

4. Two semester hours of graduate seminar through registration for EE 701;
5. Successful completion of written and/or oral examinations, as required, encompassing all program coursework; and
6. Successful completion and oral defense of a dissertation developed through registration for at least 24 semester hours of EE 799.

**Note:** The above statements reflect minimum degree requirements for the cooperative Ph.D. program with the University of Alabama. The program associated with the University of Alabama in Huntsville carries the additional requirement of competency in a foreign language or demonstration of an alternate area of research competency.

## Additional Information

For detailed information, contact UAB Department of Electrical and Computer Engineering.

Telephone 205-934-8440

E-mail [eceweabc@eng.uab.edu](mailto:eceweabc@eng.uab.edu)

Web [www.eng.uab.edu](http://www.eng.uab.edu)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Courses numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Electrical and Computer Engineering (EE)

**511. Facilities Engineering.** General engineering project planning, applying codes and standards, preliminary design, economic forecasting, environmental planning and reports, site selection, population displacement, cash flow, specifications and plans. Prerequisite: Permission of instructor.

**518 Wireless Communications.** Application and technologies of wireless networks including propagation, encoding, error control, and current technologies. Prerequisite: EE 318.

**523. Digital Signal Processing.** Digital filter analysis and design. FFT algorithms. Applications in engineering problems such as data acquisition, control, and I/O. Prerequisite: EE 318.

**527. Industrial Control.** Power control devices and applications. Relay logic and translation to other forms. Programmable logic controllers. Proportional-integral-derivative (PID) control. Additional topics from current literature. Prerequisites: EE 233 and 351.

**531. Analog Integrated Electronics.** Advanced analysis and design using op-amps, with emphasis on error analysis and compensation. Signal conditioning, instrumentation amplifiers, nonlinear circuits, filters, voltage regulators, and A-to-D and D-to-A conversion. Laboratory exercises emphasizing design techniques. Prerequisite: EE 316 and 351.

**532. Introduction to Computer Networking.** Computer networking and engineering standards related to networking. Network hardware, ethernet, token ring, ISDN, ATM, networking protocols including TCP/IP protocol suite, internetworking, LANs, and typical applications. Prerequisite: EE 210

**533. Engineering Software Solutions.** Project planning, specification, design, implementation and testing of software solutions for engineers. Design techniques based on state machines, object-orientated techniques, database, and multi-tasking. Use of software tools. Three projects. Prerequisite: EE 233.

**538. Intermediate Microcomputers.** Evolution of computer architecture, parallel processing, pipelined processors, branch prediction, superscalar processors, memory caches. Study of state-of-the-art processors like the Pentium 4 and PowerPC. Prerequisite: EE337 or permission of instructor.

**546. Industrial Control Projects for Information Age.** In-depth group and individual projects in industrial control with emphasis on information systems applications. Projects in areas such as programmable logic controllers, factory automation, and man-machine interface software and hardware. Prerequisite: EE 427/527 or permission of instructor.

**547. Internet/Intranet Application Development.** Focus on the development of applications and models using Internet/Intranet technologies such as Java, JavaScript, conferencing systems, dynamic HTML, server-side scripting, multitier models and XML. Prerequisite: EE 233 or permission of instructor.

**548. Software Engineering Projects.** Builds on the object-oriented concepts and Java covered in EE 333. Coverage for Unified Modeling Language is expanded and Java Design Patterns are incorporated. Provides a project environment for implementation of systems using object-oriented techniques. Prerequisite: EE 333.

**551. Digital Electronics.** Properties of CMOS, TTL, and ECL logic families. Semiconductor memory. IC fabrication. State machine and large-scale project techniques. Laboratory involves simulation and hands-on experiments. Lecture and lab. Prerequisites: EE 337 and 351.

**552. VHDL Digital Systems Design.** Introduction to computer design automation using VHDL. Architectural, behavioral, and logical descriptions of digital systems. Logic verification and simulation. Design of complex integrated circuits using modern DA tools. Prerequisite: EE 210.

**558. Medical Instrumentation.** Fundamental operating principles, applications and design of electronic instrumentation used in measurement of physiological parameters. Class design project. Prerequisites: EE 431 or permission of instructor.

**561. Machinery II.** Physical principles of DC machines. Mathematical analysis of generator designs using equivalent circuits and magnetization curves. Calculation of motor speed,

torque, power, efficiency, and starting requirements. Solid-state speed control systems. Prerequisite: EE 361.

**571. Power Systems I.** Components of power systems. Performance of modern interconnected power systems under normal and abnormal conditions. Calculation of inductive and capacitive reactances of three-phase transmission lines in steady state. Prerequisite: EE 361.

**572. Power Systems II.** Modeling of power systems. Symmetrical components. Fault analysis. Determination of interrupting ratings of circuit breakers. Transient stability. Design project. Prerequisite: EE 471 or 571.

**573. Protective Relaying of Power Systems.** Operating principles of protective relays. Protection of transmission lines, generators, motors, transformers, and buses. Prerequisite: EE 472 or 572.

**574. Industrial Power Systems.** One-line diagrams/load analysis. Medium and low voltage feeder design, voltage regulation, and short-circuit analysis. Selection of protective devices. Grounding and lighting protection. Term project. Prerequisite: EE 472 or 572.

**585. Engineering Operations.** Economic, procedural, planning, and control aspects of engineering projects. Prerequisite: Permission of instructor.

\*590. **Special Topics in (Area).** Prerequisite: Permission of instructor. 1-12 hours.

\*591. **Special Problems in (Area).** Prerequisite: Permission of instructor. 1-12 hours.

\*595. **Integrated System Design.** Successful completion and oral defense of a team design project. Prerequisite: Permission of instructor.

**601. Electrical and Computer Engineering Seminar.** Consists of research presentations and colloquia delivered by faculty, research assistants, and invited guests in various state-of-the-art and popular topics related to Electrical and Computer Engineering. Maximum of 3 credit hours applicable toward M.S.E.E. degree. 1-3 hours.

**610. Technical Communication for Engineers.** Workshop-oriented course producing technical memoranda, proposals, and conference and/or refereed-journal papers with oral presentations related to these work products. Prerequisite: Graduate standing in Engineering and successful pretest performance.

**621. Random Variables and Processes.** Theory underlying analysis and design of communication, stochastic control, data gathering, and data analysis systems. Prerequisite: EE 421 or permission of instructor.

**622. Advanced Communication Theory.** Analysis of performance of analog modulation techniques in presence of noise. Prerequisites: EE 421 and 621, or permission of instructor.

**624. Digital Communications.** Design of digital communications systems. Prerequisites: EE 621 and 622.

625. **Coding and Information Theory.** Entropy, channels and channel capacity, RLL codes, error correcting codes, cyclic codes, cryptography, convolutional codes, trellis coded modulation. Prerequisite: graduate standing.

626. **Digital Image Processing.** Digital image processing fundamentals, image transformations, image enhancement, image restoration, image compression, image segmentation, and image presentation. Prerequisite: EE 423 or 523.

628. **Telecommunications I.** Advanced topics. Prerequisite: Permission of instructor.

629. **Telecommunications II.** Advanced topics. Prerequisite: Permission of instructor.

632. **Introduction to Computer Networking.** Computer networking and engineering standards related to networking. Network hardware, ethernet, token ring, ISDN, ATM, networking protocols including TCP/IP protocol suite, internetworking, LANs, and typical applications. Permission of instructor.

633. **Experiments in Computer Networking.** Detailed exploration of particular issues in network protocols and network application models. Development of series of programs to explore the details of network protocols and network application models. Prerequisite: EE 532 or permission of instructor.

634. **Introduction to Neural Networks.** Neural network topologies and learning algorithms with an emphasis on back propagation. Applications and limitations of networks. Designing networks for specific uses. Individual software project. Prerequisites: EE 210 or permission of instructor.

635. **Telecommunication Systems.** System organization and structure; data transmission. Prerequisite: Permission of instructor.

636. **Advanced Digital Design.** Large-scale class project. Sample topics include math coprocessors, text coprocessors, CRT controllers, and data encryption devices. Prerequisite: Permission of instructor.

637. **Computer Graphics I.** Graphic devices, drawing curves, interactive graphics, transforms, and three-dimensional graphics. Projects involving hardware and software. Prerequisite: EE 337, or permission of instructor.

638. **Computer Graphics II.** Raster graphics, faces, coloring faces, hidden-surface elimination, ray tracing, and image enhancement. Projects involving hardware and software. Prerequisite: EE 637.

639. **Advanced Microprocessors.** Topics covering both hardware and software issues. Individual or group term project. Prerequisite: EE 438 or 538 or permission of instructor.

640. **Object-Oriented Design.** Study and practice of the object-oriented methodology for developing software designs. Implementation consequences. Application of object-oriented methodologies to specific problems using object-oriented language. Prerequisite: EE 233 or other software design experience using C, or permission of instructor.

641. **Modern Control I.** Sampled-data and discrete-time systems. State variable models, state feedback and estimation. Optimal control and estimation. Predictive control. Introduction to system identification. Prerequisite: EE 426 or permission of instructor.

642. **Modern Control II.** Selected advanced topics including intelligent and fuzzy control. Prerequisite: EE 641 or permission of instructor.

643. **System Identification and Adaptive Control.** Modeling of systems using structure identification, parameter estimation, and model validation. Controller design based on input-output models. Parameter adaptive control. Prerequisite: Permission of instructor.

650. **Software Engineering.** Introduces classical software lifecycles and software development paradigms. Proposal development and software design. Integrates experience from computer science, communication, systems engineering, and problem solving. Prerequisite: Permission of instructor.

651. **Software Engineering Large Systems I.** Notions of process and integrated system views. Software architecture and modeling are discussed and related to levels in Object Oriented Design. Java is used as the programming paradigm. Prerequisite: EE 650 or permission of instructor.

652. **Software Engineering Large Systems II.** Components are introduced as elements of software system implementations. Object-oriented design patterns and techniques are reviewed. Java components are used for programming. Prerequisites: EE 650 and EE 651 or permission of instructor.

657. **Enterprise Information Architecture Engineering.** Development and management of distributed computing including hardware, software, and communications. Prerequisite: Permission of instructor.

661. **Advanced Electrical Machinery I.** Synchronous machine theory. Prerequisites: EE 461 or 561, and 472 or 572, or permission of instructor.

662. **Advanced Electrical Machinery II.** Induction machine theory. Prerequisite: EE 661.

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671. **Computer Applications in Power Systems.** Analysis of power systems operation. Prerequisite: Permission of instructor.

672. **Power System Overvoltages.** Events causing overvoltages; protection of system. Prerequisite: EE 472 or 572 or permission of instructor.

673. **Reliability of Power Systems.** Component reliability using standard industrial techniques. Prerequisite: EE 471 or 571 or permission of instructor.

674. **Economic Operation and Control of Power Systems.** Economic control of thermal generating stations and hydrothermal stations. Computer control of power systems. Prerequisite: EE 472 or 572, or permission of instructor.



682. **Multivariable Systems.** Analysis and design of multiple-output, multiple-input control systems. Prerequisite: Permission of instructor.

684. **Engineering Management of Information Resources.** Management of critical information and information intensive change, management of quality, information flow and use and process improvement. Permission of instructor.

685. **Advanced Engineering Operations.** Procedural, planning, and control aspects of engineering projects. Project management of teams. Prerequisite: Permission of instructor.

686. **Technical Entrepreneurship I.** Entrepreneurship and intrapreneurship in venture capital financed companies. Management teams are formed, and ventures are selected and simulated over an extended period of time. Prerequisite: Permission of instructor.

687. **Technical Entrepreneurship II.** Continuation of EE 686. Prerequisite: EE 686.

688. **Advanced Information Engineering.** Applications of information engineering in partnership with local industries. planning and problem solving or information engineering design. Prerequisite: Permission of instructor.

\*690. **Special Topics in (Area).** Prerequisite: Permission of instructor. 1-12 hours.

\*691. **Special Problems in (Area).** Prerequisite: Permission of instructor. 1-12 hours.

697. **Project.** Project for Plan II Master's students. Prerequisite: Permission of instructor. 3 hours.

\*698. **Nonthesis Research.** 1-12 hours.

\*699. **Thesis Research.** Thesis for Plan I Master's students. Prerequisite: Admission to candidacy. 1-12 hours.

701. **Electrical Engineering Seminar.** 1-3 hours.

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725. **Coding and Information Theory.** Entropy, channels and channel capacity, RLL codes, error correcting codes, cyclic codes, cryptography, convolutional codes, trellis coded modulation. Prerequisite: graduate standing.

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729. **Telecommunications II.** Advanced topics. Prerequisite: Permission of instructor.

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737. **Computer Graphics I.** Graphic devices, drawing curves, interactive graphics, transforms, and three-dimensional graphics. Projects involving hardware and software. Prerequisite: Permission of instructor.

738. **Computer Graphics II.** Raster graphics, faces, coloring faces, hidden-surface elimination, ray tracing, and image enhancement. Projects involving hardware and software. Prerequisite: EE 637 or 737.

740. **Object-Oriented Design.** Study and practice of the object-oriented methodology for developing software designs. Implementation consequences. Application of object-oriented methodologies to specific problems using object-oriented language. Prerequisite: EE 233 or other software design experience using C, or permission of instructor.

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752. **Software Engineering Large Systems II.** Components are introduced as elements of software system implementations. Object-oriented design patterns and techniques are reviewed. Java components are used for programming. Prerequisites: EE 650 or 750 and EE 651 or 751 or permission of instructor.

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762. **Advanced Electrical Machinery II.** Induction machine theory. Prerequisite: EE 661 or 761.

763. **Control of Synchronous Machines.** Prerequisite: Permission of instructor.

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772. **Power System Overvoltages.** Events causing overvoltages, and protection of system. Prerequisite: EE 472 or 572, or permission of instructor.

773. **Reliability of Power Systems.** Component reliability using standard industrial techniques. Prerequisite: EE 471 or 571, or permission of instructor.

774. **Economic Operation and Control of Power Systems.** Economic control of thermal generating stations and hydrothermal stations. Computer control of power systems. Prerequisite: EE 472 or 572, or permission of instructor.

782. **Multivariable Systems.** Analysis and design of multiple-output, multiple-input control systems. Prerequisite: Permission of instructor.

\*790. **Special Topics in (Area).** 1-12 hours.

\*791. **Individual Study in (Area).** 1-12 hours.

\*798. **Nondissertation Research.** 1-12 hours.

\*799. **Dissertation Research.** Prerequisite: Admission to candidacy. 1-12 hours.

Last modified 10/04/04

## UAB Graduate School

### Engineering, Environmental Health (Ph.D.)

Graduate program director: *Oestenstad*

Graduate program co-director: *Lalor*

## Faculty

**Heng Ban** , Associate Professor (Mechanical Engineering); Pollution Control, Combustion, Thermal-Fluid Science

**Steven M. Becker** , Assistant Professor (Environmental Health Sciences); Director, Social/Behavioral & Public Policy Unit, Center for Disaster Preparedness; Co-director, Environmental Health Engineering. Toxic Disasters ( U.S. and overseas); Bioterrorism, Environmental Management, Environmental Health Policy

**Gary Cheng** , Assistant Professor (Mechanical Engineering); Combustion, Computational Fluid Dynamics, Multi-phase Flow Transport, Rocket Engine System, Plume Dynamics.

**Martin Crawford** , Emeritus Professor (Mechanical Engineering); Energy Systems, Fluid Mechanics

**James S. Davidson** , Assistant Professor (Civil and Environmental Engineering); Crash Injury Research and Engineering Network, Structural Engineering, Structural Mechanics, Numerical Methods, Structural Dynamics, Bridge Design, Structural Design and Analysis

**Alan Eberhardt** , Associate Professor (Biomedical Engineering); Solid Mechanics, Biomechanics, Analytical and Numerical Methods

**Evangelos Eleftheriou** , Research Associate Professor (Mechanical Engineering); Manufacturing Methods, Biomechanics, Nonlinear Mechanics, Computer Aided Design

**Fouad H. Fouad** , Chair and Professor (Civil and Environmental Engineering); By-Products Utilization, Structural Engineering, Prestressed Concrete, Concrete Materials, Computer Applications

**S. Gopalsamy** , Research Assistant Professor (Mechanical Engineering); Computer Aided Geometric Design, Grid Generation, Computer Graphics, CAD standards–IGES and STEP

**Steven L. Jones, Jr.** , Assistant Professor (Civil and Environmental Engineering); Urban Transportation Engineering, Air Quality, Public Transportation, Automobile Dependency, Traffic Engineering

**Roy Koomullil** , Assistant Professor (Mechanical Engineering); Computational Fluid dynamics, Parallel Computing, compressible and Incompressible Flows, Moving Body Field Simulations

**Melinda M. Lalor** , Associate Professor (Civil and Environmental Engineering); Program Director, Environmental Health Engineering. Environmental Engineering, Surface Water Quality, Watershed Management, Pollution Prevention, Sustainable Development

**Anne S. McClain** , Research Assistant Professor (Mechanical Engineering); Manufacturing Materials Science, Computational Solid Mechanics, Finite Element Analysis

**Stephen T. McClain** , Assistant Professor (Mechanical Engineering); Fluid and Thermal Sciences, Energy Systems Design, Experimental Design and Uncertainty Analysis

**Reidar K. Oestenstad** , Associate Professor (Environmental Health Sciences); Industrial Hygiene, Exposure Assessment, Noise and Hearing loss.

**Robert W. Peters** , Associate Professor (Civil and Environmental Engineering); Environmental Engineering, Water and Wastewater Treatment, Physical/Chemical Treatment, Soil and Ground Water Remediation, Sonication/Acoustic Cavitations, Advanced Oxidation Processes, Water Chemistry

**Edward M. Postlethwait**, Professor and Vice Chair (Environmental Health Sciences); Director, Inhalation Exposure Facility; Senior Scientist, Center for Free Radical Biology. Environmental oxidative injury, pulmonary dosimetry, reactive gas interfacial transfer and reaction/diffusion.

**Alan Shih** , Associate Research Professor (Mechanical Engineering); Visualization, Mesh Generation and Adaptation, Computer Graphics, Virtual Reality, Computer Aided Engineering

**Bharat Soni** , Chair and Professor (Mechanical Engineering); High Performance Computing, Mesh Generation and Adaptation, Computational Field Simulation, Computer Aided Geometry Design and Engineering, Adaptive Engineering Systems.

**B. J. Stephens** , Associate Professor (Mechanical Engineering); Machine Design, Engineering Mechanics, Computer Aided Design, Analysis, and Manufacturing

**Nasim Uddin** , Assistant Professor (Civil and Environmental Engineering); Hazard Mitigation, Infrastructure Rehabilitation, Structural Engineering, Structural Dynamics,

**Peter M. Walsh** , Research Professor (Mechanical Engineering);

Formation and Evolution of Carbonaceous and Inorganic Particles in Flames, Characterization and Control of Particulate Matter Emissions from Combustion Systems

## Program Description

This unique, interdisciplinary program takes advantage of UAB's diversified engineering school, and nationally renowned health sciences center, to produce Ph.D. candidates cross-trained in public health and environmental engineering from a variety of disciplines. The program provides students with an understanding of basic mechanisms through which agents alter environmental, human, and ecosystem health, and the skills needed to evaluate and implement remediation for environmental problems, in the context of engineering and public health.

## Admission Requirements

Students applying to the Environmental Health Engineering program must submit official transcripts and GRE scores. In general, a combined GRE score of at least 1100 (verbal and quantitative) or 1500 (verbal, quantitative and analytical), and a minimum undergraduate GPA of 3 on a 4 point scale are required for admission. Students for whom English is a second language should have a TOEFL score no less than 600. Admission on probation may be possible in some circumstances for students not meeting these requirements.

Admission decisions will be made by the admission committee, comprised of the EHE program director and co-director. The steering committee will appoint a faculty mentor for each student accepted. Based on their expressed area of interest. Students may change faculty mentors as their research interests develop. The faculty mentor will assist the student in selection of coursework until a dissertation topic is selected, and a dissertation committee established.

## Enrollment

Students are expected to remain continuously enrolled (fall and spring semesters) in the EHE program until the completion of their dissertation.

## Coursework and Dissertation Research Requirement

Students entering the Ph.D. degree program with a baccalaureate degree must complete the following credit hours of coursework and research:

Environmental Health Engineering core	9 hours
Additional Coursework*	30 hours

Dissertation Research**	18 hours
Environmental Health Engineering Seminar	3 hours
<b>Total Credit Required:</b>	<b>60 hours</b>

\*6 hours must be from the student's non-home school

\*\*an approved internship may be substituted for 6 hours

## Transfer of Credit

Courses of full graduate-level credit earned in an accredited institution where a student was enrolled in the graduate school may be submitted for review for inclusion in the doctoral program. It is the student's responsibility to assure that an official transcript of the credit concerned is received by the graduate school.

Acceptance of credit requires the approval of the Environmental Health Engineering admission committee and the Graduate School Dean. Credit will not be accepted for transfer from any institution at which the student failed to achieve a "B" average on all graduate work attempted. With approval, up to one-half of the required coursework for the doctoral degree may be transferred from another institution.

## Exams and Dissertation

### Qualifying Exam

A Qualifying Exam is required of all doctoral candidates. The exam may include both written and oral components, and will include presentation of the student's dissertation proposal. The exam will be administered by the student's dissertation committee, which will include at least one faculty member each from the School of Public Health and the School of Engineering, and one faculty member from outside the Environmental Health Engineering program.

### Dissertation

A dissertation showing ability to conduct independent research, organizational and presentation skills must be prepared on a topic in the major field. Dissertation results are expected to be submitted for refereed scholarly publication. The dissertation must comply with the regulations set forth in the UAB dissertation preparation guide, which is available from the Graduate school office.

### Final Exam

When the dissertation has been completed, doctoral candidates will present and defend their work before their dissertation committee. This

defense will constitute the candidate's final exam. The results of the examination must be reported to the Office of the Graduate School at least six weeks before the commencement at which the degree is to be conferred.

## **Additional Information**

For detailed information, contact Dr. Kent Oestenstad, Program Director, UAB Department of Environmental Health Sciences, School of Public Health, Ryals 520C, 1530 3rd Ave. S., Birmingham, AL 35294-0022. Telephone 205-934-6208

E-mail [kestk@uab.edu](mailto:kestk@uab.edu)

or

Dr. Melinda M. Lalor, Program Co-director, UAB Department of Civil and Environmental Engineering, School of Engineering, HOEN 210B, 1530 3rd Ave. S., Birmingham, AL 35294-4440. Telephone 205-934-8438

1665 University Boulevard , Birmingham, AL 35294-0022

Telephone (205) 934-6089

E-mail [mlalor@uab.edu](mailto:mlalor@uab.edu)

## **Course Descriptions**

Students in this interdisciplinary program work closely with their faculty advisors to select courses that support their interests and research activities. Typically, appropriate courses are selected from the Departments of Civil and Environmental Engineering, Mechanical Engineering, Environmental Health Science, International Health, Epidemiology, Biostatistics, Biology and Chemistry.

Last modified 10/13/04



## UAB Graduate School

### English (M.A.)

Graduate program director: *Temple*

## Faculty

**Rebecca A. Bach**, Associate Professor (English); Shakespeare, Renaissance Drama

**Tracey A. Baker**, Associate Professor (English); Rhetoric and Composition

**David A. Basilico**, Associate Professor (English); Linguistic Theory, Syntax and Semantics, Cognitive Science

**Mary Flowers Braswell**, Professor (English); Chaucer, Medieval Studies, Fourteenth-Century English, Arthurian Legend, Bibliography

**Alison Chapman**, Assistant Professor (English); Renaissance Poetry and Prose

**Robert J. Collins**, Associate Professor (English); American Literature, Creative Writing

**Tony Crunk**, Assistant Professor (English); Creative Writing

**Linda Frost**, Associate Professor (English); Early and Nineteenth-Century American Literature, Feminist Theory, Creative Writing

**Stephen O. Glosecki**, Associate Professor (English); Old English Language and Literature

**Lila Graves**, Associate Professor (English); Prose Fiction, Eighteenth-Century British Literature

**Kyle Grimes**, Associate Professor (English); British Romanticism, Eighteenth- and Nineteenth-Century English Literature, Poetry, Bibliography

**Ann Hoff**, (English); Modern Poetry and Poetics

**William Hutchings**, Professor (English); Modern British Fiction, Modern Drama, World Literature

**Peggy B. Jolly**, Associate Professor (English); Rhetoric and Composition

**Sue Kim**, (English); Contemporary Literature and Literary Theory

**Marilyn J. Kurata**, Associate Professor (English); Nineteenth-Century British Novel, Victorian Poetry

**Bruce McComiskey**, Associate Professor (English); History and Theory of Rhetoric, Discourse Analysis, Composition

**P. Kieran Quinlan**, Associate Professor (English); American Literature

**Cynthia Ryan**, Assistant Professor (English); Composition, Professional Writing, Public Discourse, Gender Theory

**Daniel Siegel**, Assistant Professor (English); Nineteenth-Century British Literature and Culture; The Novel

**Virginia Whatley Smith**, Associate Professor (English); African American Literature, American Literature

**Gale Temple**, Assistant Professor (English); Early American Literature

**Lawrence G. Wharton**, Associate Professor (English); American Literature, Fiction Writing

**Elaine E. Whitaker**, Associate Professor (English); Late Medieval Studies, Literature and the Other Arts, Pedagogy

**Jacqueline E. Wood**, Assistant Professor (English); African American Literature, American Literature

## Admission Requirements

For admission in good standing, applicants must meet the Graduate School's requirements for scholarship and test scores (GRE General Test or MAT). The applicant should normally have finished the requirements for an undergraduate degree in English, including satisfactory completion of at least eight semester hours in a foreign language. A generally well-prepared applicant who is lacking in some part of the undergraduate preparation may be admitted with the provision that any deficiencies be removed by a time specified by the graduate program director.

## Program Description

Students in the graduate program can concentrate their studies in any of three areas: Literature, Composition and Rhetoric, or Creative Writing. The requirements for each of these concentrations are explained below.

### Concentration in Literature

Most literature courses can be considered to fall into one of the following areas, each of which has its own reading list.

Group I:

British Lit before 1500

British Lit 1500-1660

British Lit 1660-1790

British Lit 1790-1900

British Lit 1900-present

**Group II:**

American Lit before 1800

American Lit 1800-1900

American Lit 1900-present

African American Lit 1746-present

African Diaspora Lit

**Group III:**

Composition Pedagogy

Rhetorical Theory

Linguistics

Critical Theory

**Plan I.**

1. Students who write a thesis must take 3 hours in Bibliography & Methods, 3 hours of linguistics, 6 hours of thesis work, 12 hours of British/American literature, and 6 hours of electives. They must take at least 6 hours in Group I and 6 hours in Group II.
2. 15 hours of course work must be at the 600 seminar level in English. A maximum of 3 of these required 15 hours can be taken as EH 699, Thesis Research.
3. Students must choose a member of the English faculty to chair their Graduate Study Committee (GSC). In consultation with this chair, students must select at least two other faculty members to complete their GSC. All members of the GSC must be graduate faculty, and one must come from outside the UAB English Department. Once constituted, membership of the GSC cannot be changed without the approval of the departmental graduate program committee.
4. Before students can be admitted to candidacy, they must have passed 18 hours of course work and had a thesis proposal accepted by their GSC and the departmental graduate program committee.

5. Students must pass a Thesis Defense.

## **Plan II.**

1. Nonthesis students must take 3 hours in Bibliography & Methods, 3 hours of linguistics, 12 hours of British/American literature, and 12 hours of electives.

2. 15 hours of course work must be at the 600 seminar level in English.

3. Students must pass individual tests in 5 areas, but 1 of these tests may be replaced by earning a cumulative 3.5 or better G.P.A. in two English graduate courses in one of the listed areas OR by passing two creative writing courses at the 500 level.

4. All students must choose at least one test area from each Group.

5. By the time students have earned 24 credit hours toward the M.A., students must secure the agreement of a graduate faculty member to serve as chair of their Graduate Study Committee (GSC). Students are encouraged to secure this faculty mentor as early as possible since the chair of a student's GSC has primary responsibility for mentoring the student through the exam process. The Committee chair must coordinate the composition, administration, and evaluation of all area tests for that student. The chair is also responsible for informing the student (and graduate program director) of the criteria for evaluation of the subject area tests; for notifying the student of the results; and for meeting with the student afterwards to review the tests. The chair is also responsible for keeping the graduate program director informed of the student's progress and maintaining a complete exam file on the student.

6. In consultation with the student and the graduate program director, the Committee chair will appoint at least two other faculty to serve on the student's GSC. All members of the GSC must be graduate faculty. Once constituted, membership of the GSC cannot be changed without the approval of the departmental graduate program committee.

7. Each two-hour area test must follow a standard format that allows students to demonstrate their ability to read closely and to synthesize ideas.

a. Area tests in literature and critical theory will give the following instructions based on selections from the area reading list:

Choose one of the following passages and write an essay that (1) establishes—based on the chosen passage—some significant literary, intellectual, and/or cultural context and presents a thesis having to do with that context; (2) explains, by a close reading of the text, why the chosen passage is important both to the work from which it is taken and to the thesis of the present essay; and (3) discusses the context and thesis in relation to at least two other works from the area reading list.

b. Area tests for Composition Pedagogy or Rhetorical Theory will give the following instructions based on selections from the area reading list:

Choose one of the following passages or set of passages and write an essay that (1) indicates your understanding of the passage(s) and the work from which it is taken; (2) identifies and explains the specific issues in rhetorical theory or composition pedagogy that are addressed by or related to the selection(s); and (3) discusses these issues in a broader context by drawing on at least two other works from the area reading list.

c. See the Director of the Linguistics Program for a sample area test in Linguistics.

8. Students must provide their GSC with a minimum of three weeks' notice in scheduling area tests, which must be taken Monday-Friday during the tenth week of each semester. Unless a single area test remains to be taken, students should arrange to take at least two area tests during the same semester.

9. Students are limited to three attempts at passing a test for the same area.

10. The GSC will hold a group grading session to evaluate individual tests as Failing, Passing, or High Pass (the latter designation must be a unanimous decision of the GSC). If a student earns four High Passes, this student will be passed "With Distinction."

11. Students may be admitted to candidacy after they have completed 24 hours of course work and satisfied at least three of the area test requirements either by passing the relevant tests or by fulfilling the necessary course work as outlined in item 3.

12. There is no oral examination for nonthesis students.

## **Concentration in Composition/Rhetoric**

### **Plan I.**

1. Students who write a thesis must take 3 hours in Bibliography & Methods of Research, 3 hours of linguistics, 9 hours of literature electives, 6 hours of thesis research, 3 hours of rhetorical theory, and 6 additional hours of courses in the areas of Rhetorical Theory, Composition Pedagogy, or Professional Writing (total of 30 hours).

2. 15 hours of course work must be at the 600 seminar level in English. A maximum of 3 of these required 15 hours can be taken as EH 699, Thesis Research.

3. Students must choose a member of the English faculty to chair their Graduate Study Committee (GSC). In consultation with this chair, students must select at least two other faculty members to complete their GSC. All members of the GSC must be graduate faculty, and one must come from outside the UAB English Department. Once constituted, membership of the GSC cannot be changed without the approval of the departmental graduate program committee.

4. Before students can be admitted to candidacy, they must have passed 18 hours of course work and had a thesis proposal accepted by their GSC and the departmental graduate program committee.

5. Students must pass a Thesis Defense.

## **Plan II.**

1. Nonthesis students must take 3 hours in Bibliography & Methods of Research, 3 hours of linguistics, 9 hours of literature electives, 3 hours of rhetorical theory, and 12 additional hours of courses in the areas of Rhetorical Theory, Composition Pedagogy, or Professional Writing (total of 30 hours).
2. Guidelines 2-12 under Concentration in Literature, Plan II, apply to these students.

## **Concentration in Creative Writing (Plan I only)**

1. Creative writing students are required to take 9 hours of creative writing courses, 6 hours of thesis research, 9 hours of literature, and 6 hours of English electives.
2. 15 hours of course work must be at the 600 seminar level in English. A maximum of 3 of these required 15 hours can be taken as EH 699, Thesis Research.
3. Students must choose a member of the English faculty to chair their Graduate Study Committee (GSC). In consultation with this chair, students must select at least two other faculty members to complete their GSC. All members of the GSC must be graduate faculty, and one must come from outside the UAB English Department. Once constituted, membership of the GSC cannot be changed without the approval of the departmental graduate program committee.
4. Before students can be admitted to candidacy, they must have passed 18 hours of course work, including at least 3 hours in creative writing, and had a thesis proposal accepted by their GSC and the departmental graduate program committee.
5. Students must pass a Thesis Defense.

## **Additional Information**

For detailed information, contact Dr. Gale Temple, Graduate Program Director, Department of English HB 220 1530 3rd Avenue South, Birmingham, AL 35294-1260.

Telephone 205-934-8593

E-mail [EnglishGrad@uab.edu](mailto:EnglishGrad@uab.edu)

Web [www.uab.edu/english/grad](http://www.uab.edu/english/grad)

## **Course Descriptions**

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

## **English (EH)**

501. **Tutoring Writing.** Examines the theory and practice of one-to-one writing instruction.
502. **The Rhetoric of Popular Periodicals.** Explores the production and consumption of magazine discourse.
503. **Business Writing.** Advanced writing focused on letters, resumes, and professional reports.
504. **Technical Writing.** Advanced writing focused on short informal and long formal reports.
- 505, 506. **Poetry Writing Workshop.** Advanced work in poetry through student's own writing. Pass/Fail.
- 507, 508. **Creative Writing Workshop: Special Projects.** Advanced work in genres outside of poetry and fiction through student's own writing. Pass/Fail.
- 509, 510. **Fiction Writing Workshop.** Advanced work in prose fiction through students' own writing. Pass/Fail.
511. **Novel.** Techniques of prose fiction. Authors vary.
512. **Poetry: Lyric and Shorter Forms.** The evolution and generic influences of the small poem in English from the early Renaissance to the present.
513. **Drama.** Techniques and problems of drama, classical through contemporary.
514. **Modern British and European Drama.** Techniques and problems of modern European drama from Ibsen to the present.
515. **Form of Fiction: The Short Story.** American, Russian, and European short stories, emphasizing aesthetics of form.
516. **Modern American Poetry.** Focus on writers from 1900-1945 such as Frost, Stein, Stevens, Williams, H.D., Pound, Moore, Eliot, Toomer, Crane, and Hughes.
517. **Creative Writing Workshop: Special Projects.** Advanced work in genres other than poetry, fiction, or creative nonfiction.
519. **Young Adult Literature.** close reading of young adult literature; its form and history, its assumptions about adolescent psychology, and its literary relationship to the traditional canon.
520. **World Literature I (to 1600).** Survey of monuments mainly in the Western tradition (Sumerian, Hebraic, Hellenic, continental) with emphasis on the epic.
521. **World Literature II (1600 to present).** Selections in translation from Europe, Africa, and South America.

522. **African Literature.** Selected novels, short stories, autobiographies, folk tales, drama, essays, films, songs from pre-colonial Africa to the present, including works by Emecheta, wa Thiong'o, Head, Achebe, Ba, Armah, Laye, Salih, Soyinka, and Abrahams.
523. **African Women's Literature.** Writing in all genres by African women from pre-colonial Africa to the present.
541. **Literary Theory and Criticism: The Ancients to the Nineteenth Century.** Introduction to the theories of art and literary production in the contexts of aesthetics and culture from Plato to the end of the nineteenth century.
542. **Literary Theory and Criticism.** The Twentieth Century to the present. Introduction to the theories of art and literary production in the contexts of aesthetics and culture from Russian formalism to the present.
543. **Archetype and Myth.** Recurring images, underlying patterns, and shapes-of-meaning in poetry, fiction, and fairy tales.
544. **Women's Literature and Theory.** Literary works and theoretical perspectives of Angelou, Chopin, Toni Morrison, Hurston, Walker, Woolf, Plath, and others.
545. **Special Topics in African American Studies.** Literary and theoretical explorations of a specific topic.
546. **African American Autobiography.** Personal narratives by African Americans, including texts by Wheatly, Douglass, Jacobs, Wilson, DuBois, Johnson, Hurston, Hughes, Wright, Baldwin, Angelou, and Moody.
577. **African American Dramatic Tradition.** Development of African American dramatic tradition from the nineteenth century through the Harlem Renaissance and Black Arts movement to contemporary postmodernism, including Brown, Hurston, Baraka, and Wilson.
548. **African American Poetry Tradition.** Development of African American poetry from its early works to the present, including Wheatley, Dunbar, Hughes, Brooks, and Angelou.
550. **Advanced Grammar.** Present-day English grammar.
551. **Generative Grammar.** Advanced analysis of English grammar with emphasis on Chomskyan generative grammar. Prerequisite: permission of instructor.
552. **Grammar and Usage for English Teachers.** Intensive review of the structure of English; emphasis on usage, punctuation, and style as these relate to grammar.
553. **Advanced History of the English Language.** Advanced topics.
554. **The Biology of Language.** Vocal tract and neuroanatomical specializations for language, language acquisition, genetic language disorders, language and other primates, and the evolution of language.
557. **Writing and Medicine.** Public discourse focusing on health, illness, and medical practice. Production of texts as health consumers and health practitioners.



559. **Discourse Analysis.** Public discourse, with emphasis on social politics of linguistic choices.
560. **American Women Writers Before 1900.** Survey of American women's writing before 1900.
561. **American Literature, 1620-1820.** Representative American writing from the colonial period to Washington Irving.
562. **American Literature, 1820-1870.** Representative writers such as Alcott, Dickinson, Douglass, Emerson, Fern, Fuller, Harper, Hawthorne, Jacobs, Melville, Poe, Spofford, Stowe, Thoreau, Whitman, and Whittier.
563. **American Literature, 1870-1914.** Realism and naturalism as represented in works by Twain, James, Howells, Crane, Jewett, Wharton, Dreiser, Norris, Chopin, and others.
564. **American Literature, 1914-1945.** A study of some of the main texts from the period by O'Neill, Frost, Stein, Stevens, Eliot, Cather, Hemingway, Larsen, Fitzgerald, Hughes, Faulkner, and Wright.
565. **American Literature 1945-Present.** Selected fiction and poetry in the context of postwar cultural trends and literary movements.
566. **The Slave Narrative and its Literary Expressions.** Representative writers from Gustavus Vassa to Alice Walker, with emphasis on periods and movements.
567. **Black Women Writers.** Evolution of the Afrocentric feminist consciousness through early and contemporary writings.
568. **The Harlem Renaissance.** Black writers during Harlem Renaissance movement. Includes Johnson, Toomer, Murray, Larsen, McKay, Thurman, Reed, and Morrison.
569. **Medieval Culture: Literature and Society.** Exploration through art, literature, and history of the dominant themes of the English Middle Ages.
570. **Arthurian Legend.** King Arthur and his knights in literature from 6th-century history and formulation of the legend in the Middle Ages to its use in the 20th century.
571. **Beowulf in Context.** An interdisciplinary course in Anglo-Saxon art and culture bearing upon Beowulf; close study of the Norse analogues of the Old English epic.
573. **Chaucer: Pilgrimage to Canterbury.** Selections from *Canterbury Tales* and the 14th-century milieu.
574. **English Renaissance Drama Excluding Shakespeare.** Survey of the Elizabethan and Jacobean theater. Authors vary, but may include Jonson, Webster, Dekker, and Heywood.
575. **English Renaissance Poetry and Prose.** Focus varies from broad survey of period to close analysis of genre, theme, or author.

576. **Shakespeare.** Intensive study of seven plays, focusing on the interactions between culture and the theater.

578. **Age of Milton.** Selected prose and poetry, including *Paradise Lost*.

580. **The Restoration.** Dryden, Butler, Rochester, Marvell, Bunyan, Congreve, Wycherley, and Etherege.

581. **The Eighteenth Century: Literature and Culture.** An interdisciplinary exploration of texts that focuses on social, economic, and political backgrounds.

582. **The Eighteenth Century: Theory and Interpretation.** Formal and philosophical implications of selected texts. Authors and topics vary.

583. **British Romanticism.** Study of works by British writers, 1785-1834. Authors will likely include Blake, Smith, Wordsworth, Coleridge, Byron, P.B. and Mary Shelley, Keats, and others.

585. **British Victorian Poetry.** Study of Tennyson, Browning, Arnold, and others with a focus on the cultural context of their poetry.

586. **Eighteenth-Century British Novel.** Fielding, Defoe, Sterne, Smollet, and Richardson.

587. **Nineteenth-Century British Novel.** Study of Writers like Austen, Dickens, Thackeray, the Brontes, George Eliot and Hardy with an emphasis on the relationship between cultural changes and the development of the novel.

588. **British Novel: The Modern Age.** Study of Conrad, Lawrence, Joyce, Woolf, Ford, and others, focusing on narrative technique and the transformation of traditional literary forms.

589. **James Joyce.** A study of Joyce's writings through *Ulysses*.

\*591. **Major Writers.** See class schedule for announcement of subjects. May be repeated for total of 9 hours credit if focus is on different subjects.

\*592. **Special Topics.** See class schedule for announcement of subjects. May be repeated for total of 9 hours credit if focus is on different subjects.

597. **Individual Studies.** Prerequisite: proposal must be submitted to the Graduate Director before the last two weeks of the semester preceding the semester in which the student intends to register. 1-3 hours.

600. **Engineering Communication.** Strengthens engineering students' understanding of and application of effective communication practices in the workplace. Subjects covered include techniques of audience analysis; production of problem/solution formats; analysis and creation of reports, journal articles, and proposals; and presentation of ideas in written and oral formats.

601. **Classical Rhetorical Theory.** Review of rhetoric from classical period through Renaissance with emphasis on the works of Plato and Aristotle.

602. **Modern Rhetorical Theory.** Advanced studies in twentieth-century theories of rhetoric; themes include Marxism, feminism, philosophy, semiotics, and ideology.

603. **Literacy in Communities.** Examines the theory and practice of literacy instruction in varied cultural contexts.

604. **Research Methods in Composition and Rhetoric.** Develops skills in planning and implementing research designs in composition.

610. **Prosody, Poetics, and Close Reading.** Fosters an ability to read poetry closely and analytically; examines traditional descriptions of poetic form and meter; introduces recent work in poetic theory and philosophy of poetic composition.

635. **Middle English Literature.** Study of writers other than Chaucer, with a concentration on the writings of the Gawain Poet, the *lais* and lyrics, and some female writers.

636. **Chaucer.** Emphasis on the importance of Chaucer as a poet, his contributions to literature, and his cultural setting. *Canterbury Tales* and selected earlier poetry. 3 hrs.

637. **English Renaissance Literature.** Topics vary. Analysis of a group of texts within a genre, with a common theme, or by a single author or group of authors, as well as the discursive and social contexts in which these texts were produced.

638. **Eighteenth-Century British Literature.** Analysis of the formal and cultural aspects of 18th-century literature; attention to interdisciplinary aspects of selected texts.

639. **Nineteenth-Century British Literature.** Intensive exploration of a particular aspect of literature and culture from the Romantic or Victorian period. Focus varies.

640. **Twentieth-Century British Literature.** An in-depth examination of selected literary trends in modern English and Irish literature, focusing especially on the critical and/or theoretical frameworks by which these trends were defined. Topics vary.

645. **Bibliography and Methods of Research.** Emphasis on how materials in Sterne Library may be used effectively. Includes computer searching, listserv, and the internet. Field trips to special collections.

646. **Practicum in Teaching Writing.** Theory and practice of teaching writing at the postsecondary level.

647. **Practicum in Tutoring.** English grammar review and effective tutoring strategies. Prerequisites: students must have been awarded an assistantship and be scheduled to tutor in the Writing Center. 1 hour.

648. **Introduction to Old English.** Part one of an in-depth study of Anglo-Saxon English culminating in interpretation of *The Dream of the Rood* and *The Wanderer* in the original alliterative verse. Satisfies the M.A. linguistics requirement.

649. **Beowulf.** Part two in the Old English sequence, exploring a few shorter works as well as the epic in close detail. Prerequisite: EH 648.

655. **History of the English Language.**

656. **American Literature, 1620-1820.** Focus on texts reflecting the evolution of American culture from its early colonial period to the early national period.

657. **American Literature, 1820-1870.** Centering on writers from the American Romantic Movement to explore such themes as their use of symbolism, transcendentalism, feminist approaches, or connections with American landscape art.

658. **American Literature, 1870-1914.**

659. **American Literature, 1914-1945.** A study of one or more authors from the following list: O'Neill, Faulkner, Larsen, Frost, Eliot, Stevens.

660. **American Literature, 1945-Present.** Selected postmodern works in the context of U.S. cultural trends and literary movements since the Cold War.

677. **Shakespeare: The Body, Gender, and Sexuality.** Investigates languages of the body, sexuality, and gender in seven plays, as well as historical materials and current criticism and theories of the body.

\*690. **Major Writers.** See class schedule for announcement of subjects. May be repeated for total of 9 hours credit if focus is on different subjects.

\*693. **Special Topics.** See class schedule for announcement of subjects. May be repeated for total of 9 hours credit if focus is on different subjects.

694. **British Literary Themes from the Middle Ages Through the Early Eighteenth Century.** See class schedule for topic.

695. **British Literary Themes from Jane Austen to the Present.** Recent themes include effects of industrialism, role of women, the concept of the gentleman, loss of faith, and relation of the artist and audience. Writers vary.

696. **American Literary Themes from the Puritans to the Present.** See class schedule for topic.

698. **Directed Studies.** See the departmental description of the M.A. program for the special restrictions on this course. Prerequisite: Permission of Associate Chair. 1-3 hours.

\*699. **Thesis Research.** Prerequisite: Admission to candidacy and approval of thesis proposal by departmental Graduate Committee. 1-6 hours. May be repeated for a total of 9 hours credit.

Last modified 09/27/04

## UAB Graduate School

### Engineering, Materials (Ph.D., M.S.Mt.E.)

Graduate program director: *Andrews*

## Faculty

**J. Barry Andrews**, Professor (Materials Science and Engineering); Solidification, Microgravity Processing, Physical Metallurgy, Intermetallic Materials, Electronic Properties

**Charles E. Bates**, Research Professor (Materials Science and Engineering); Casting and Solidification Processes of Iron and Steel, Machinability, Environment

**Krishan K. Chawla**, Professor (Materials Science and Engineering); Metal, Ceramic, and Polymer Matrix Composite Materials; Fibers, Interfacial Phenomena

**Derrick R. Dean**, Associate Professor (Materials Science and Engineering); Structure-Property relationships of polymers and multiphase polymer systems, including blends, nano- and micro-composites

**Robin D. Griffin**, Research Assistant Professor (Materials Science and Engineering); Electron Microscopy, Physical Metallurgy, Metals Casting

**Gregg M. Janowski**, Associate Professor (Materials Science and Engineering); Electron Microscopy, Composite Materials, Physical Metallurgy, Structure-Processing-Property Relationships

**Burton R. Patterson**, Professor (Materials Science and Engineering); Powder Processing, Physical Metallurgy, Quantitative Microscopy

**Rosalia N. Scripa**, Professor (Materials Science and Engineering); Ceramics and Glass, Extractive Metallurgy, Semiconductor Crystal Growth, Electronic-Magnetic Materials

**Uday Vaidya**, Associate Professor (Materials Science and Engineering); Polymer Matrix Composites, Processes & Process Modeling, Nondestructive Evaluation and Dynamic Response

## Secondary and Adjunct Faculty

**Dale S. Feldman**, Associate Professor (Biomedical Engineering); Porous Polymeric Soft Tissue Implant Biocompatibility, Biodegradable Composites, Biomechanics

**Fouad Fouad**, Professor (Civil and Environmental Engineering);

Structural Engineering; Prestressed Concrete; Concrete Materials;  
Computer Applications

**William Lacefield**, Professor (Dentistry); Bonding of Ceramics, Glass,  
and Composite Resins to Metallic Implants, Dental Alloys

**Christopher M. Lawson**, Professor (Physics); Nonlinear Optics and  
Optical Sensing/Imaging

**Jack E. Lemons**, Professor (Biomedical Engineering); Design of  
Ligament and Tendon Prostheses, Development of Synthetic Bone  
Products, Biocompatibility, Corrosion

**Linda C. Lucas**, Professor (Biomedical Engineering); Corrosion  
Evaluation of Implant Alloys, Biocompatibility of Dental and Orthopedic  
Biomaterials

**E. Douglas Rigney**, Academic Associate Professor (Biomedical  
Engineering); Corrosion, Biomaterials, Metal, Ceramic Interfaces,  
Surface Modification, Wear

**David L. Shealy**, Professor (Physics); X-ray Telescopes, Microscopes  
and Lithography; Optics, Free Electron Lasers, Microelectronic  
Packaging Materials

**Yogesh K. Vohra**, Professor (Physics); Laser and X-ray  
Characterization of Materials at Extreme Conditions

## **Participating Faculty from the University of Alabama (Tuscaloosa)**

**Viola L. Acoff**, Associate Professor (Metallurgical and Materials  
Engineering); Physical Metallurgy, High Temperature Materials, Electron  
Microscopy, Welding

**Richard C. Bradt**, Professor (Metallurgical and Materials Engineering);  
Ceramic Materials

**Subhadra Gupta**, Associate Professor (Metallurgical and Materials  
Engineering); Thin Films Lab and PVD Process

**Nagy H. El-Kaddah**, Professor (Metallurgical and Materials  
Engineering); Materials Process Modeling, Magnetic Field Effects on  
Molten Metals

**Ramana G. Reddy**, ACIPCO Professor (Metallurgical and Materials  
Engineering); Thermodynamics and Kinetics of Metallurgical Reactions;  
Phase Stability; Fused Salt Electrolysis; Synthesis of Ceramics and  
Intermetallics; Modeling; Waste Metal Recovery

**Doru M. Stefanescu**, Professor (Metallurgical and Materials Engineering); Nucleation and Growth in Solidification Processes, Physical Chemistry of Surface and Interface Reactions

**Gregory B. Thompson**, Assistant Professor (Metallurgical and Materials Engineering); Phase Stability And Phase Transformations in Thin Films and Nanoparticles.

**Garry W. Warren**, Professor (Metallurgical and Materials Engineering); Corrosion and Surface Electrochemistry, Atom Probe Tomography, Transmission Electron Microscopy

**Mark Weaver**, Associate Professor (Metallurgical and Materials Engineering); Microstructure-Property Relations; Intermetallic Compounds; Structural Materials; Thin Films; Materials Characterization

## Admission Requirements

In addition to the general Graduate School admission requirements, requirements for admission to the M.S.Mt.E. and Ph.D. graduate programs include the following criteria:

1. A 3.0 (A = 4.0) or better GPA on all undergraduate degree major courses attempted;
2. For international applicants from non-English speaking countries, minimum scores of 580 on the TOEFL, and 3.5 on the TWE.

## M.S.Mt.E. Program

The following minimum requirements for a Master of Science in Materials Engineering apply to a student who has earned a baccalaureate degree in an ABET-accredited program in materials or metallurgical engineering or in a similarly named engineering program. A student with an undergraduate degree in another field of engineering or in the physical sciences may also be accepted into the Materials Engineering program. However, such a student will be required to demonstrate competence in fields of study that emphasize the interrelationship among structure, processing, performance, and properties of materials. This can be accomplished by one of the methods described later in this section under "Preparatory Courses." All full-time master's students must take MSE 601-Materials Science and Engineering Seminar every term.

### Plan I (Thesis Option)

1. The student must successfully complete at least 24 semester hours of graduate course work, 9 of which may be at the 500 level, including
  - o 18 semester hours in materials science and

engineering;

- 3 semester hours in an approved course in mathematics, physical sciences, or other engineering discipline; and
  - 3 semester hours either in (1) materials science and engineering, (2) an approved course in mathematics, physical sciences, or another engineering discipline, or (3) an approved course in management.
2. The student must successfully complete and defend a thesis. The student must register for and successfully complete at least 9 semester hours of MSE 699-Master's Degree Thesis in addition to the 24 semester hours of course work.

### **Plan II (Nonthesis Option): Research/Design Emphasis**

1. The student must successfully complete at least 33 semester hours of graduate credit, 9 of which may be at the 500 level, including
  - 24 semester hours of materials science and engineering course work;
  - 3 semester hours of course work in an approved mathematics, physical science, or other engineering discipline;
  - 3 semester hours either in (1) materials science and engineering, (2) an approved course in mathematics, physical sciences, or another engineering discipline, or (3) an approved course in management; and
  - 3 semester hours of MSE 698-Nonthesis Research involving an on-site design or research project (usually undertaken after completion of all course work).
2. The student must successfully complete a written comprehensive examination on all course work taken in the program or a comprehensive examination on the on-site research project topic. The latter option requires a publication-quality manuscript and oral presentation (with questions) deemed acceptable by the graduate committee.

### **Plan II (Nonthesis Option): Technology/Engineering Management Emphasis**

1. The student must successfully complete at least 33 semester



hours of graduate credit, including

- 12 semester hours of course work in a specific area of materials science and engineering (at least 6 of these 12 hours must be at the 600 level);
  - 6 semester hours of approved management course work: MBA 660-Quantitative Methods I and either EC 520-Applied Forecasting or another approved advanced management course;
  - 9 semester hours of engineering-oriented management coursework. Approved courses include CE 558-Engineering Management, EE 585-Engineering Operations, EE 686-Technical Entrepreneurship I, EE 687-Technical Entrepreneurship II, and ME 601-Design, Measurement, and Enhancement of Work Systems;
  - 3 hours of MBA 631-Administrative Theory and Practice; and
  - 3 semester hours of MSE 698-Nonthesis Research involving an on-site design or research project (usually undertaken after completion of all course work).
2. The student must successfully complete a written comprehensive examination on all course work taken in the program or a comprehensive examination on the on-site research project topic. The latter option requires a publication-quality manuscript and oral presentation (with questions) deemed acceptable by the graduate committee.

## Ph.D. Program

The Ph.D. program in Materials Engineering is offered jointly with the Department of Metallurgical and Materials Engineering at the University of Alabama (Tuscaloosa). Each student is required to earn an M.S.Mt.E. as a step toward a doctoral degree. This requirement can be waived for a student entering the program with a master's degree in Materials Engineering or closely related field. The Ph.D. program requires a minimum of 18 hours of course work after the master's degree, successful completion of comprehensive examinations, and successful defense of a Ph.D. dissertation. All full-time doctoral students must take MSE 701-Materials Science and Engineering Seminar every term.

The requirements for a Ph.D. for a student with a master's degree are

- A minimum of 18 hours of approved graduate course work in metallurgical engineering, materials engineering, or fields supportive of these (6 hours may be at the 500 level and at least 3 semester hours but no more than 6 must be in supportive fields). Additional course work may be required at the discretion

- of the mentor and program director.
- Successful completion of a comprehensive examination covering both undergraduate and graduate course work.
- Successful defense of a research dissertation in metallurgical/materials engineering (minimum of 24 semester hours in MSE 799-Dissertation Research).

## Preparatory Courses

A student seeking a graduate degree in materials engineering without a baccalaureate degree in Materials Engineering or similarly named engineering field from an ABET-accredited school must demonstrate competence at the undergraduate level in the areas of physical behavior of materials, thermodynamics, mechanical behavior of materials, transport phenomena, and characterization. He or she may do this by passing an examination set by the Materials Engineering faculty or by passing all or some of the following courses, depending on the student's academic background. The program director will decide which courses the student can be exempt from taking. The preparatory courses must be taken on a pass/fail basis, with a "pass" being equivalent to a grade of B or better in the course. The courses that fulfill the preparatory requirement are

MSE 280-Engineering Materials  
MSE 281-Physical Materials I  
MSE 380-Thermodynamics of Materials  
MSE 381-Physical Materials II  
MSE 382-Mechanical Behavior of Materials.  
MSE 465-Characterization of Materials

## Additional Information

For detailed information, contact Dr. J. Barry Andrews, Graduate Program Director, The University of Alabama at Birmingham, Department of Materials Science and Engineering, BEC 254, 1530 3rd Avenue South, Birmingham, AL 35294-4461.

Telephone 205-934-8450

Web [www.eng.uab.edu](http://www.eng.uab.edu)

## Course Descriptions

For doctoral courses at the University of Alabama (Tuscaloosa), see the graduate catalog of that university.  
Unless otherwise noted, all courses are for 3 semester hours of credit.

### Materials Science and Engineering (MSE)

501. **Materials Processing.** Processing of metals, glasses, ceramics,

and composites. Powder processing, casting, welding, rapid solidification, and other advanced methods. Prerequisite: MSE 281 or permission of instructor.

**502. Frontiers of Materials.** Recent advances in materials technology and application. Novel processing, structures, properties, and performance issues. Prerequisite: MSE 281 or permission of instructor.

**503. Degradation of Materials.** Issues in long-term utilization of materials. Corrosion, high temperature oxidation, creep, fatigue, and their interactions. Prerequisite: MSE 281 or permission of instructor.

**504. Ferrous Casting Production and Inspection.** Production and evaluation of cast ferrous metals (gray iron, ductile iron and carbon steel). Major casting techniques, gating and risering, solidification, phase formation, and inspection. Laboratories will include experiments and plant trips. Prerequisite: MSE 280 or permission of instructor.

**506. Aluminum Casting Production and Inspection.** Production and evaluation of cast aluminum, especially alloys 319, 356 and 357 and 380. Major casting techniques, gating and risering, degassing, pouring, solidification, phase formation, and inspection. Laboratories will include experiments and plant trips. Prerequisite: MSE 280 or permission of instructor.

**513. Composite Materials.** Processing, structure, and properties of metal-, ceramic-, and polymer-matrix composite materials. Roles of interfacial bond strength, reinforcement type and orientation, and matrix selection in physical and mechanical properties of composite materials. Prerequisite: MSE 281 or permission of instructor. MSE 382 is recommended.

**530. Polymeric Materials.** (Also CH 580.) Processing methods, structure-engineering-property relationships, and applications of polymeric materials. Prerequisite: MSE 281, CH 117, and CH 118 or permission of instructor.

**533. Nondestructive Evaluation of Materials.** Principles, applications and limitation of ultrasonic, vibration, acoustic emission, radiographic, magnetic particle, eddy current and other nondestructive testing methods. Intelligent sensors and health monitoring of real structures. Prerequisite: MSE 465 or permission of instructor.

**564. Metals and Alloys.** Microstructures, properties, heat treatment, and processing of ferrous and nonferrous materials. Prerequisite: MSE 281 or permission of instructor

**565. Characterization of Materials.** Theory and practice of materials characterization, with emphasis on optical metallography, quantitative metallography, scanning electron microscopy, crystallography, and x-ray diffraction. Specific applicaiton in metals and ceramics considered.

Prerequisite: MSE 281 or permission of instructor

**570. Ceramic Materials.** Structure, processing, properties, and uses of ceramic compounds and glasses. Mechanical, thermal, and electrical behavior of ceramic materials in terms of microstructure and processing variables. Prerequisite: MSE 281, CH 117, and CH 118 or permission of instructor.

**584. Electronic, Magnetic and Thermal Properties of Materials.** Mechanisms behind rectifying junctions, transistors, paramagnetism, diamagnetism, and ferromagnetism. Prerequisite: MSE 280, PH 222 or permission of instructor.

**601. Materials Science and Engineering Seminar.** Required of all full-time M. S. students. 1 hour.

**603. Thermodynamics of Materials.** Atomistic and classical approaches to the understanding of the thermodynamics of solids, phase transformations, chemical reactions, and alloy systems. Prerequisite: MSE 380 or permission of instructor.

**613. Mechanical Behavior of Materials.** Microstructural effects on the deformation mechanisms responsible for mechanical behavior of engineering materials. Prerequisite: 382 or permission of instructor.

**615. Nucleation and Growth.** Nucleation, growth, and phase transformations in materials. The roles of heterogeneities, boundaries, temperature, and free energy are addressed. Prerequisites: MSE 381 and 603 or permission of instructor.

**616. Microstructural Processes.** Theory and application of the principal microstructural processes in materials, including recrystallization, grain growth, coarsening, and sintering. Prerequisite: MSE 615 or permission of instructor.

**617. Kinetics.** Transformation rate theory associated with diffusional transformations; the physical phenomena involved and appropriate numerical and analytical techniques to describe the phenomena. Prerequisite: MSE 616 or permission of instructor.

**623. Solidification.** Plane-front, cellular, and dendritic growth of single and polyphase alloys as applied to normal and directional solidification. Influence of epitaxy and convection on solidification structures. Prerequisites: MSE 381 or permission of instructor.

**631. Polymer Structure and Morphology.** Application of x-ray and electron diffraction, light, electron and atomic force microscopy to crystal structure and morphology of polymers. Morphology -processing- property relationship, deformation mechanisms and orientation characterization. Prerequisites: MSE 430/530 or BME 411/511 or permission of instructor.

632. **Polymer Processing.** Introduction to polymer processing. Design and analysis of plastic products and processes based on knowledge of the composition and physical and rheological behavior of the polymers. Product properties will be correlated with processing-induced morphology. Prerequisites: MSE 430 or BME 411 or permission of instructor.

637. **Quantitative Microscopy.** Quantitative description of microstructural features. Relationships between microstructural characteristics and properties. Prerequisite: MSE 381 or permission of instructor.

643. **Materials Characterization I.** Fundamentals of materials characterization using electron and X-ray techniques. Topics include advanced crystallography, electron optics, and interactions of energetic electrons with solids. Some applications of X-ray diffraction will be addressed. Lecture and laboratory. Prerequisite: MSE 465 or permission of instructor.

644. **Materials Characterization II.** Applications of materials characterization using electron and X-ray techniques. Topics include imaging and X-ray spectroscopy using scanning electron microscopy; imaging, diffraction, and X-ray spectroscopy using transmission electron microscopy; and advanced X-ray diffraction techniques. Lecture and laboratory. Prerequisite: MSE 643 or permission of instructor.

653. **Phase Diagrams.** Analysis and interpretation of binary, ternary, and more complex phase diagrams including thermodynamic basis and construction. Prerequisite: MSE 381 or permission of instructor.

667. **Process Modeling and Simulation.** Theory and practice of analytical methods and computational modeling for manufacturing processes of metals, ceramics, polymers and composites. Applications on processes such as metal cutting, welding, casting, massive forming, solidification, rapid prototyping, injection molding, and resin transfer molding. Prerequisite: ME 405, MA 227 or permission of instructor.

690. **Special Topics in (Area).** Prerequisite: Permission of graduate study committee. 1-6 hours.

691. **Individual Study in (Area).** Prerequisite: Permission of graduate study committee. 1-6 hours.

698. **Nonthesis Research.** Prerequisite: Permission of mentor. 1-12 hours.

699. **Thesis Research.** Prerequisite: Admission to candidacy and permission of mentor. 1-12 hours.

701. **Materials Science and Engineering Seminar.** Required of all full-

time Ph.D. students. 1 hour.

**703. Thermodynamics of Materials.** Atomistic and classical approaches to the understanding of the thermodynamics of solids, phase transformations, chemical reactions, and alloy systems. Prerequisite: MSE 380 or permission of instructor.

**713. Mechanical Behavior of Materials.** Microstructural effects on the deformation mechanisms responsible for mechanical behavior of engineering materials. Prerequisite: MSE 382 or permission of instructor.

**715. Nucleation and Growth.** Nucleation, growth and phase transformations in materials. The roles of heterogeneities, boundaries, temperature, and free energy are addressed. Prerequisite: MSE 381 and 603 or 703, or permission of instructor.

**716. Microstructural Processes.** Theory and application of the principal microstructural processes in materials, including recrystallization, grain growth, coarsening, and sintering. Prerequisite: MSE 615 or 715, or permission of instructor.

**717. Kinetics.** Transformation rate theory associated with diffusional transformations; the physical phenomena involved and appropriate numerical and analytical techniques to describe the phenomena. Prerequisite: MSE 616 or 716, or permission of instructor.

**723. Solidification.** Plane-front, cellular, and dendritic growth of single and polyphase alloys as applied to normal and directional solidification. Influence of epitaxy and convection on solidification structures. Prerequisite: MSE 381 or permission of instructor.

**731. Polymer Structure and Morphology.** Application of x-ray and electron diffraction, light, electron and atomic force microscopy to crystal structure and morphology of polymers. Morphology -processing- property relationship, deformation mechanisms and orientation characterization. Prerequisite: MSE 430/530 or BME 411/511 or permission of instructor.

**732. Polymer Processing.** Introduction to polymer processing. Design and analysis of plastic products and processes based on knowledge of the composition and physical and rheological behavior of the polymers. Product properties will be correlated with processing-induced morphology. Prerequisites: MSE 430 or BME 411 or permission of instructor.

**737. Quantitative Microscopy.** Quantitative description of microstructural features. Relationships between microstructural characteristics and properties. Prerequisite: MSE 381 or permission of instructor.

**743. Materials Characterization I.** Fundamentals of materials characterization using electron and X-ray techniques. Topics include advanced crystallography, electron optics, and interactions of energetic

electrons with solids. Some applications of X-ray diffraction will be addressed. Lecture and laboratory. Prerequisite: MSE 465 or permission of instructor.

**744. Materials Characterization II.** Applications of materials characterization using electron and X-ray techniques. Topics include imaging and X-ray spectroscopy using scanning electron microscopy; imaging, diffraction, and X-ray spectroscopy using transmission electron microscopy; and advanced X-ray diffraction techniques. Lecture and laboratory. Prerequisite: MSE 643 or 743, or permission of instructor.

**753. Phase Diagrams.** Analysis and interpretation of binary, ternary, and more complex phase diagrams including thermodynamic basis and construction. Prerequisite: MSE 381 or permission of instructor.

**767. Process Modeling and Simulation.** Theory and practice of analytical methods and computational modeling for manufacturing processes of metals, ceramics, polymers and composites. Applications on processes such as metal cutting, welding, casting, massive forming, solidification, rapid prototyping, injection molding, and resin transfer molding. Prerequisite: ME 405, MA 227, or permission of instructor.

**790. Special Topics in (Area).** Prerequisite: Permission of graduate study committee. 1-6 hours.

**791. Individual Study in (Area).** Prerequisite: Permission of graduate study committee. 1-6 hours.

**798. Nondissertation Research.** Prerequisite: Permission of mentor. 1-12 hours.

**799. Dissertation Research.** Prerequisite: Admission to candidacy and permission of mentor. 1-12 hours.

Last modified 10/04/04

## UAB Graduate School

### Engineering, Mechanical (Ph.D.\*, M.S.M.E.)

\*Degree awarded by The University of Alabama and The University of Alabama in Huntsville.

Graduate program director: *Bharat Soni*

## Faculty

**Andreas Anayiotos**, Associate Professor, (Biomedical Engineering); Biofluids, Dynamics of the Vascular System

**Heng Ban**, Associate Professor (Mechanical Engineering); Pollution Control, Combustion, Thermal-Fluid Science

**Charles Bates**, Research Professor (Materials Engineering); Casting and Solidification Processes

**Krishan K. Chawla**, Professor (Materials Engineering); Metal, Ceramic, and Polymer Matrix Composite Materials; Fibers, Interfacial Phenomena

**Gary Cheng**, Assistant Professor (Mechanical Engineering); Computational Fluid Dynamics, Multi-phase Combustion

**Martin Crawford**, Professor Emeritus (Mechanical Engineering); Heat Transfer, Fluid Mechanics, Thermodynamics, Air Pollution Control

**Alan Eberhardt**, Associate Professor, (Biomedical Engineering); Solid Mechanics, Analytical and Numerical Methods in Biomechanics

**Evangelos C. Eleftheriou**, Research Associate Professor (Mechanical Engineering); Mechanical Systems, Automated Manufacturing, Mechanical Design

**Jay Goldman**, Professor (Engineering); Administrative Organization and System Design for Productivity and Quality Enhancement in Manufacturing and Service Industries

**Roy P. Koomullil**, Assistant Professor (Mechanical Engineering); Computational Fluid Dynamics, Turbulence and Flow Modeling Using Generalized Grids.

**Anne McClain**, Research Assistant Professor, (Mechanical Engineering); Computational manufacturing, Crash Worthiness



Simulations, Materials Analysis

**Stephen T. McClain**, Assistant Professor, (Mechanical Engineering); Energy Systems, Boundary Layer Flow, Conduction and Convection Heat Transfer

**Robert H. Nichols**, Research Associate Professor (Mechanical Engineering); Computational Fluid Dynamics, Turbulence Modeling, Grid Generation Software

**Ralph W. Noack**, Research Associate Professor (Mechanical Engineering); Computational Fluid Dynamics, Grid Generation, Visualization Methods, Parallelizing Software

**Alan Shih**, Research Associate Professor (Mechanical Engineering); Computational Fluid Dynamics, Mesh Generation, Visualization Systems and Software

**Bharat Soni**, Chair and Professor, (Mechanical Engineering); Computational Structures and Fluid Dynamics, Mesh Generation.

**B. J. Stephens**, Associate Professor (Mechanical Engineering); Mechanical Systems, Machine Design, Vibration Control, Advanced Stress Analysis

**Thomas F. Talbot**, Professor Emeritus (Mechanical Engineering); Mechanical Systems, Metallurgical Failure Analysis, Manufacturing Processes

## M.S.M.E. Program Requirements

A bachelor's degree from an accredited (or equivalent) program in engineering or the physical sciences is required for admission to graduate study in mechanical engineering. The usual criteria for admission in good standing follow:

Not less than B-level scholarship overall or over the last 60 semester hours of earned credit; and

The GRE aptitude test scores must meet a quantitative portion score of 700 and a minimum score of 500 on the verbal portion. In addition, for foreign nationals, a minimum score of 550 (245 for computer version) on the TOEFL is required. Other standardized examination scores will also be considered.

A student not meeting these requirements may also be admitted, perhaps on probationary status, provided, other information indicating likely success in the program is provided.

A student with an undergraduate degree in a field of engineering other

than mechanical or in the physical sciences may also be accepted into the mechanical engineering program. However, such a student will normally have to take additional, preparatory coursework as part of an expanded plan of study (see "Preparatory Courses" later in this section).

### **PLAN I (Thesis Option)**

1. The student must successfully complete at least 24 semester hours of coursework, including (in addition to the general Graduate School requirements)

- Six semester hours in the following required courses: ME 650, Transport Phenomena and ME 670, Advanced Mechanical Design;
- Six semester hours in approved mathematics courses;
- A minimum of 12 semester hours in committee-approved mechanical engineering courses or approved related courses.

2. The student must successfully complete and defend a thesis. The thesis student must register for at least 9 hours of ME 699 (Master's Thesis Research) in addition to the 24 semester hours of coursework.

### **PLAN II (Nonthesis Option): Research/Design Emphasis**

The election of Plan II must be approved by the student's graduate study committee. Generally, Plan II will be approved for students working full time and attending UAB on a part-time basis, or when the student demonstrates that Plan II offers superior educational benefits.

1. The student must successfully complete at least 33 semester hours of coursework, including

- Six semester hours in the following required courses ME 650, Transport Phenomena and ME 670, Advanced Mechanical Design;
- A minimum of 21 semester hours of approved mechanical engineering courses or approved related courses (the 21 hours must include at least 3 semester hours of ME 698, Nonthesis Research, involving design or research);
- Six semester hours in approved mathematics courses.

2. The student must pass a written comprehensive examination on coursework taken in the program.

### **PLAN II (Nonthesis Option): Technology/Engineering**

## Management Emphasis

1. The student must successfully complete at least 33 semester hours of coursework, including

- Six semester hours in the following required courses: ME 650, Transport Phenomena and ME 670, Advanced Mechanical Design;
- Six semester hours in one of the following two management applications areas: MBA 660, Quantitative Methods I, and either EC 520, Applied Forecasting, or another approved advanced management course;
- Three semester hours in MBA 632, Organizational Behavior;
- Three semester hours in ME 698, Nonthesis Research, involving design or research.
- Nine semester hours of engineering-oriented management coursework. Approved courses include CE 558, Engineering Management; EE 585, Engineering Operations; EE 686, Technical Entrepreneurship I; EE 687, Technical Entrepreneurship II; and ME 601, Design Measurement and Enhancement of Work Systems.
- Three semester hours in an approved mathematics course.

2. The student must pass a written comprehensive examination on coursework taken in the program.

## Ph.D. Program

UAB cooperates in programs leading to the Ph.D. degree in mechanical engineering awarded by the University of Alabama (Tuscaloosa) or by the University of Alabama in Huntsville. The student's advisory committee will be composed of faculty from the UAB graduate program in mechanical engineering, together with graduate faculty from the cooperating institution. In determining the student's program, the advisory committee will consider the student's academic objectives and background. Coursework may be taken at UAB and/or the cooperating institution. More detailed information can be obtained from the cooperative program agreement with the degree-granting institution.

## Ph.D. Program in Environmental Health Engineering

This unique, interdisciplinary program takes advantage of UAB's diversified engineering school, and nationally renowned health sciences center, to produce Ph.D. candidates cross-trained in public health and environmental engineering from a variety of disciplines. The program provides students with an understanding of mechanisms through which agents alter

environmental, human, and ecosystem health, and the integrated experimental and simulation based technology skills needed to evaluate, manage, and mitigate environmental problems, in the context of engineering and public health.

The program requires at least 42 credit hours of classroom work, plus 18 credit hours of dissertation research beyond the baccalaureate level. Courses of full graduate-level credit earned in an accredited institution where a student was enrolled in the graduate school, may be submitted for review for inclusion in the doctoral program. With approval, up to one-half of the required classwork for the doctoral degree may be transferred from another institution or another program. Successful completion of a qualifying exam, dissertation, and final defense is required of all doctoral candidates.

For more detailed information, please refer to the listing under Engineering, Environmental Health, or contact Dr. Melinda M. Lalor, Program Director for Environmental Health Engineering, 210C Hoehn Engineering Building, 1075 13th Street South, telephone 205-934-8438, e-mail [mlalor@uab.edu](mailto:mlalor@uab.edu).

## Preparatory Courses

Students admitted to the graduate program in mechanical engineering without an undergraduate degree in mechanical engineering or who have not had the courses listed below must take the following courses or present equivalent prior coursework. Additional coursework may be required depending on the student's undergraduate degree.

ME 241 Thermodynamics I

ME 321 Fluids and Heat Transfer I

ME 322 Fluids and Heat Transfer II

ME 360 Controls

ME 370 Kinematics and Dynamics of Machinery

ME 371 Machine Design I

CE 220 Mechanics of Solids

## Additional Information

For detailed information, contact Dr. Ernest M. Stokely, Department of Materials and Mechanical Engineering, BEC 254, 1530 3rd Avenue South, Birmingham, Alabama 35294-4461.

Telephone 205-934-8450.

E-mail [estokely@eng.uab.edu](mailto:estokely@eng.uab.edu)

Web [www.eng.uab.edu](http://www.eng.uab.edu)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit.

### Mechanical Engineering (ME)

506. **Jigs and Fixture Design.** Design considerations of jigs and fixtures for variety of manufacturing processes. Prerequisite: Permission of instructor.

507. **Fundamentals of Tool Design.** Aspects of tool design rapid prototyping and rapid tooling for die design, machining, inspection, and gauging presented through lectures and projects. Prerequisite: Permission of instructor.

508. **Metrology and Quality Control.** Aspects of precision measurement, inspection and gauging, and design of experiments. Short lectures and experiments with modern-day quality-control instrumentation. Prerequisite: Permission of instructor.

514. **Introduction to Computational Fluid Dynamics.** Basic numerical analysis techniques; quasi-linearization, consistency, convergence, accuracy, and Von Neumann error analysis. Prerequisites: ME 130 and 321.

515. **Compressible Fluid Flow.** Application of thermodynamics and fluid mechanics to perfect gas flow. Prerequisites: ME 322.

520. **Fluid Measurements.** Theory and techniques for measurement of static and dynamic fluid and flow properties. Prerequisite: ME 322.

521. **Fluid Machinery.** Fluid mechanics of fluid machinery such as turbines, pumps, compressors, fans, blowers, and gas turbine engines. Prerequisite: ME 322.

525. **Air Pollution Principles.** Theory of operation, design, and application of various methods of air-pollution control. Prerequisite: Graduate standing.

547. **Solar Energy.** Applications of solar energy to heating, cooling, and power generation. Solar radiation effects, thermodynamic and heat transfer effects in solar power equipment. Prerequisite: ME 322 or permission of instructor.

548. **Internal Combustion Engines.** Reciprocating internal combustion engines, emphasizing chemical, thermodynamic, and fluid dynamic processes. Stress on 4-stroke engines; some study of 2-stroke engines included. Prerequisite: ME 322 or permission of instructor.

549. **Steam Power Generation.** Application of thermodynamic principles to steam power systems with both fossil and nuclear fuels. Prerequisite: ME 242.

555. **Heat Transfer Equipment.** Regenerative, recuperative and direct-contact heat exchangers, heat pipes, and insulation theory. Applications to energy conversion and conservation. Prerequisites: ME 322.
564. **Introduction to Finite Element Method.** Concepts and applications of the finite element method. Development and applications of basic finite elements. Software use. Prerequisite: CE 220.
566. **Optimal Design Techniques.** Optimization of both single and multiple variable functions, constrained and unconstrained. Prerequisites: Graduate standing; knowledge of a computer language desirable.
573. **Friction and Wear.** Mechanisms; bearing analysis and design; lubrication theory and applications; damage analysis. Prerequisite: Graduate standing in engineering.
576. **Failure Analysis.** Failure mechanism; service failures and methods employed to prevent failures. Prerequisites: MSE 280, CE 220, and CE 221.
577. **Design Synthesis.** Integration of ideas, concepts, and fundamentals of science and engineering into preliminary design; synthesis of technical, human, and economic actors. Mathematical modeling and design optimization. Prerequisites: ME 370 and 471.
579. **Advanced Mechanics.** Variation of stress at point; determination of principal and maximum shear stresses. Symmetrical deformation; thick-wall cylinders and rotating disks. Torsion of noncircular sections; curved beams. Prerequisites: CE 220 and 221.
601. **Design, Measurement, and Enhancement of Work Systems.** Systems involving human performance. Prerequisite: CE 220 or permission of instructor.
610. **Inviscid Fluid Mechanics.** Kinematics and dynamics of real and perfect fluids. Potential flow around bodies. Flow-field solution techniques.
611. **Advanced Fluid Mechanics I.** Fundamental laws of motion for a viscous fluid. Laminar boundary layers.
612. **Advanced Fluid Mechanics II.** Turbulent flow study, turbulent flow modeling, numerical solutions. Prerequisite: ME 611.
614. **Computational Fluid Dynamics of Incompressible Flow.** Mathematics of viscous, incompressible NS equations, numerical treatment of advection and diffusion, grid systems, and survey of algorithms for solving NS equations. Prerequisites: ME 414 or 514, or permission of instructor.
615. **Introduction to Turbulent Flows.** Computational aspect of modeling; Reynolds-averaged equations, turbulent boundary layers, turbulence simulation. Prerequisite: Permission of instructor.
640. **Classical Thermodynamics I.** Macroscopic thermodynamics, first- and second-law formulation, entropy generation and energy, general relations for single-phase and multi-phase systems.

641. **Classical Thermodynamics II.** Classical treatment of chemically reactive systems, power generation, solar energy, refrigeration and thermodynamic design principles. Prerequisite: ME 641.
642. **Statistical Thermodynamics.** Application of statistical mechanics to thermodynamic processes.
650. **Transport Phenomena.** A fundamental introduction to heat, momentum, and mass transfer. Derivation of governing equations. Discussion of fundamental assumptions and simplifications.
651. **Radiation Heat Transfer.** Laws of thermal radiation, geometrical and spectral characteristics, electrical analogy, gaseous radiation.
652. **Conduction Heat Transfer.** General conduction equation; methods of solution. Steady-state, transient, and periodic heat flow; internal heat generation.
653. **Convection Heat Transfer.** Convection problems, including boundary layer problems in laminar and turbulent flow.
656. **Boiling and Condensation Heat Transfer.** Thermodynamic and heat transfer details of boiling and condensation phenomena. Prerequisites: Graduate standing and permission of instructor.
670. **Advanced Mechanical Design.** Design of special machines. Strength and stiffness of machine components. Modern industrial techniques for selection of drive systems, keys, pins, shafts, gears, bearings, and brakes. Prerequisite: Permission of instructor.
671. **Computer-Aided Dynamic Analysis.** Numerical methods and computer-aided design; analysis of both plane and spatial systems. Prerequisite: ME 370 or permission of instructor.
672. **Rotor Bearing Dynamics.** Rigid and nonrigid models; coupled motion between rotating and stationary structures. Prerequisite: ME 370 and 371, or permission of instructor.
674. **Advanced Lubrication.** Journal bearings. Hydrostatic/hydrodynamics theories. Stability and operating characteristics. Prerequisite: Permission of instructor.
676. **Fracture Mechanics.** Linear elastic fracture mechanics. Griffith energy balance. Airy and Westergaard solutions. Elastic-plastic fracture mechanics. Materials testing and applications. Prerequisite: Graduate standing.
678. **Theory of Elasticity.** Continuum mechanics; stress/strain tensors; 2-D elasticity; Airy methods, polar coords, Lamé's problem, singularities, Green's functions. Prerequisites: CE 220 and 221.
690. **Special Topics in (Area).** 1-4 hours.
691. **Individual Study in (Area).** 1-4 hours.
693. **Journal Club in Mechanical Engineering.** 1 hour.

694. **Seminars in Mechanical Engineering.** 1 hour.

698. **Nonthesis Research.** 1-8 hours.

699. **Master's Thesis Research.** Prerequisite: Admission to candidacy. 1-8 hours.

Last modified 12/10/04



## UAB Graduate School

### Environmental Health Sciences (Ph.D.)

Graduate program director: *Ruden*

## Faculty

**Shannon Bailey** , Assistant Professor (Environmental Health Sciences); Mechanisms of Alcoholic Liver Disease, Functional Genomics & Proteomics of Alcoholism

**Carol Ballinger** , Research Instructor (Environmental Health Sciences); Environmental Toxicants and Free Radical Biology

**Steven M. Becker** , Associate Professor (Environmental Health Sciences); Environmental Management, Toxic Disasters, Bioterrorism and Risk Communication

**H. Maria DeLuca** , Research Assistant Professor (Environmental Health Sciences); Genetic basis of quantitative variation in lead sensitivity and lipid storage, using *Drosophila melanogaster* as a model system

**Dale Dickinson** , Research Instructor (Environmental Health Sciences); Mechanism of action of naturally occurring compounds; Functional genomics & proteomics of naturally occurring compounds; Molecular mechanisms of the adaptive response to environmental toxicants and pollutants; Induction of glutathione

**Mark S. Garfinkel** , Research Assistant Professor (Environmental Health Sciences); Environmental toxicology, *Drosophila* developmental biology and genetics

**Karen E. Iles** , Research Instructor (Environmental Health Sciences); Signaling pathways activated by stresses in the lung and the cellular response to these stresses; Role of nitrated lipids in cell signaling and in the adaptive response to stress

**Melinda M. Lalor** , Assistant Professor (Civil and Environmental Engineering); Environmental Engineering

**Rui-Ming Liu** , Assistant Professor (Environmental Health Sciences), Environmental Toxicology, Glutathione Transport and Synthesis Defects in Aging and Neurodegenerative Diseases

**Xiangyi Lu** , Research Associate Professor (Environmental Health Sciences), *Drosophila* Developmental Biology and Genetics

**Elizabeth H. Maples**, Assistant Professor (Environmental Health

Sciences) Continuing Education, Occupational Safety

**R. Kent Oestenstad** , Associate Professor (Environmental Health Sciences); Industrial Hygiene

**Edward M. Postlethwait** , Professor and Chair (Environmental Health Sciences); Pulmonary Toxicology and Free Radical Biochemistry

**Douglas M. Ruden** , Associate Professor (Environmental Health Sciences); Environmental Toxicology, Drosophila Genetics and Developmental Biology

**Shubhashish Sarkar** , Research Instructor (Environmental Health Sciences); Understanding the role of pro-inflammatory cytokines in cancer growth and in modulating growth within the microenvironment of cells in tissues

**H. Giuseppe Squadrito** , Research Associate Professor (Environmental Health Sciences); Free Radical Biochemistry

## Program Information

Environmental health scientists work for industry, government, and academia to estimate and mitigate environmental exposures to chemical, biological, and physical stressors. The department is committed to education and research in the identification, evaluation, and control of these human health hazards. The Ph.D. program in environmental health sciences focuses on the toxicology, toxicogenomics, and proteomics of gene-environment interactions. The Ph.D. degree is designed to prepare scientists for careers in environmental health research. Interactions between environmental agents and the functions of tissues and cells are the focus of this department. Taking advantage of the rapid developments in genetics and signal transduction in combination with the traditional areas of environmental health sciences, the department is developing new approaches to environmental toxicology and occupational health. Graduates are qualified to assume upper-level positions in the public or private sector in management, teaching, research, or consulting. Graduates are particularly qualified for teaching or research positions in academic institutions that require sound research training.

Specific research interests of faculty in the department include effects of chemicals and environmental oxidants on DNA and proteins, the effects of environmental toxins on developmental processes using *Drosophila* as a model, risk assessment, biological methods for treating hazardous wastes, and biological monitoring tools for assessing chemical exposures.

## Admission

Applicants should have a bachelor's or higher degree in one of the natural sciences from an accredited college or university. This should include a minimum of a one-year sequence in biology, organic, inorganic, and physical chemistry; and a one-year physics sequence requiring calculus. Applicants are required to take the GRE General Test. A score of 550 on each of the verbal, quantitative, and analytical sections of the examination is required, as well as a GPA of 3.0. Deadline for applications to be admitted into the program is May 1.

## Curriculum

Ph.D. students are expected to complete the department core course requirements as well as those courses necessary to prepare them to conduct their dissertation research. The required core courses include Integrative Biomedical Sciences for Environmental Health ENH 720, 721 and 722 and a lab rotation ENH 796 (Environmental Toxicology Laboratory Rotation). Other courses will be required the second and subsequent years. Electives preparatory to dissertation research will be determined by the student in consultation with his or her academic advisors..

## Additional Information

For detailed information, contact Ms. Cherie Hunt, 1665 University Boulevard, University of Alabama at Birmingham, School of Public Health, Room 530, Birmingham, Alabama 35294-0022.

Telephone 205-934-8488

E-mail [ehs@crl.soph.uab.edu](mailto:ehs@crl.soph.uab.edu)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Environmental Health Sciences (ENH)

**700. Advanced Environmental Health Sciences.** Environmental problems encountered by public health professionals, including water pollution, water resources, air pollution, industrial hygiene and occupational safety, and toxicology. Case studies used in examining environmental problems.

**705. Special Topics ( Readings) in Environmental and Occupational Health.** Topics taught on request on individual basis: radiological health, air pollution, systems safety, advanced toxicology, toxicokinetics, environmental science related to risk assessment process. Prerequisites:

ENH 750.

**710. Grant Proposal Writing in the Biomedical Sciences.** Introduction to writing grant proposals and fellowship applications. Topics include scientific ethics, funding sources, electronic databases, organization and format of proposals and applications, submission and review processes, use of secondary sources, and guidelines for effective proposal writing. (Ruden)

**711. Risk Assessment of Environmental Hazards.** Principles of risk assessment and management as applied to various environmental issues. Examination of theoretical aspects of epidemiology, toxicology, and environmental science related to risk assessment process. (Roy, Roseman)

**ENH 720. Integrated Biomedical Science for Environmental Health I.**

- The purpose of this course is to provide students with a rigorous background in the principles of biological chemistry and cellular physiology. Students should master and include the application of these principles to research protocols and performance. The knowledge acquired can then be applied to organ-system physiology, pathophysiology, pharmacology, and genomics in ENH 721 and ENH 722. (Course is scheduled with IBS 700). 8 hours

**ENH 721. Integrated Biomedical Science for Environmental Health II.**

- The purpose of this course is to integrate the anatomic, physiologic, pathophysiologic and pharmacologic principles of molecular, cellular, whole tissue and organ physiology. The material mastered in this course builds upon the basic principles learned in ENH 720 and will facilitate understanding in genetic-based disorders and genetically generated animal models of disease provided in ENH 722. (Course is scheduled with IBS 701). 8 hours.

**ENH 722. Integrated Biomedical Science for Environmental Health III.**

- The purpose of this course is to integrate the anatomic, physiologic, pathophysiologic and pharmacologic principles of molecular, cellular, whole tissue and organ biology. The material mastered in this course builds upon the principles learned in ENH 721 and will facilitate understanding in genetic-based disorders and genetically generated animal models of disease provided in this course. (Course is scheduled with IBS 702). 8 hours.

**750. Doctoral-Level Essentials of Environmental and Occupational Toxicology.** Toxicology principles, including dose-response, toxicokinetics, factors modifying toxicity, organ system responses to toxic insult, and toxicity testing. ( Roy)

**763. Aerosol Technology.** Properties and behavior of aerosols from industrial hygiene and environmental perspectives. Fundamental particle descriptions and critical fluid properties affecting particle behavior. Methods of defining particle size and size distribution and theories of particle kinetics and their application to particle deposition and collection.

Prerequisite: ENH 661-662. (Oestenstad)

**764. Signal Transduction in Environmental Health and Toxicology.**

One of the major challenges in environmental health is determination of the underlying mechanisms through which toxicants act. Many of the adverse effects of toxicants are mediated through interaction with the processes whereby tissues and cells communicate with each other or respond to external stimuli. Some toxicants may interfere with normal signaling while others may mimic endogenous stimulants and mediators. Another major mechanism for the action of toxicants is the stimulation of inflammatory processes (Forman).

**ENH 790. Seminar: Current Topics in Environmental Health**

**Sciences Research** .-Interactive forum in which graduate students and faculty discuss dissertation research projects and topics related to the field of Environmental Health Sciences Research through presentation of journal articles. Course is designed to develop oral communication skills for presenting scientific material to peer groups. Presentations by graduate students are followed by discussion and questions.

Prerequisite: Permission of Instructor. Pass/No Pass.. 1 hour (Bailey)

**791. Advanced Toxicology Seminar.** Facilitates critical review of recent referred publications in toxicology and presentation of research data.

Students exposed to advanced knowledge and diverse subjects.

Prerequisite: ENH 750 or permission of instructor. ( Roy)

**796. Environmental Toxicology Laboratory Rotation.** First year PhD candidates in Environmental Health Sciences are required to complete at least three laboratory rotations approved by the Graduate Program Director. ( Roy)

**798. Doctoral-Level Directed Research.** Independent study with guidance of appropriate faculty. Pass/No Pass.1 - 9 hours Prerequisite: Permission of graduate program director. 1-6 hours.

**799. Dissertation Research.** Prerequisite: Admission to candidacy. 1-6 hours.

Last modified 11/18/04

## UAB Graduate School

### Epidemiology (Ph.D.)

Graduate program director: *Funkhouser*

## Faculty

**Donna Arnett**, Professor (Epidemiology); Cardiovascular genetic epidemiology, Pharmacogenetics

**Colleen Beall**, Assistant Professor (Epidemiology); Occupational Epidemiology, Cancer Epidemiology

**Eric Chamot**, Assistant Professor (Epidemiology); Infectious Disease Epidemiology, Screening, International Health

**Philip Cole**, Professor Emeritus (Epidemiology); Cancer Epidemiology, Epidemiologic Methods, Ethics, History of Public Health

**Elizabeth Delzell**, Professor (Epidemiology); Occupational Epidemiology, Chronic Disease Epidemiology Including Cancer

**Ellen Funkhouser**, Associate Professor (Epidemiology); Women's health, STDs, HIV/AIDS, Cancer Epidemiology, Outcomes Research, Epidemiologic Methods

**Rodney Go**, Professor (Epidemiology); Population Genetics, Chronic Disease Epidemiology, Molecular Epidemiology

**Mary Hovinga**, Associate Professor (Epidemiology); Environmental Epidemiology, Epidemiology of Mental Health and Development

**Richard Kaslow**, Professor (Epidemiology); Infectious Disease Epidemiology, Immunogenetics

**H. H. Michael Maetz**, Professor Emeritus (Epidemiology); Infectious Disease Epidemiology, Surveillance, Bioterrorism

**H. Gerald McGwin**, Associate Professor (Epidemiology); Injury Epidemiology

**H. Jeffrey Roseman**, Professor Emeritus (Epidemiology); Chronic Disease Epidemiology Including Diabetes and Heart

Disease; Injury Epidemiology

**Nalini Sathiakumar**, Associate Professor (Epidemiology); Occupational Epidemiology, Chronic Disease Epidemiology Including Cancer

**Sten Vermund**, Professor, (Epidemiology); HIV/AIDS and Infectious Disease Epidemiology, International Health

**John Waterbor**, Associate Professor (Epidemiology); Chronic Disease Epidemiology, Cancer Control

## Program Information

### Admission Requirements

Applicants to the Ph.D. program in epidemiology must have earned a Master of Public Health degree or the equivalent, with a strong background in epidemiology and statistics.

### Curriculum

One biostatistics course, three epidemiologic methods courses, two specialty courses, three doctoral seminars, one teaching practicum, and one outside elective are required (in addition to several master's level courses if they were not taken while earning an M.P.H.).

### Additional Information

For detailed information, contact Dr. Ellen Funkhouser, Department of Epidemiology and International Health UAB School of Public Health, Ryals Building, Room 230P, 1665 University Boulevard, Birmingham, AL 35294-0022.

Telephone 205-934-1120

Fax 205-934-8665

E-mail [emfunk@uab.edu](mailto:emfunk@uab.edu)

## Course Descriptions

For additional courses in epidemiology and other public health areas, see the catalog of the School of Public Health. Unless

otherwise noted, all courses are for 3 semester hours of credit. Courses numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

## **Epidemiology (EPI)**

**703. Special Topics in the Epidemiology of Chronic Disease.** To provide the student with information about grant writing and practice in preparing a grant proposal for submission. The proposal must relate to an epidemiologic topic. Human subjects issues are discussed. (Faculty)

**705. The Epidemiology of Cardiovascular Disease.** An exploration of the breadth and depth of the epidemiology of cardiovascular disease including history, classification, surveillance, frequency, distribution, etiology, natural history, and control. It will also address the programmatic details of large-scale epidemiologic studies in cardiovascular disease and discuss in detail CVD epidemiologic papers relating to the use of various study designs. Prerequisite: EPI602 or permission of instructor. (Howard/Canto)

**709. Theoretical Basis of Epidemiology.** Statistical concepts underlying analysis of epidemiologic studies; interrelationship of epidemiologic measures; principles and analysis of matched study designs and of standardized ratio measures. Computer simulations and class presentations. Prerequisites: EPI625. (Funkhouser)

**710. The Analysis of Case-control Studies.** This course is designed to provide doctoral students in epidemiology with the theoretical basis of and practical experience in the analysis and interpretation of data from case-control studies. Prerequisites: BST603, BST655, EPI709. (Barbone)

**711. Nosocomial Disease Control Practicum.** Exposure to and involvement in hospital infection control. Student assigned to infection control practitioner at a local hospital. Project required. Prerequisites: Permission of instructor, EPI610 and EPI605. (Maetz)

**712. Infectious Disease Epidemiology Practicum.** On-site exposure to epidemiology as applied in health department setting with emphasis on infectious disease control. Project required. Prerequisites: Permission of instructor, EPI610 and



EPI605. 2 credit hours. (Maetz)

**713. Risk Assessment of Environmental Hazards.** Principles of risk assessment and management as applied to various environmental issues. Examination of theoretical aspects of epidemiology, toxicology, and environmental science related to risk assessment process. Prerequisite: ENH750-751. (Roy)

**720. The Analysis of Follow-up Studies.** Designed to provide doctoral students in epidemiology with the theoretical basis of and practical experience in the analysis and interpretation of data from follow-up studies. Prerequisite: EPI710. (McGwin)

**730. Introduction to Human Population Genetics Theory.** Basic concepts, theory, and mathematical principles underlying population genetics, i.e., mechanisms affecting distribution of genes in populations. Prerequisite: Permission of instructor. (Go)

**740. Cancer Epidemiology.** Methodologic and substantive issues in cancer epidemiology. The course will consist of a series of lectures by the instructors and other faculty and of a series of presentations by students. Prerequisites: EPI625. 2 credit hours (Delzell)

**750. Issues in the Control of Chronic Diseases.** Disease control by prevention, early detection, and improving access to treatment. Model for health risk assessment, interventions for risk modifications. Role of screening in controlling chronic disease. Access to medical evaluation and delivery of treatment. Ethical, political, and legal aspects of disease control. Prerequisites: EPI602, EPI610 or permission of instructor. (Waterbor)

**788 Principles and Methods in Molecular Epidemiology.** Molecular biology and its relevance to the epidemiology of human diseases, and the ability to apply this new molecular knowledge to epidemiologic research. The course will develop knowledge and skills in molecular biology and genetics, and demonstrate ways to apply this information in evaluating susceptibility, etiology, symptomatology, treatment, and eventual prevention of diseases. 4 credit hours. (Go)

**790. Doctoral Seminar in Epidemiology.** In depth study of several areas of epidemiologic methodology. Students responsible for selecting and presenting topics. Considerable

reading and outside preparation required. Prerequisite:  
Permission of instructor. 2 hours. (Faculty)

**797. Analysis and Presentation of Epidemiologic Data.** To gain experience with the analysis, interpretation, and presentation of epidemiologic data by successfully analyzing a data set and presenting the results in the form of a publication quality manuscript. Restricted to PhD students in Epidemiology. Prerequisites: BST 655 and EPI625. 2 credit hours (Funkhouser/McGwin)

**798. Doctoral-Level Directed Research, Epidemiology.** Independent study with guidance of appropriate public health faculty. 1-6 hours.

**799. Dissertation Research, Epidemiology.** Research for dissertation under direction of dissertation committee. 1-6 hours.

Last modified 10/01/04

## UAB Graduate School

### Foreign Languages

## Faculty

**Serge Bokobza**, Associate Professor (French); Nineteenth- and Twentieth-Century French Literature, Literature and Ideology, Civilization.

**William C. Carter**, Professor (French); Nineteenth- and Early Twentieth-Century French Literature, Fin-de-Siècle French Novel, Proust

**Catherine F. Daniélou**, Associate Professor (French); Sixteenth- and Seventeenth-Century French Literature, Gender Studies

**Sheri Spaine Long**, Associate Professor (Spanish); Contemporary Spanish Peninsular Literature, Post-Civil War Novel, Second Language Acquisition/Teaching Methodology

**Dellita L. Martin-Ogunsola**, Professor (Spanish); Contemporary Latin American Literature, Caribbean Literature, Afro-Hispanic Fiction and Poetry

**John K. Moore**, Assistant Professor (Spanish); Medieval and Imperial Spanish Literature; Pilgrimage; Saint James Studies; Gender Studies

**Carlos L. Orihuela**, Associate Professor (Spanish); Nineteenth- and Early Twentieth-Century Latin American Literature, Andean novel

**Lourdes Sánchez-López**, Assistant Professor (Spanish); Second Language Acquisition, Foreign Language Pedagogy, Spanish and TESOL

## Program Information

UAB does not currently offer a graduate degree in foreign languages and literatures. However, there is a program leading to the degree of Master of Arts in Education, with a teaching specialization in French or Spanish, and a program leading to the Educational Specialist degree with a specialization in the same languages. Requirements for the M.A.Ed. and Ed.S. degrees are listed with the "Education (General Information)" section of this catalog. Courses in foreign languages and literatures at the graduate level are listed below.

## Additional Information

For additional information, contact Dr. Sheri Spaine Long, Chair, UAB Department of Foreign Languages and Literatures, Room 407-A, 900

South 13th Street, Birmingham, AL 35294-1260.

Telephone: 205-934-4651

## Course Descriptions

### French (FR)

FR 501. **Pre-Revolutionary France, 1610-1789.** Literature, culture and civilization of seventeenth- and eighteenth-century France reflecting the historical and literary ambience in which Ancien Régime writers, philosophes, and artists worked. 3 hours.

FR 502. **Post-Revolutionary France, 1789-1913.** Literature, culture and civilization of late-eighteenth-, nineteenth-, and twentieth-century France illustrating the impact of the French Revolution on the historical and literary ambience of Europe and the Americas. 3 hours.

FR 503. **Fin-de-Siècle France, 1895-1918.** Major literary and artistic movements of fin-de-siècle France from La Belle Époque period through World War I. 3 hours.

FR 504. **French Literature since 1940.** Cultural trends and literary movements from World War II to the present, including existentialism and the nouveau roman. 3 hours.

FR 505. **Francophone Literature.** French-speaking literature outside France that developed through colonization, decolonization, revolution and emigration. Representative writers from Francophone countries with emphasis on Africa and the Caribbean.

FR 510. **Special Topics in French.** Seminar on individual authors, specific genres, important literary movements, or literary discourse/theory. May be repeated for credit. 3 hours.

FR 512. **French Civilization before 1789.** Historical and cultural foundation of France from its conquest by Julius Caesar to the French Revolution. 3 hours.

FR 513. **French Civilization after 1789.** Historical and cultural development of France from the French Revolution to the present, including the student revolts of May 1968. 3 hours.

FR 590. **Study Abroad.** Fifth-year level of approved program in a French-speaking country. Prerequisite: Permission of department chair. 1 to 6 hours.

FR 599. **Independent Studies.** Prerequisite: Permission of department chair. 3 hours.

## German (GN)

GN 580. **Special Topics in German Literature.** Emphasis on particular authors, genres, or topics. May be repeated for credit. 3 hours.

GN 590. **Study Abroad.** Fifth-year level of approved program in a German-speaking country. Prerequisite: Permission of department chair. 1 to 6 hours.

GN 599. **Independent Studies.** Prerequisite: Permission of department chair. 3 hours.

## Spanish (SPA)

SPA 501. **Discourse of Imperial Spain, 1492-1898.** Civilization of Imperial Spain from the end of the Reconquest to the late-nineteenth century. Includes art, history, music, oral traditions and literature of the Spanish people. 3 hours.

SPA 502. **Discourse of Colonial Latin America, 1492-1920.** Civilization of Colonial Latin America from the advent of European dominance to the decades following the Spanish-America War and Mexican Revolution. Focus on the blending of Spanish, Amerindian and African cultural forms and their diverse literary expressions. 3 hours.

SPA 503. **Discourse of Contemporary Spain, 1898-Present.** Cultural and literary trends of Spain from the transformation of Spanish society in the late-nineteenth century to the post-Franco era. Focus on impact of the Spanish Civil War. 3 hours.

SPA 505. **U.S. Latino Writers.** Literary trends of the Spanish-speaking cultures within the borders of the United States. Focus on discourse of exile, migration, bilingualism, and hybridity. 3 hours.

SPA 507. **Indigenous and Indigenist Latin America.** Cultural and literary forms of Amerindian, Hispanic or mixed descent writers of Latin America. Focus on the concepts of hybridity, syncretism and mestizaje. 3 hours.

SPA 509. **Spanish-Speaking Nobel Laureates.** Literary masterpieces of the Spanish-speaking world. 3 hours.

SPA 511. **Cervantine Discourse.** Civilization of Golden Age Spain as reflected in Miguel de Cervantes's *El ingenioso hidalgo don Quixote de la Mancha*. Development of the modern novel and importance of Don Quixote as national hero and recurring figure in international art, music, film and literature. 3 hours.

SPA 512. **Discourse of Contemporary Latin America, 1920-Present.** Cultural and literary trends of Latin America from *la nueva narrativa* through the Boom and post-Boom periods. Focus on Mexico, Northern

Latin America, and the Southern Cone. 3 hours.

SPA 514. **Afro-Hispanic Discourse.** Cultural and literary forms of African-descended writers in the Spanish-speaking world. Focus on the African presence in Medieval and Golden Age Spain, contemporary Spain, Ecuatorial Guinea, Latin America and/or the Caribbean. 3 hours.

SPA 516. **Special Topics in Spanish.** Seminar on individual authors, specific genres, literary movements, literary discourse/theory, or transatlantic studies. May be repeated for credit. 3 hours.

SPA 590. **Study Abroad.** Fifth-year level of approved program in a Spanish-speaking country. Prerequisite: Permission of department chair. 1 to 6 hours.

SPA 599. **Independent Studies.** Prerequisite: Permission of department chair. 3 hours.

Last modified 10/06/04

## UAB Graduate School

### Forensic Science (M.S.F.S.)

Graduate program director: *Linville*

## Faculty

**Gregory Davis**, Assistant Professor (Pathology); Forensic Pathology

**Charles A Lindquist**, Associate Professor (Justice Sciences); Administration

**Jason G. Linville**, Visiting Assistant Professor (Justice Sciences); Forensic Biology

**Ray H. Liu**, Professor (Justice Sciences); Forensic Drug Chemistry, Mass Spectrometry, Application of Instrumental Methods of Analysis to Forensic Science

**Allen E. Shealy**, Clinical Professor (Psychiatry); Forensic Psychology

**Frederick P. Smith**, Professor (Justice Sciences); Forensic Analysis of Trace Evidence, Forensic Drug Chemistry, Laboratory Certification

**Amrik S. Walia**, Adjunct Professor (Justice Sciences); Forensic Drug Analysis

**Richard M. Ward III**, Adjunct Lecturer (Justice Sciences); Law

**Jeffrey D. Wells**, Associate Professor (Justice Sciences); Forensic Biology

## Program Information

The Master of Science in Forensic Science program is designed to prepare individuals for careers in various forensic science and conventional analytical laboratories, emphasizing the application of scientific methods and technologies to legal proceedings. With thoughtful planning, many students have found the program offerings helpful in building a strong foundation to pursue doctoral (Ph.D. and M.D.) studies.

The program support includes many UAB faculty members from other departments, personnel from the Alabama Department of Forensic Sciences' Birmingham laboratory, the Jefferson County Medical Examiner's Office, and local forensic science-related private institutions. In addition, the program maintains a close working relationship with the DNA profiling laboratories of the Alabama Department of Forensic Sciences and hosts the editorial offices of the *Forensic Science Review* (the only review journal in forensic science). Faculty research and practice focus especially on forensic aspects of drug chemistry, DNA-based identification, and entomology.

Minimum admission requirements include strong background in science and completion of one year of general chemistry, one year of organic chemistry, and quantitative analysis. Coursework is designed for qualified students to begin in fall and complete the program in 21 months. Admissions are granted for the fall terms only.

## Additional Information

For detailed information, contact Dr. Jason G. Linville, Forensic Science Graduate Program Director, UAB Department of Justice Sciences, OB15-101, 1530 3rd Avenue South, Birmingham, Alabama 35294-2060.

Telephone 205-934-2069

E-mail [jglinvil@uab.edu](mailto:jglinvil@uab.edu)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Justice Science (JS)

551. **Research Methods in Forensic Science.**

571. **Molecular Genetics.**

572. **Biology for Forensic Scientists.**

573. **Advanced Recombinant DNA Technology.**

650. **Advanced Questioned-Death Investigation.**

652. **Advanced Questioned Document.**

653. **Advanced Investigation of Fires and Explosives.**

656. **Advanced Forensic Approaches to Osteology.**

670. **Elements of Forensic Science.** Philosophical considerations and historical landmarks; overviews of major forensic subdisciplines such as toxicology, firearms and tool mark examination, forensic biology, trace evidence, drug analysis, questioned documents, and role of the expert witness.

671. **Conventional Criminalistics I.** Basic methodologies and approaches for analyzing trace and transfer evidence: characterization and examination of trace evidence, transfer evidence, and two- and three-dimensional impressions left by objects and persons. Evidence categories include hairs, fibers, glass,



soil, paint (surface coatings), plastics (polymers), ignitable liquid and explosives residues, and impressions resulting from friction ridge skin, firearms, tools, foot wear, automotive tires, etc.

672. **Conventional Criminalistics II.** Methodologies for the examination of firearms and questioned document.

673. **Forensic Drug Analysis.** Isolation, identification, and quantification of commonly abuse drugs and poisons; interpretation of findings and correlation with legal applications.

674. **Biological Methods in Forensic Science.** Examination of biological evidence in crime laboratory, including DNA typing of blood, bloodstains, and other body fluids.

675. **Law, Evidence, and Procedure.** Legal aspects of physical evidence; role of expert witness and moot court.

676. **Topics in Forensic Science: Advanced Biological Methods in Forensic Science.**

677. **Topics in Forensic Science: Forensic Toxicology.** Relevant analyses conducted for drugs and poisons in biological evidence as it relates to forensic investigation, including collection and handling evidence, selection of the most appropriate evidence, and the analytical process. The significance of the findings will be examined in view of the pharmacokinic and pharmacodynamic properties of the detected substances.

678. **Topics in Forensic Science: Capillary Electrophoresis.**

679. **Seminar in Forensic Science.** 1 hour.

680. **Graduate Internship in Forensic Science.** Field experience in forensic science agency.

\*681-682. **Directed Research (Nonthesis).** Forensic science problems, issues, and theories. May be repeated for credit. 1-6 hours.

\*684. **Thesis Research.** Prerequisite: Admission to candidacy. May be repeated for credit. 1-6 hours.

## Forensic Science Doctoral Training

Chair, Committee on Graduate Study in Forensic Science: Linville

Committee: Ronald T. Acton, Peter Burrows, John W. Hicks, Larry K. Krannich, Coral Lamartiniere, Ray H. Liu, and Steven Watts.

Faculty: Ronald T. Acton, Microbiology; Robert A. Angus, Biology; Stephen Barnes, Pharmacology and Toxicology; Asim K. Bej, Biology; Robert M. Brissie,

Pathology; Gregory Davis, Pathology; Joseph J. Gauthier, Biology; Rodney C. P. Go, Epidemiology; Gregg M. Janowski, Materials Science and Engineering; Coral A. Lamartiniere, Pharmacology and Toxicology; Charles A. Lindquist, Justice Sciences; Ray H. Liu, Justice Sciences; Richard B. Marchase, Cell Biology; Mario G. Martinez, Jr., Diagnostic Sciences; William K. Nonidez, Chemistry; Allen E. Shealy, Psychology; Frederick P. Smith, Justice Sciences; Charles L. Turnbough, Jr., Microbiology; Jeffrey D. Wells, Justice Sciences; Bruce P. Wheatley, Anthropology.

Visiting and Adjunct Faculty: Dale A. Carpenter, Forensic Scientist, Alabama Department of Forensic Sciences; Ph.D., South Carolina, Toxicology. Steve Drexler, Forensic Scientist, Alabama Department of Forensic Sciences; Trace evidence; questioned document. Jay M. Glass, Chief Deputy Coroner, Jefferson County; M.P.A., UAB, Death investigation. John W. Hicks, New York State Division of Criminal Justice Services; M.P.A., Southern California, Administration; evidence and procedure. Jack R. Kalin, Forensic Scientist, Alabama Department of Forensic Sciences; Ph.D., Florida, Toxicology. John McDuffie, Forensic Scientist, Alabama Department of Forensic Sciences; Ph.D., Auburn, Trace evidence. G. Sue Rogers, Forensic Scientist, Alabama Department of Forensic Sciences; M.S.F.S., UAB, Forensic biology. Franco Tagliaro, Associate Professor, Catholic University of the Sacred Heart (Rome, Italy), Forensic toxicology. Amrik S. Walia, President, American Health Research Institute; Ph.D., Loyola (New Orleans), Immunology; drugs of abuse. Victor W. Weedn, Carnegie Mellon University; J.D., South Texas College of Law; M.D., Texas Health Science Center (Dallas), Pathology.

## **Program Information**

The Graduate Training Program in Forensic Science is a university-wide graduate training program in the context of a traditional Ph.D. program for students who wish to obtain professional training in forensic science. Students will take forensic science courses and courses required by one of the four Ph.D. granting departments (Biology, Chemistry, Molecular Cell Biology/Microbiology, or Pharmacology and Toxicology), followed by dissertation research on a topic related to forensic science and mentored by a faculty member affiliated with one of these four departments through a primary or secondary (adjunct) appointment.

Forensic science involves the application of knowledge gained from a multitude of scientific disciplines to the needs of both civil and criminal justice. Since modern legal proceedings frequently include expert testimony utilizing knowledge and technologies from the physical and biological sciences, the discipline has emerged as an important component of judicial proceedings. The use of scientific technology in court has reached such a degree of sophistication that merely applying the knowledge and technologies derived from research and development in conventional physical and biological science specializations is no longer adequate. Doctoral-level training and research skills specific to the requirements of evidentiary rules and proceedings are necessary for the identification and solution of many issues that arise in contemporary court settings.

## Admission Procedures

Students who are interested in Forensic Science Doctoral Training Program must apply for admission through the Graduate School. A steering committee will then make a recommendation to the Graduate School whether an individual applicant should be admitted to the Forensic Science Doctoral Training Program. A decision is made based on the majority vote of members in the committee.

All application materials should be received by the Graduate School by the end of January. Applications completed after this date may not be considered if vacancy is no longer available.

## Curriculum and Funding

All students are required to take a total of 8 hours of forensic science (FS) courses during the first three terms of attendance. The Department of Justice Sciences offers these courses. Students are also required to take a set of core courses, followed by the completion of a set of other courses required by the Ph.D. granting program selected by the students.

Students are strongly urged to select their Ph.D. granting departments and from their advisors by the end of the second and the third terms, respectively. (Students who have not selected advisors by the end of the third term will not be permitted to continue in the program.) Students' study plans will then be guided by their advisors and graduate study committees.

With the exceptions of admissions and course requirements, students are required to complete the same requirements and protocols (such as teaching, seminar, research tool, preliminary examination, qualifying examination, research proposal, dissertation, and dissertation defense) established in their selected Ph.D. granting departments.

The Department of Justice Sciences will fund students during their first year of participation. Participating Ph.D. programs or the student advisors will begin funding selected students at the fourth term and continue funding until the completion of doctoral course work and dissertation research, generally for four years.

## Additional Information

For detailed information, contact Dr. Jason G. Linville, Forensic Science Graduate Program Director, UAB Department of Justice Sciences, OB15-101, 1530 3rd Avenue South, Birmingham, AL 35294-2060.

Telephone 205-934-2069

E-mail [jglinvil@uab.edu](mailto:jglinvil@uab.edu)

# Course Descriptions

## Core Courses (FS)

700. **Laboratory Rotation I** (1).<sup>a</sup> Fall.

770. **Elements in Forensic Science** (1). Fall.

771. **Conventional Criminalistics** (1). Fall.

774. **Biological Methods in Forensic Science** (1) or [FS 704 **Laboratory Rotation II** (3)].<sup>b</sup> Spring.

775. **Law, Evidence, and Procedure** (1). Spring.

773. **Forensic Drug Analysis** (1) or [FS 703 **Laboratory Rotation III** (3)].<sup>b</sup> Summer.

## Other Courses

CH 750. **Advanced Analytical Chemistry I** (3). Spring.

CMB 700. **Cellular and Molecular Biology I: Biomolecules** (5). Fall.

CMB 701. **Cellular and Molecular Biology II: Genetics** (5).<sup>c</sup> Fall.

CMB 702. **Cellular and Molecular Biology III: Cells** (5). Fall.

TOX 711. **Principles of Toxicology** (3). Spring.

Laboratory Rotation

BY 798. **Nondissertation Research** (3).<sup>b</sup>

CH 798. **Nondissertation Research** (3).<sup>b</sup>

CMB 721. **Laboratory Research** (5).<sup>b</sup>

TOX 796. **Laboratory Rotation** (3).<sup>b</sup>

<sup>a</sup> Through registering in this course, students are to be advised (by the Director of the Forensic Science Doctoral Training Program) of dissertation research options available. Students will be required to visit no less than five faculty members (at least one from each of the four Ph.D. granting departments) and submit a one-page report on the research subject discussed in each visit. Students will be permitted to delay the completion of this process until the end of the following semester.

<sup>b</sup> In addition to taking FS 700 Laboratory Rotation I during the first term,

students are also required to take at least two more laboratory rotation courses. One of the latter laboratory rotation courses must be FS 703 or FS 704 offered in the second and third term, respectively.

° This course starts following the completion of CMB 700 in the fall semester.

## **Additional Courses Required by Different Departments**

### Departments of Biology and Molecular Cell Biology/Microbiology

BY 511	Molecular Genetics (prerequisite)
BY 531	Advanced Recombinant DNA Technology (prerequisite)
CMB 703	Cellular and Molecular Biology IV: Signaling (5)
CMB 704	Cellular and Molecular Biology V: Virology/Immunology (5)
BST 601	Biostatistics I (3)
BST 602	Biostatistics II (3)
EPI 730	Introduction to Human Population Genetics Theory (3)
MIC 726	Advanced Immunogenetics (3)

### Department of Chemistry

CH 325	Thermo & Chem Kinetics (prerequisite)
CH 326	Structure/Bonding & Molecular Spectroscopy (prerequisite)
CH 450	Instrumental Analysis (prerequisite)
CH 700	Foundations of Physical and analytical Chemistry (3)
CH 725	Molecular Structure and Spectroscopy (3)
CH 750	Advanced Analytical Chemistry (3)

### Department of Pharmacology and Toxicology

CH 325	Thermo & Chem Kinetics (prerequisite)
CH 326	Structure/Bonding & Molecular Spectroscopy (prerequisite)
CH 450	Instrumental Analysis (prerequisite)
CMB 703	Cellular and Molecular Biology IV: Signaling (5)
TOX 712	Actions and Assessment of Toxicants (3)
TOX 795	Advanced Toxicology Seminar (1)

Last modified 10/04/04

## UAB Graduate School

### Genetics (Ph.D.)

Graduate program director: *Elgavish, Ada, Ph.D.*

### Primary Faculty

**Dan Bullard**, Associate Professor (Genetics); Genetic analysis of adhesion molecules

**Andrew J. Carroll, III**, Professor (Genetics); Cancer Cytogenetics, Chromosome Polymorphisms, Clinical Cytogenetics

**Samuel C. Cartner**, Associate Professor (Genetics)

**Paula Cosper**, Associate Professor (Genetics); Cell Culture, Prenatal Detection of Genetic Disorders, Clinical Cytogenetics

**Maria Descartes**, Associate Professor (Pediatrics); Molecular Genetics, Fragile X Studies, Clinical Genetics

**Kevin F. Dybvig**, Professor (Genetics); Molecular Biology and Genetics of Mycoplasmal Diseases

**Ada Elgavish**, Associate Professor (Genetics); Molecular mechanisms underlying progression to advanced prostate cancer

**Sara C. Finley**, Professor Emerita (Pediatrics); Association of cytogenetic findings with clinical manifestations

**Wayne H. Finley**, Professor Emeritus (Pediatrics); Human Chromosome Aberrations and their Detection

**Ken-ichiro Fukuchi**, Associate Professor (Genetics); Alzheimer's disease

**Lauretta W. Gerrity**, Professor (Genetics); Mammalian development and animal models

**John Hartman**, Assistant Professor (Genetics)

**Bob A. Kesterson**, Assistant Professor (Genetics); Hypothalamic control of feeding behavior

**Bruce R. Korf**, Professor (Genetics); Neurofibromatosis Type 1

**J. Russell Lindsey**; Mechanisms of antimycoplasma defenses; rodent diseases

**Edward J. Lose**, Assistant Professor (Genetics); Clinical Genetics, Dysmorphology

**Ludwine Messiaen**, Professor (Genetics); Molecular genetics testing in hereditary disorders

**Nathaniel H. Robin**, Associate Professor (Genetics); Ethical issues in genetic testing and genetic research; Understanding the phenotypic consequence of genetics alterations

**Trenton R. Schoeb**, Professor (Genetics); Pathology and phenotyping of mutant mice; gnotobiotic mouse models of chronic inflammatory diseases

**Philip A. Wood**, Professor (Genetics); Genetics of fatty acid oxidation diseases

## Secondary Faculty

**David Allison**, Professor (Public Health); Obesity, quantitative genetics, clinical trials, and statistical research methodology

**Stephen Barnes**, Professor (Pharmacology/Toxicology); Bile acids and Isoflavonoids

**David M. Bedwell**, Professor (Microbiology); Gene Regulation

**Joseph Biggio**, Assistant Professor (Medicine)

**Joseph Bloomer**, Professor (Medicine - Gastroenterology); Porphyria, Genetics

**Peter Burrows**, Professor (Microbiology); Development of B lymphocytes

**David T. Curiel**, Professor (Medicine - Division of Human Gene Therapy); Development of vector systems for the achievement of targeted, cell-specific gene delivery

**Robert Diasio**, Professor (Pharmacology/Toxicology); Pharmacogenomics & Toxicogenomics

**Peter Emanuel**, Professor (Medicine); Hematology/Oncology

**Rodney C. P. Go**, Professor (Epidemiology and International Medicine); Genetic analysis of complex diseases

**Lisa Guay-Woodford**, Professor (Genetic & Translational Medicine); Molecular genetic determinants of polycystic kidney disease

**Richard Kaslow**, Professor (Epidemiology); Immunogenetics

**Robert Kimberly**, Professor (Medicine - Immunology/Rheumatology); Various forms of connective tissue disease, i.e. rheumatoid arthritis, systemic lupus erythematosus, scleroderma, dermatomyositis, polymyositis, and vasculitis (Wegener's granulomatosis, etc.), fibromyalgia, and osteoporosis

**Christopher Klug**, Assistant Professor (Microbiology); Hematopoietic stem cell development

**William J. Koopman**, Professor/Chair (Medicine);

**Ling Li**, Assistant Professor (Medicine - Gerontology & Geriatric); GeneticsConnections between cardiovascular disease and Alzheimer's disease using molecular, cellular, and transgenic animal technologies

**Guillermo Marqués**, Assistant Professor (Cell Biology); Developmental and adult synaptic plasticity, regulation of gene expression during nervous system development, cell signaling and signal transduction by the TGF- $\beta$ /BMP pathway in neurons

**Alan Percy**, Professor (Pediatrics ); Rett Syndrome

**Douglas Ruden**, Associate Professor (Environmental Health Sciences); Dominant Mutations that Affect EGF-R Signal transduction, Development and toxicity of Drosophila

**Michael Ruppert**, Associate Professor (Medicine); Hematology/Oncology

**Susan M. Lobo Ruppert**, Assistant Professor (Medicine); Hematology/ Oncology

**S. Lane Rutledge**, Associate Professor (Pediatrics); Inborn errors of metabolism

**Harry Schroeder**, Professor (Medicine); Immunology that focuses on the genetics of immune diseases -- specifically, genetic conditions that lead to increased susceptibility to infection

**Eric Sorscher**, Professor (Medicine); Cystic Fibrosis

**Theresa V. Strong**, Associate Professor (Medicine - Hematology & Oncology); Gene therapy and cancer and inherited disease

**Tim Townes**, Professor (Biochemistry and Molecular Genetics); Developmental Regulation of Gene Expression

**Katharine D. Wenstrom**, Professor (Obstetrics and Gynecology); Ultrasonography, fetal surgery, genetics

**Scott Wilson**, Assistant Professor (Neurobiology ); Mouse models of neurodegeneration

**Brad Yoder**, Associate Professor (Cell Biology); Pathogenesis of polycystic kidney disease

## Program Information

The Graduate Program in the Department of Genetics, leading to a Ph.D. degree, provides training in modern genetics to prepare students for independent and innovative careers in research and training. The Program emphasizes a broad approach to the fundamental principles of genetics, development and molecular biology combined with extensive research training. The Program is based on close day-to-day interaction between students and faculty, both in the classroom and the laboratory. The research interests of our faculty span the fields of genetics, cell biology, molecular and developmental biology. Modern molecular approaches are used to study gene structure, expression and function in diverse experimental systems from humans and mice to bacteria. The Graduate Program in Genetics is also designed to permit close interaction between graduate students,



postdoctoral fellows and faculty, while also encouraging full participation in the larger community of biological scientists at UAB. Students accepted to this program should desire careers in genetic research.

Admission to the program requires a bachelor's degree or equivalent in biology, chemistry, or genetics. Potential students are encouraged to take undergraduate courses in inorganic and organic chemistry, embryology, genetics, physics, physical chemistry, calculus, and statistics. Applications for admission are reviewed by the Genetics Graduate Committee. Acceptance to the program is based on general Graduate School admission criteria and a personal interview, if possible.

Core courses in the curriculum include basic biomedical sciences (biochemistry, cell biology, physiology, genetics), advanced genetics, statistics, as well as weekly journal clubs and seminars. Each student rotates through three research laboratories before choosing a thesis mentor. Each student's graduate advisory committee decides on required tools of research, which may include specific methodology, computer understanding, and appropriate elective courses.

## Additional Information

For detailed information, contact Dr. Ada Elgavish, UAB Medical Genetics graduate program director, Kaul Genetics Building , Room 334, 720 20 th Street South, Birmingham, AL 35294-0024.

Telephone 205-934-6547

E-mail [aelgavis@uab.edu](mailto:aelgavis@uab.edu)

Web site: <http://138.26.45.17/Education/Graduate/GradProgram.htm>

## Course Descriptions

A few examples of the courses available in the Department of Genetics are given below.

### Genetics (MGE)

**MGE 700: Advanced Human Genetics.** Course master: Dr. Daniel Bullard. (3 credit hours) This course is given throughout the second year. The main objective of the course is to provide students with in-depth knowledge of genetics, genomics, and molecular biology, with an emphasis on the use of these tools to investigate the basis of human disease

**MGE 704: Medical Genetics.** Course master: Dr. Paula Cospers (2 credit hours). The course is designed to familiarize students with the principles underlying several areas of medical genetics (Cytogenetics, Prenatal Genetics, Genetics Counseling, Medical Genomics), to allow students to attend clinics in each of these areas, to observe laboratory techniques used for various diagnostic procedures, to participate in the weekly Clinical Chart Conference and give case presentations

**MGE 702: Grant Proposal Writing.** Course masters: Drs. Philip A. Wood and Trenton Schoeb (1 credit hour) Students will be taught the main parts of an NIH grant proposal. Writing the respective parts will be assigned as homework. Basic knowledge and experience needed for appropriate selection and use of animals in contemporary biomedical research will also be taught. This will include animal biology, model selection, husbandry standards, disease prevention, technical methods and regulatory requirements for humane use of animals in biomedical research. Selected faculty members will discuss and analyze with the students success and failure grant application stories.

**MGE 701: Basic Statistics.** Course master: Dr. Ada Elgavish. (3 credit hours) To provide understanding and a working knowledge of the basic approach to the conduct of research. Specifically, the course is designed to familiarize students with data collection and management, computer analysis of data using selected statistical tests.

**MGE 780: Department of Genetics Seminar.** Course master: Dr. Dan Bullard. (1 credit hour) Faculty and students from our department as well as others meet once a week at the Department of Genetics Seminar. This is a forum in which invited speakers from other institutions, as well as our faculty members, postdoctoral fellows and advanced graduate students present and discuss their research.

**MGE785: Department of Genetics Journal Club.** Course master: Dr. Philip A Wood. (1 credit hour). Faculty and students from our department as well as others meet once a week at the Journal Club. This is a forum in which faculty members, postdoctoral fellows as well as graduate students, including first year graduate students, present recent papers on a variety of topics related to genomics.

**MGE 798: Laboratory Rotations.** This is the official course designation for research rotations. Rotations, each 8 weeks long, expose graduate students to research carried out in different laboratories with the objective of learning a variety of approaches and techniques. Rotations have the added advantage of facilitating the choice of a mentor that fits the student's personal goals.

**MGE 799. Doctoral Dissertation Research.** Prerequisite: Admission to candidacy. 1-6 hours.

Last modified 9/15/04

## UAB Graduate School

### Gerontology

Director, Gerontology Education Program: *Sawyer*

### Faculty

**Allman, Richard M.**, Professor (Medicine); Director, Birmingham/Atlanta VA Geriatric, Research, Education, and Clinical Center (GRECC); Mobility impairment and its Complications; Geriatric Care Quality Improvement

**Ball, Karlene**, Professor (Psychology); Clinical Science/Patient-Oriented Research; Health Services Research; Mobility Impairment and Its Complications

**Bamman, Marcias**, Assistant Professor (Education); Basic Biomedical Science Research; Musculoskeletal Disease; Atherosclerosis and Aging

**Drentea, Patricia**, Assistant Professor (Sociology); Socioeconomic Aspects of Aging, Health and Disability, and Work and Family, Research Methods

**Galvin, Melissa**; Assistant Professor (Health Behavior); Community-Based Interventions, Health Promotion

**Ghanta, Vithal K.**; Professor (Biology); Tumor Immunology, Aging and Immune System

**Grabowski, David**; Assistant Professor (Health Care Organization and Policy); Long-Term Care, Economics of Aging, Health Policy

**Sawyer, Patricia L.**, Assistant Professor (Sociology); Gerontology, Medical Sociology, Minority Aging

**Shewchuk, Richard M.**; Associate Professor (Health Services Administration); Health and Long-Term Care Issues in Aging

**Wadley, Virginia**; Research Assistant Professor Psychology); Cognition and Mobility, Dementia Caregiving, Loss of Capacity in Alzheimer's Disease

### Program Information

The Gerontology Education Program was established in 1980 through the cooperative efforts of the School of Social and Behavioral Sciences and the Center for Aging. Since that time, the program has expanded considerably and offers diverse academic opportunities. Students have

access to a number of faculty members from multiple disciplines who bring research and academic expertise to the study of aging and the aged.

The Gerontology Education Program offers multidisciplinary academic courses in gerontology leading to a graduate certificate. The study of gerontology at these levels is designed to provide people educated in various disciplines with the background needed to work in programs related to aging and the aged. The main goals are to provide students with a thorough background in existing theory and research in gerontology, and a supplement to their existing backgrounds and professional disciplines. We have designed the program to prepare students for leadership roles in this field of growing importance for both the private and public sectors. Our program's curriculum integrates research, theory, and practice. Its multidisciplinary approach reflects the urban mission of UAB.

The program office is located at the UAB Center for Aging. This academic program is administered by the Director of the Gerontology Education Program, who also serves as Chair of the Guidance Committee on Graduate and Undergraduate Education in Gerontology. This committee is made up of representatives of academic departments and schools throughout the UAB campus active in the study of aging and the aged. The multidisciplinary gerontology program is offered to all UAB students in good standing with the sponsorship and support of the School of Social and Behavioral Sciences, the School of Health Related Professions, and the Center for Aging.

## **Student Admissions and Advisement**

Although general advisement is handled through UAB student advising and parent departments, student advisement in gerontology is handled formally by the Director of the Gerontology Education Program. The director facilitates student advisement with other members of the Committee on Graduate and Undergraduate Education in Gerontology.

A graduate specialty is offered to students who want a special emphasis in gerontology or geriatrics. The major objective of this specialization is to provide a strong academic background for professional careers in academic and aging-related settings. There are two avenues for undertaking the graduate gerontology certificate requirements. Students in good standing in the graduate school can specialize in gerontology through their primary department. Letters of application also are accepted from students who have already completed requirements for an advanced or professional degree.

Students not currently enrolled in a graduate program at UAB may petition the university for nondegree admission status. Once accepted, the student can undertake a course of study to receive a graduate certificate upon completion of the required sequence of classes.

A careful review of proposed curriculum is recommended before the

student enrolls for gerontology study. This will give students an opportunity to receive initial advisement while reviewing available study plans and course schedules.

## Requirements

Students must complete at least 15 credit hours of graduate-level work in gerontology or geriatrics, achieving a grade of B or better in each course. The curriculum consists of a required multidisciplinary course offered through the graduate school (GRD 600), three gerontology electives chosen from a roster of courses approved by the Committee on Graduate and Undergraduate Education in Gerontology, and a required research project or a relevant internship. To ensure a multidisciplinary perspective, courses must represent at least two departments.

## Additional Information

For detailed information, contact Dr. Patricia L. Sawyer, Director, UAB Gerontology Education Program, Center for Aging, Room 201-E1, 933 19th Street South, Birmingham, AL 35294-2041.

Telephone 205-934-4399

Fax 205-934-7354

E-mail [psawyer@uab.edu](mailto:psawyer@uab.edu)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Gerontology (GER)

#### Required Course

GRD 600. **Core Issues in Aging.** A multidisciplinary approach will be used to consider dimensions of the aging process. This course explores individual and societal meanings of aging and old age through the study of the biological, psychological, and sociological changes accompanying aging as well as current issues and controversies in the study of aging.

## Electives

540. **Biology of Aging.** Current understanding of aging, measuring aging changes, theories of aging, and aging changes in various human systems. Prerequisite: BY 101 or permission of instructor. Additional requirements for graduate credit: discretion of instructor.

590. **Seminar in Gerontological Substantive Areas.** Individually designed research agendas for students wishing to conduct semi-independent research or guided reading in social gerontology. Prerequisite: Permission of instructor. 1-3 hours.

595. **Independent Study in Long-Term Care.** Individually designed research agendas for students wishing to conduct semi-independent research or guided reading in long-term care. Prerequisite: Permission of instructor. 1-3 hours.

611. **Managed Care.** Explores the organization and management of alternative health care delivery systems. Emphasis is placed on understanding the position these new organizational forms have in the U.S. health care system. The focus of the course is on organizations providing managed, ambulatory, and long-term care.

624. **Multidisciplinary Research in Aging Colloquium.** Discussion of current research in selected aspects of aging-related studies. Speakers are chosen to reflect the variety of scientific disciplines conducting inquiry on the theme.

638 & 738. **Geriatrics and Gerontology Interdisciplinary Core Curriculum.** The UAB Geriatrics Education Center coordinates the curriculum, consisting of lectures on the multidisciplinary treatment of health and aging issues.

643. **Long-Term Care Administration.** Seminar analysis of effect of chronic conditions and aging on delivery of health services; nursing homes and alternatives, mental health facilities and agencies; rehabilitation facilities and services. Field trips and individual research projects.

655. **Minority Aging.** Cross-racial and -ethnic exploration on national level of some special problems of minority aged groups, such as Latinos, Blacks, Chinese, Japanese, Koreans, Pacific Asians, and American Indians. Discussions focus on family, church, health care, housing, adult education, retirement, income, and recreation.

665. **Geriatric Rehabilitation for the Health Professional.** Rehabilitation of the elderly person from the perspective of age-related changes, the impact of selected functional problems, psychosocial aspects of decreasing function, personal and environmental adaptations, and the continuing autonomy of the individual.

HCO 680. **Ageing Policy.** Providing for the physical and economic well-being of the aging population is a continual challenge facing society. This course will discuss factors that shape public policy affecting the elderly in the U. S. and other developed countries. Basic statistics or the equivalent is a prerequisite for this course.

OT 688. **The Occupation of Caregiving: Caring for Older Adults.** Review social trends, programmatic initiatives, current research and policy implications. Students will gain a broad knowledge of the interplay between disease characteristics and needs for care. Permission of instructor. 2 hours.

691, 791. **Seminar in Gerontological Substantive Areas.** Individually designed research agendas for students wishing to conduct semi-independent research or guided reading in social gerontology. Prerequisite: Permission of instructor. 1-3 hours.

HCO 720. **Health Insurance and Managed Care.** Insurance as mechanism for dealing with consequences of an uncertain world. Health insurance and its consequences as significant reasons health care markets differ from others. Workings of insurance markets and current policy issues. Demand for health insurance, underwriting, rate making, moral hazard and adverse selection, HMOs and PPOs, employer health benefits and self insurance, Medicare and Medicaid, long-term care insurance and catastrophic coverage. Prerequisite: HCO 601 or equivalent.

734. **International Medical Sociology.** Cross-cultural, comparative analysis of health and health care delivery systems in both industrialized and developing countries.

755. **Race and Ethnic Relations.** Income inequality, school and residential segregation, intermarriage and interracial crime.

759. **Social Gerontology.** Consideration of some of the structural and behavioral implications of older adulthood in American society. Included will be such topics as the relationship of the aged to political, economic, educational, medical, religious, and other structures in society.

769. **Sociology of the Life Cycle.** Consideration of sociological orientations to the life course.

777. **Demography of Health and Aging.** Demographic processes such as mortality, morbidity, disability, migration, and fertility and how each influences the number and proportion of the elderly, how these processes shape the age-sex structure of our population, and the demographic characteristics of older people.

779. **Medical Demography.** An examination of clinical, epidemiological, and sociological designs to investigate the effects of morbidity, disability, and mortality processes on human populations.

780. **Medical Sociology.** Theory and research in medical sociology; systematic overview of relevant literature.

781. **Sociology of Health.** Subjective experience of illness; predictions of health behavior; social networks and health.

785. **Psychology of Aging.** Age differences in perception, memory, intelligence, personality, adjustment, and psychopathology.

788. **Social Medicine.** Socioenvironmental factors in etiology of disease; social movements and health policy; medical ethics and broad ethical issues; place of societal science in medical care.

796. **Research Seminar Health and Aging.** Organized around a methods theme with lectures focusing on conducting social research, gaining access to research settings and getting started, writing grant applications, presenting papers at professional meetings, and thesis and dissertation proposal writing. Half of each class consists of lectures on developing research agendas. The other half of each class entails student presentation of developing research activities.

Last modified 12/10/04



## UAB Graduate School

### Graduate School Professional Development Program

Program director: *Austin*

## Faculty

**Nancy G. Abney**; English as a Second Language, TA Training

**Julia S. Austin**; English as a Second Language, Faculty-Teacher Development, Technical Writing, TA Training

**Jan Baird**; Technical Writing, TA Training

**James McClintock**; Career Development, Extramural Funding

## Program Information

These courses and workshops are offered to improve the academic and professional communication skills of graduate students and to provide language and cultural support for international graduate students.

## Additional Information

For detailed information, contact Dr. Julia S. Austin, HUC 511, 1530 3rd Avenue South, Birmingham, Alabama 35294-1150.

Telephone 205-975-6539

E-mail [jaustin@uab.edu](mailto:jaustin@uab.edu)

Web [www.uab.edu/profdev](http://www.uab.edu/profdev)

## Course Descriptions

### Graduate School (GRD)

**700. Culture and Speaking in the U.S.** Improves listening and speaking skills of nonnative English speakers in informal and academic settings. Fall. Pass/Fail. (International students).

**701. Presentation and Discussion Skills.** Develops professional communication skills, including public speaking skills, conversation management, register shifting, and overall comprehensibility. Videotaped presentations critiqued individually by instructor. Spring. Pass/Fail.

702. **Writing Up Research.** Prepares students to write academic and professional discourse, including experiment-based reports, summaries, critical reviews, and proposals. Workshop-discussion format. Fall, Pass/Fail. (International students).

703. **Style and Grammar.** Addresses issues of style and grammar as they relate to writing. Workshop-discussion format. Summer. Pass/Fail. (international students)

704. **Specialized Instruction.** Addresses particular writing needs of students actively writing theses, dissertations, articles for publication, grant proposals or pronunciation concerns of second language students. Individual instruction. Prerequisite: Permission of program director. Every semester. 1-9 hours. Pass/Fail.

705. **Teaching at the College Level and Beyond.** Introduces many of the basic principles needed to teach effectively at the college level and addresses current issues relevant to college teaching. Topics include creating a learning environment, course and syllabus design, effective lecturing, active learning approaches, evaluation and grading, and using technology to enhance learning. Spring. 2 or 3 credit hours. Pass/Fail.

709. **Fellowship Writing.** Provides hands-on assistance with preparation of a fellowship or grant application. Participants are introduced to ways to search for funding sources, then locate an appropriate source and complete the application. Spring. 3 credit hours. Pass/Fail.

712. **Research Writing and Style.** Teaches effective strategies of successful writers. Topics include the different types of writing that students and professionals do (such as abstracts, proposals, journal articles, progress reports, and correspondence), publishing, and ethical issues related to writing and publication. Summer. 3 credit hours. Pass/Fail.

715. **Preparing TAs to be Effective Teachers.** Prepares teaching assistants to meet the educational needs of undergraduate students by developing effective teaching practices. Topics include preparing to teach, presenting material effectively, handling questions, handling difficult students and situations, leading laboratory sections, and ethical issues related to teaching. Fall. 2 or 3 credit hours. Pass/Fail.

717. **Principles of Scientific Integrity.** Surveys ethical issues and principles in the practice of science. Fall and May. 3 credit hours. Pass/Fail.

720. **Effective Communication Skills.** Helps students develop communicative competence by practicing various tasks, functions, and methods of effective oral communication, including both the verbal and nonverbal aspects of communication. Nonverbal messages, for example, can conflict with verbal messages, making it particularly difficult to communicate. Fall. 3 credit hours. Pass/Fail.

721. **Speaking and Listening Strategies.** Helps students enhance their oral communication by identifying and practicing effective strategies for listening, speaking, and overall language development. This class offers suggested strategies for participating in discussions and conversations (i.e., getting a word in edgewise) and for improving both verbal production and comprehension by learning intonation patterns. Asking for and giving clarification and appropriate feedback are also discussed in this course on verbal communication in English. Spring. 3 credit hours. Pass/Fail.

722. **Discovering Language Through Culture.** Explores American culture as a means of understanding and practicing English in different contexts for a variety of purposes in order to improve cross-cultural communication. The language is an outgrowth of the culture, and both are in constant flux. Nevertheless, knowing certain cultural and linguistic norms can make learning the finer points of English a bit easier. Summer. 3 credit hours. Pass/Fail.

## **Workshops**

706. **Grants and Fellowships 101.** Introduces the extramural funding process. Topics include types of awards, funding sources, components of an application, the review process, and writing effective grant proposals. Fall. One-day workshop. 1 credit hour. Pass/Fail.

707. **Presenting Effectively.** Provides an overview of giving effective oral presentations in academic and professional settings. Topics include analyzing audience and purpose, characteristics of an effective delivery, giving poster presentations, adjusting to lay audiences, and using technology in presentations. May. One-day workshop. 1 credit hour. Pass/Fail.

708. **Writing Successfully.** Addresses issues involved in writing in academic and professional settings. Topics include analyzing audience and purpose, addressing common writing problems, developing effective writing practices, writing for publication, adjusting text for lay readers, and grammar and punctuation for writers. Spring. One-day workshop. 1 credit hour. Pass/Fail.

710. **Career Workshops for Graduate Students.** Teaches the skills required for a successful job hunt inside or outside academe. Spring. One-day workshop. 1 credit hour. Pass/Fail.

711. **Special Topics.** Workshop topics include Intercultural Communication and Word Processing for Theses and Dissertations. See UAB Class Schedule for offerings. 1 credit hour. Pass/Fail.

Last modified 11/11/04

## UAB Graduate School

### Health Administration (M.S.H.A.)

Graduate program director: *O'Connor*

### Primary Faculty

**Eta Berner**, Professor (Health Services Administration); Health Informatics

**Jeffrey Burkhardt**, Associate Professor (Health Services Administration); Health Care Finance

**Randa Hall**, Instructor (Health Services Administration); Medical Practice Management

**S. Robert Hernandez**, Professor (Health Services Administration); Health Services Administration, Organization Theory, Organizational Assessment, Health Planning

**Tee H. Hiatt**, Professor Emeritus (Health Services Administration); Quantitative Methods, Information Systems, Teaching Methods

**Howard W. Houser**, Professor (Health Services Administration); Health Services Administration, International Health, Public Policy

**Stephen J. O'Connor**, Professor (Health Services Administration); Governing Boards, Medical Staff Relations, Organization Behavior, Human Resources Management

**Helmuth Orthner**, Professor (Health Services Administration); Health Informatics

**Maria Pisu**, Assistant Professor (Health Services Administration) Health Services Research

**Jose B. Quintana**, Assistant Professor (Health Services Administration); Outcomes in Production of Health

**Richard M. Shewchuk**, Professor (Health Services Administration); Health Issues in Aging, Quantitative Methods

**Detlev H. (Herb) Smaltz**, Associate Professor (Health Services Administration); Health Informatics

**Norman W. Weissman**, Professor (Health Services Administration); Technology Assessment, Health Services Research

## Secondary Faculty

Bowers, Donkersloot, Duncan, Fos, Gainer, Ginter, Grimley, Hamilton, McWilliams, Moon, Morrissey, Nowak, Patterson, Phillips, Powers, Ransburg-Brown, Sanders, Van Matre, Waldrum.

## Program Information

The Master of Science in Health Administration (M.S.H.A.) program, accredited by the Commission on Accreditation of Healthcare Management Education, trains executives for health services organizations. The program has graduated more than 900 persons since 1965.

Students must complete 20 graduate courses on campus and a 12-month administrative residency in a health care organization. An on-line capstone course is also completed during the residency. Seventeen core courses and four elective courses are required. Students begin in the fall term and complete coursework in 16 months. Coursework is followed by the residency.

Complete applications for fall entry are due no later than the preceding March 1. Since admission to the M.S.H.A. program is very competitive, early application is encouraged.

## M.S.H.A.-M.B.A., M.S.H.A.-M.S.H.I. Coordinated Degrees

Students wishing to pursue simultaneously the Master of Science in Health Administration (M.S.H.A.) and the Master of Business Administration (M.B.A.) degrees must complete 28 graduate courses, including 4 electives. Students seeking to complete the Master of Science in Health Administration (M.S.H.A.) and the Master of Science in Health Informatics (M.S.H.I.) must complete 27 graduate courses. A 12-month administrative residency in a health services organization is required for completion of the M.S.H.A. program. A student who enters a coordinated program, but subsequently decides to pursue only one of the degrees, must satisfy all the requirements for the degree sought.

## Application Information

Applicants to the M.S.H.A., M.S.H.A.-M.B.A, or M.S.H.A.-M.S.H.I. programs must have completed or anticipate completion of at least a baccalaureate degree from a regionally accredited college or university or from a recognized university abroad before entry into the program. Prior to matriculation, students must have completed 3 semester hours of undergraduate statistics with a grade of B or better. In addition, M.S.H.A.-M.B.A. students must have successfully completed three

semester credit hours in calculus.

Application for the M.S.H.A. program should be made to the Admissions Coordinator, Residential Master of Science in Health Administration Program, UAB School of Health Related Professions, Webb 506, 1530 3rd Avenue South, Birmingham, Alabama 35294-3361.

Telephone 205-934-1583

E-mail [msha@uab.edu](mailto:msha@uab.edu)

Web [www.uab.edu/msha](http://www.uab.edu/msha)

## **Additional Information**

For detailed information, contact Admissions Coordinator, Department of Health Services Administration, UAB School of Health Related Professions, Webb 506, 1530 3rd Avenue South, Birmingham, AL 35294-3361.

Telephone 205-934-1583

E-mail [msha@uab.edu](mailto:msha@uab.edu)

Web [www.uab.edu/msha](http://www.uab.edu/msha)

or the UAB Graduate School of Management, BEC 203, 1530 3rd Avenue South, Birmingham, Alabama 35294-4460.

Telephone 205-934-8815

E-mail [kinstler@uab.edu](mailto:kinstler@uab.edu)

Web [www.business.uab.edu](http://www.business.uab.edu)

## **Executive M.S.H.A. Program**

Qualified students can earn the Master of Science in Health Administration (M.S.H.A.) by completing the executive program. This program is open to those with at least 5 years of experience in health care organizations, either as managers or as clinical professionals. Participants in the Executive M.S.H.A. program complete both on-campus and distance-learning activities, and a brief field experience, within 2 years of study.

## **Additional Information**

For detailed information, contact Admissions Coordinator, Department of

Health Services Administration, UAB School of Health Related Professions, Webb 447, 1530 3rd Avenue South, Birmingham, Alabama 35294-3361.

Telephone 205-934-1672

E-mail [sarap@uab.edu](mailto:sarap@uab.edu)

Web [www.uab.edu/msha](http://www.uab.edu/msha)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Health Administration (HA)

**602. Introduction to Health Care Systems.** U.S. health care system. Historical context; systems theory; analysis of organizational components; health services personnel; national, state, and local government roles; financing mechanisms; demography; mortality and morbidity; quality assurance; political issues; and trends in progress. Individual and group projects and field trips (4-credit hours).

**605. Health Policy and Politics in the United States.** Policy-making process in the U.S. Review of forces influencing policy-making, legislative process, and evolution of U.S. health policy.

**609. Managing with Professionals.** Special challenges and opportunities for health services executives in working with physicians and other clinical professionals. Review of professional education and socialization processes and examination of ways to bring together clinical and administrative concerns.

**611. Managed Care.** Examination of factors that will influence direction of managed care in future. Changing relationships among major stakeholders. Broad areas of discussion including market dynamics, product characteristics, reimbursement methodologies, contracting issues, management information systems, government initiatives, legal and ethical issues, and future trends.

**612. Essentials of Health and Human Disease.** Essentials of health and human disease related to normal and abnormal physiology.

**613. Health Law.** Selected legal principles and their application to health field. Legal aspects of corporate liability, medical malpractice, admission and discharge processes, medical staff bylaws, informed consent, nursing, patients' rights, medical records, and governmental regulation of

personnel and health facilities.

**614. Process Improvement.** Customer-driven process involving team and process thinking and application of statistical tools to way in which work is accomplished. Provides knowledge, skills, and tools necessary to implement, facilitate, and coordinate continuous quality improvement activities in health care environments.

**618. Seminar in Health Services Administration.** The purpose of this seminar is to meet MSHA students' needs for exposure to issues and processes beyond the traditional didactic component of the curriculum by providing additional exposure to executives and other leaders in health care. It provides an opportunity to reinforce skills, knowledge, and abilities that will be required if students are to effectively transition into their administrative residency and professional health management practice (1-credit hour).

**620. Health Care Financial Management I.** Application of financial management techniques to decision making for health care providers. Financial management functions and organizations, financial statement analysis, working capital management, present value analysis, capital budgeting, cost of capital, variance analysis, financing techniques, and financial analysis case studies.

**621. Health Care Financial Management II.** Analytical and synthetic aspects of financial management tools. Project method and case studies used to supplement theory.

**623. Application of Health Care Finance Concepts.** Designed to be a "hands-on" project with an area health care oriented Chief Financial Officer that would be a "real world" application of financial tools and techniques for students.

**625. Strategic Planning and Management.** Methods for strategic planning and management of health services organizations. Techniques for determining strategies for unique services; integration of strategy, structure, and administrative systems.

**631. Organization Theory and Behavior.** Introduction to organization theory and behavior with applications to health services organizations. Topics include organization structure, organizational/environmental relationships, organizational performance, power and leadership, attitudes, motivation, communication, and group dynamics.

**632. Quantitative Methods in Health Services Administration.** Selected mathematical, statistical, and computer applications and statistical techniques applied to decision making in hospitals and health services organizations.

**635. Human Resources Management in Health Services Administration.** Human resources management issues, including strategic role of employee selection, appraisal, rewards, and



development, applications to health care sector, labor relations, and unique aspects of labor law relevant to health care organizations.

**638. Microcomputers in Health Services Administration.** Applications of one or more of the major microcomputer software programs. Focus on programs not covered in other courses which are important to health care managers. Optional as independent study course devoted to a particular program of interest. 1-3 hours.

**640. Information Systems and Management Science in Health Services Administration.** Effective use of information and quantitative analysis in clinical care and management decision making in health services organizations. Provides students with sufficient background to communicate effectively with technical personnel and provide general management oversight of information systems within organizations.

**643. Long-term Care Administration.** Seminar analysis of effect of chronic conditions and aging on delivery of health services, nursing homes and alternatives, mental health facilities and agencies, rehabilitation facilities and services. Field trips and individual research projects.

**644. Seminar: Issues in Ambulatory Care and Medical Group Management.** Overview to the field of ambulatory care and physician practice management. Emphasis on outpatient care.

**645. Health Economics.** Economic analysis applied to health services sector; concepts of efficiency applied to production and distribution of health services, health insurance, government programs, health care personnel and health services organizations; current public policy issues; emphasis on student application of economic principles to health care issues.

**655. Seminar: Synthesis of Health Services Administration.** Case method and problem-solving applications. Integration of materials presented during previous academic coursework.

**661. Seminar: Social Issues in Health Services Administration.** Social issues confronting and influencing health care delivery systems, maximum student participation in research and conduct of seminar, optional individual research project.

**671. Health Care Marketing.** Introductory survey of marketing concepts as applied to health services organizations. Consumer behavior, market segmentation, target marketing, marketing research, management, and control of marketing mix variables. (Also MBA 671).

**672. Health Care Entrepreneurship.** Overview of the principle components of health care entrepreneurship, including business planning, raising funds, and the entrepreneurial process. Special attention will be given to developing entrepreneurial activity and promoting innovation in existing health care organizations

(intrapreneurial ventures).

\*690. Administrative Residency.

Last modified 10/01/04

## UAB Graduate School

### Health Informatics (M.S.H.I.)

Graduate program director: *Orthner*

### Core Faculty

**Eta S. Berner**, Ed.D. Professor (Health Services Administration)

**Helmuth F. Orthner**, Ph.D., Professor (Health Services Administration)

**Detlev H. Smaltz**, Ph.D., Associate Professor (Health Services Administration)

### Other Participating Faculty

**Jeffrey H. Burkhardt**, Ph.D., Associate Professor (Health Services Administration)

**Dongquan Chen**, Ph.D., Research Assistant Professor (Health Services Administration)

**Kay Clements**, M.A., Associate Professor (Health Services Administration)

**Gerald L. Glandon**, Ph.D., Professor and Chair (Health Services Administration)

**Beverly Golightly**, M.S.H.A., Credit Course Instructor (Health Services Administration)

**Gary J. Grimes**, Ph.D., Professor (Electrical and Computer Engineering)

**Sara S. Grostick**, M.A., Associate Professor (Health Services Administration)

**Randa Smith Hall**, M.S.H.A., Assistant Professor (Health Services Administration)

**J. Michael Hardin**, Ph.D., Credit Course Instructor (Health

Services Administration)

**S. Robert Hernandez**, Ph.D., Professor (Health Services Administration)

**Terrell W. Herzig**, M.S.H.I., Credit Course Instructor (Health Services Administration)

**Joan C. Hicks**, M.S.H.I., Assistant Professor (Health Services Administration)

**Tee H. Hiatt**, Ph.D., Professor Emeritus (Health Services Administration)

**Howard W. Houser**, Ph.D., Professor (Health Services Administration)

**Shannon Houser**, Ph.D., Assistant Professor (Health Services Administration)

**Thomas K. Houston, II**, M.D., Assistant Professor (Medicine, General/Internal)

**Stephen A. Moser**, Ph.D., Associate Professor (Pathology/Microbiology)

**Stephen J. O'Connor**, Ph.D., Professor (Health Services Administration)

**Pamela E. Paustian**, M.S.M., Assistant Professor (Health Services Administration)

**Craig C. Pearson**, M.S.H.I., Credit Course Instructor (Health Services Administration)

**M. Paige Powell**, Ph.D., Assistant Professor (Health Services Administration)

**T. Scott Plutchak**, M.A., Associate Professor (Lister Hill Library of the Health Sciences)

**Midge N. Ray**, M.Ed., Associate Professor (Health Services Administration)

**Randal H. Robertson**, Ph.D., Associate Professor (Health

Services Administration)

**Tommy J. Sanders**, M.S.H.A, Credit Course Instructor (Health Services Administration)

**Richard M. Shewchuk**, Ph.D., Professor (Health Services Administration)

**Donna J. Slovensky**, Ph.D., Professor (Health Services Administration)

**Thomas E. Terndrup**, M.D., Professor (Emergency Medicine)

**William A. Terrell**, Credit Course Instructor (Health Services Administration)

**Michael R. Waldrum**, M.D., Associate Professor (Internal Medicine/Pulmonary & CCM)

**Norman W. Weissman**, Ph.D., Professor (Health Services Administration)

**Valeria M. Wilson**, M.S.H.I., Instructor (Health Services Administration)

## **Adjunct Faculty**

**David M. Bowen**, Adjunct Professor (Health Services Administration)

**Randy Carpenter**, Adjunct Professor (Health Services Administration)

**Gerri Lynn Frantz**, Adjunct Instructor (Health Services Administration)

**R. David Friday**, Adjunct Instructor (Health Services Administration)

**Glenn G. Hammack**, Adjunct Professor (Health Services Administration)

**Jacqueline W. Kennedy**, Adjunct Professor (Health Services Administration)

**Michael E. McDevitt**, Adjunct Professor (Health Services

Administration)

**Judy G. Ozbolt**, Adjunct Professor (Health Services Administration)

**Susan Z. Pretnar**, Adjunct Instructor (Health Services Administration)

**Harold H. Scott**, Adjunct Professor (Health Services Administration)

**Tim Stettheimer**, Adjunct Professor (Health Services Administration)

## Program Information

### Program Admission

The optimum size of the Health Informatics (HI) program is conditioned by several resource constraints, particularly faculty availability, physical space, and staff support. The maximum size of each entering class should be approximately 20 to 25 students. However, because most students in the HI program are part-time, it is anticipated that the program enrollment may be larger.

Admission to the program is usually in the fall semester. Application to the program may be made in September through April 30, preceding the expected date of enrollment for the next fall term. Applications received after April 30 are considered on a space-available basis. Applications are evaluated against the Graduate School criteria and those criteria developed specifically for the HI program.

### Admission Requirements

Admission to the program requires acceptance to the Graduate School of The University of Alabama at Birmingham. Applicants must have completed or anticipate completion of at least a baccalaureate degree from a regionally accredited college or university or from a recognized university abroad before entering the program. As a criterion for unconditional admission, applicants must have no less than a B GPA (3.0 on a 4.0 scale) for the last 60 semester hours of earned undergraduate credit or overall undergraduate credit or overall undergraduate hours. Official transcripts of all previous academic work beyond the

secondary level should be submitted. If you are still in school, a transcript showing the first three years of undergraduate work is acceptable; you need not delay your application until the first semester (or quarter) that grades of your final year are available. Before matriculation, entering students must have received a final transcript for each degree received.

All applicants, except those holding a professional doctoral degree (e.g., M.D., J.D., D.D.S.) from a U.S. accredited school, must submit scores for a standardized admission test. Scores for the general test of the Miller Analogies Test (MAT), the Graduate Record Examination (GRE), or the Graduate Management Admission Test (GMAT) are acceptable. A score of 50 on the MAT, a combined score of at least 1000 on the two sections (verbal, and quantitative) of the GRE or a score of at least 480 on the GMAT is required for unconditional admission.

The applicant should include a carefully drafted statement about his or her personal interests, career goals, and relevant background experience.

Three ***confidential*** letters of recommendation from individuals qualified to write concerning your potential success in both a graduate program and in the Health Informatics field must be submitted.

Program applicants should have completed three hours of undergraduate course work in event-driven programming (e.g., Visual Basic, C++, Java) prior to the fall of the student's first year, if planning to enroll full-time, or prior to their second year, if planning to enroll part-time. The Health Informatics Program offers a visual basic course, HI 585, in the summer semester that fulfills this prerequisite.

Admission to the HI program is determined by a consensus of the Admissions Committee. The decision is based on previous academic record, standardized admission test scores, professional recommendations, and evidence of ability to perform graduate-level work. The program director reserves the prerogative for final recommendation on admission status to the Graduate School.

## **Additional Information**

For detailed information, contact Master of Science in Health Informatics Program, UAB School of Health Related

Professions, Webb 532; physical address: 1675 University Blvd.; mailing address: 1530 3rd Avenue South, Birmingham, AL 35294-3361

Telephone 205-934-3509

Fax 205-975-6608

E-mail [mshi@uab.edu](mailto:mshi@uab.edu)

## Course Descriptions

Note: The curriculum consists of eleven (11) Core Courses, an Administrative Internship (or a Thesis Project or a Non-thesis Project) and 13 credit hours of elective credit for a total program of 60 semester credit hours. Elective courses are identified by (E) at the end of the course title in the following course list.

### Health Informatics (HI)

**585. Making the Computer Work for You: An Introduction to VBA and Visual Basic.** Applications in Visual Basic for Applications (VBA) and Visual Basic development; concepts of rapid prototyping for building dynamic applications. Microsoft Office tools will be used and integrated with Front Page for Web-enabled environments. Satisfies Computer Prerequisite for HI Program Admission. 3 hours.

**600. Analysis and Design of Health Information Systems.** Requirements, concepts, methods, and tools in analyzing, modeling, and designing health information systems with emphasis on clinical systems. Prerequisites: HI 585 or two undergraduate computer courses including visual programming. 4 hours.

**601. Databases and Data Modeling.** Concepts of data modeling, data architectures, and data administration. Study of various models with application to current health information projects. One hour required weekly in Health Informatics Computer Lab applying database skills. Prerequisite: HI 600 or permission of instructor. 4 hours.

**602. Clinical and Administrative Systems.** Foundations of clinical information use starting with information collection, processing (e.g., decision making) and recording. All aspects of clinical information use in inpatient and outpatient facilities.



Special emphasis on the clinician's work to support enterprise-wide health care delivery. Prerequisites: HI 605, and 640 or permission of instructor. 4 hours.

**605. Communications and Networks.** Architecture of enterprise-wide voice, data, and video communication systems of healthcare organizations and its implications for information systems. Fundamental concepts of local and wide-area networks using various transmission media including copper, glass (optical), and wireless technologies. Transmission and switching components; network security and fault-tolerance; emerging high-speed data access to the Internet. One hour required weekly in Health Informatics Computer Lab applying communication/networking skills. Prerequisites: HI student or permission of instructor. 4 hours.

**610. Health Care Information Resources Management.** Concepts and techniques in health care enterprises for information resources management through case study. Resource allocation, techniques for prioritization and control, project management, system installation, and operational fundamentals for information services. Prerequisites: HI 640 or permission of instructor. 4 hours.

**612. Organizational Behavior and Leadership.** Systematic examination of human behavior in organizational settings with special application to health care organizations. Emphasis on study of individuals and small groups; personality, perception, attitudes, motivation, communication, and leadership. Case discussions and textbook readings. Prerequisite: Permission of instructor. 3 hours.

**615. Administrative and Clinical Decision Support Systems.** Examination of the role of information systems in supporting administrative and clinical decision-making in health care enterprises. Case studies of the design and use of computer-based decision support and modeling systems. Prerequisites: HI 640 and or permission of instructor. 3 hours.

**616. Knowledge Discovery and Data Mining (E).** Concepts and strategies for the design, development, and implementation of data warehouses and repositories to enable their exploitation by knowledge discovery and data mining technologies. Various models of data warehouse and repository design, and of the various methodologies associated with data mining and machine learning. Applications are made to the healthcare

organization. Prerequisites: HI 615 and advanced statistics, or computer science course work, or permission of instructor. 3 hours.

**620. Security and Privacy in Health Care.** Security and privacy issues, legislation, regulations, and accreditation standards unique to health care domain. Technical security of networks, databases, audit mechanisms and control. Prerequisites: HI 602, 605, and 640, or permission of instructor. 3 hours.

**622. Financial Management for Health Professionals.** Financial statements, cost allocation, capital budgeting, time value analysis, reimbursement, financial risk and return, long-term debt financing, capital structure, cost of capital, and analysis of financial performance. Prerequisite: Graduate level health profession student or permission of instructor. 3 hours.

**630. Strategic Planning and Contracting for Health Information Systems.** Theory, practice, and processes needed for strategic planning of integrated health information systems. Assessing benefits of enterprise-wide information integration and tactics needed to realize these benefits. Steps needed for developing strategic plans that are aligned with goals of health care institutions using case studies and in team projects. Development of a Request for Proposal (RFP) based on strategic plans. Critique and practice of skills needed to negotiate contracts with vendors. Prerequisites: HI 600, 601, 602, 605, and 640, or permission of instructor. 4 hours.

**632. Quantitative Methods.** Selected mathematical, statistical, and computer applications and statistical techniques applied to decision making in hospitals and health care organizations. Prerequisite: HI student or permission of instructor. 3 hours.

**640. Introduction to Health Informatics and Health Care Delivery.** History and current status of information systems in health care and health care information systems. Information architectures, administrative and clinical applications, strategic planning, security, and benefits realization. Prerequisite: Permission of instructor. 3-4 hours.

**HI 644Q. Health Informatics Ethical and Legal Issues. (E)** Overview of major ethical issues in health informatics. Preparation of future informatics leaders in developing a course of action relative to these ethical and legal issues. Forum for

discussion of various viewpoints is provided. Electronic form.  
Prerequisite: permission of instructor. 3 hours

HI 645. **Project Management. (E)** IT project management in a healthcare setting. Formal project management techniques, specific case studies, as well as, organizational dynamics. The course will cover the requirements necessary for formal certification. 3 hours

655. **Synthesis of Health Informatics. (E)** Topics in Health Informatics not covered in other courses. Introductory tutorials and state-of-the-art overviews. How to lead and facilitate discussions of complex health informatics issues and integrate material with remainder of HI program. Prerequisites: HI 600, 601, 602, 605, 620, and 640; or permission of instructor. 3 hours.

692. **History of Health Informatics (E).** Systematic and chronological overview of significant events associated with the development of medical and health informatics and a chronological picture of why and how information technology has been applied to meet problems in medicine and health care delivery. Prerequisite: HI 640. 3 hours.

694. **Special Topics in Health Informatics (E).** Study of selected topics in health informatics. May be repeated for credit. 3 hours. Prerequisite: Permission of instructor. 3 hours.

695. **Independent Study in Health Informatics (E).** Opportunity to investigate, perform activities and/or conduct a project related to a narrow topic in Health Informatics that corresponds with the current research of HI faculty, including medical informatics, nursing informatics, computer and communication sciences, library science, etc. May be repeated for credit. Prerequisite: Permission of instructor. 1-4 hours.

HI 696. **Seminar Health Informatics. (E)** Knowledge of key issues in informatics, health care and business is important to the professional development of the health informaticist. Gaining access to the wide variety of resources required to stay abreast of each of these areas is difficult without guidance. This seminar course is offered as a weekly noon discussion group and will cover important topics of interest to health informatics professionals. Each session will consist of a brief presentation followed by a discussion period. 1 credit hour.

**Thesis, Project, or Administrative Internship:** Each student must complete an administrative internship, thesis, or non-thesis research project. Each student, in consultation with Program Faculty, chooses the most appropriate option. Prior to enrolling for the thesis or project, it is recommended that you prepare for it by first enrolling in an independent study to do preparatory research. It is also recommended that you enroll for the thesis or project twice, i.e., 4 credits in one semester, and 4 credits in the following semester to give you ample time to complete your work. **The UAB Graduate School requires that you be enrolled during the semester in which you plan to graduate.**

**690. Administrative Internship.** Structured field experiences in health care or other enterprises associated with health care industry. Includes a mentoring relationship with a preceptor and an opportunity for application of information resource management theory and strategies. Foundation for professional development and assists in refining skills and behaviors necessary for successful practice in a complex professional, social, political, and technological environment. Prerequisite: Permission of Internship Coordinator. 4-8 hours.

**698. Master's Level Non-thesis Research.** Rigorous project that provides opportunity for focused investigation of informatics problem in real-world setting and for application of problems solving methodologies for development and execution of solutions. Investigation and application of theory through practical implementation project. Conducted during Administrative Internship; may be repeated for credit (minimum of 8 credit hours required for graduation). Prerequisite: Permission of instructor. 4-8 hours.

**699. Master's Level Thesis Research.** Original research in health informatics and interpretation of results. Demonstrates student's acquaintance with literature of field and competency in proper selection and execution of research methodology. Recommended for students planning to pursue a doctoral degree. May be repeated for credit (8 hours maximum credit allowed). Prerequisite: Permission of instructor. 4-8 hours.

## **Elective Courses**

The latter should be selected by the student from the following list of recommended elective courses. Other courses require approval of the program director.

HI 616. **Data Mining.** 3 hours.

HI 644Q. **Health Informatics: Ethical & Legal Issues.** 3 hours.

HI 645 **Project Management.** 3 hours.

HI 655. **Synthesis of Health Informatics.** 3 hours.

HI 692. **History of Medical and Health Informatics.** 3 hours.

HI 694. **Special Topics in Health Informatics.** 3 hours.

HI 695. **Independent Study in Health Informatics.** 4 hours.

HI 696. **Seminar Health Informatics.** 1 hour

**Financial Management:** The HI curriculum requires a minimum of one course in financial management (HI 622). Students who plan a career in the fiscal management of health care organizations, or the health care insurance may choose additional courses.

HA 620. **Health Care Financial Management I (E).** Application of financial management techniques to decision making for health care providers. Financial management functions and organizations, financial statement analysis, working capital management, present value analysis, capital budgeting, cost of capital, variance analysis, financing techniques, and financial analysis case studies. 3 hours.

HA 621. **Health Care Financial Management II (E).** Analytical and synthetic aspects of financial management tools. Project method and case studies use to supplement theory. Prerequisite: HA 620. 3 hours.

HCOW 614/MBA 610. **Cost Control for Health Professionals (E).** The purpose of this course is to equip students with the knowledge and skills for the basic financial analysis needed to make decisions for budgeting, investments, leasing, inventory management, and risk return analysis. Prerequisite: Permission of program director. 3 hours.

HCOW 615. **Finance for Health Professionals (E).** Financial management of public health care organizations. Emphasis on time value on money, capital raising methods, cost of capital,

capital budgeting methods and working capital policy. Problem-solving orientation with applications to public health issues. Prerequisite: Permission of program director. 3 hours.

### **Research Methods and Statistics Alternatives:**

Courses in quantitative and qualitative methods and scientific inquiry may be taken from courses offered in Health Services Administration, Biostatistics, or Public Health.

**BST 619. Data Collection and Management (E).** Basic concepts of study design, forms design, quality control, data entry, data management and data analysis. Hands-on experience with data entry systems and data analysis software. 3 hours. Prerequisites: BST 601-602 or consent of instructor. (Fall offering-School of Public Health)

**EPR 607 & 608. Microcomputer Applications to Statistical Analysis-1 credit (607) Use of microcomputers in computations of descriptive statistics and Statistical methods in Research and Education-3 credits (608).** Statistical methods for describing sets of data, differences and relationships infused in an action research paradigm. Included are conceptualizing, implementing action research with computer applications. EPR 607 and 608 must be taken concurrently. (Fall and Spring offering-School of Education)

### **Organizational Behavior alternatives:**

The following options are available for organizational theory/behavior credit and statistics credit respectively:

**HCOW 609. Organizational Concepts Applied to Health Programs.** (Public Health-Fall) 3 hours.

**MPA 661. Administrative Theory and Behavior.** (Social and Behavioral Sciences-Fall) 3 hours.

**MBA 632. Organizational Behavior** (Business-Fall & Spring) 3 hours.

Last modified 10/05/04

## UAB Graduate School

### History (M.A.)

Graduate program director: *McConnell*

#### Faculty

**Carolyn A. Conley**, Professor (History); British and Irish Political and Social History; History of Violence

**Colin J. Davis**, Associate Professor (History); U.S. Labor, Women's Labor History, Social History.

**Jack E. Davis**, Associate Professor (History); Twentieth-Century U.S. Social, Environmental, Southern, Sport.

**Harriet E. Amos Doss**, Associate Professor (History); U.S. Middle Period, Antebellum South, U.S. Social History

**Virginia V. Hamilton**, Professor and University Scholar Emerita (History); Twentieth-Century U.S., The South Since Reconstruction

**Horace Huntley**, Assistant Professor (History); African American History

**Andrew W. Keitt**, Assistant Professor (History); Early Modern Europe, European Cultural and Intellectual, Iberian World

**Daniel R. Lesnick**, Associate Professor (History); Medieval History, Renaissance and Reformation, Italy

**George O. Liber**, Associate Professor (History); Soviet, Post-Soviet, Russian, Eastern European, and Ukraine

**Michael N. McConnell**, Associate Professor (History); Colonial North America, American Revolution, American Indian

**Tennant S. McWilliams**, Professor (History); Recent South, Modern United States, U.S. Foreign Affairs

**Andre J. Millard**, Professor (History); History of Technology, Economic and U.S. Cultural History

**Stephen Miller**, Assistant Professor (History); France; Economic History

**Raymond A. Mohl**, Professor and Chairman (History); U.S., Urban, Social, Ethnic, and Historiography

**Pamela S. Murray**, Associate Professor (History); Latin America, National Period, Colombia

**Daniel E. Spector**, Adjunct Professor (History); The Middle East, China

**James F. Tent**, Professor and University Scholar (History); Modern European History; Germany, Military History, Cold War

**John van Sant**, Assistant Professor (History); Asian History

**Samuel L. Webb**, Associate Professor (History); New South, Alabama, Legal and Constitutional History

### **Secondary Faculty**

Robert Corley; Assistant Professor (Center for Urban Affairs); Modern South, History of Birmingham

### **Program Information**

The history graduate program provides opportunities for students to learn the techniques of research and broaden their knowledge of historical literature. Students may choose Plan I, which includes writing a thesis based on original research using primary sources, or Plan II, which includes more course work.

All students are required to enroll in HY 601 (Historiography) and HY 602 (Historical Research and Writing) and must take at least 30 hours of their course work in graduate seminars. Each student must take a minimum of 9 hours of course work in U.S. history and 9 hours in non-U.S. history (e.g., European, Asian, Latin America, World).

### **Plan I (Thesis Plan)**

HY 601	Historiography	3 hours
HY 602	Research and Writing	3 hours
U.S. History	3 seminars	9 hours
Non-U.S. History	3 seminars	9 hours
Electives	2 courses	6 hours
Thesis Research	2 courses or equivalent	6 hours
Foreign Language	Examination	0 hours
Total		36 hours

No foreign language study credits can be counted toward the degree requirements. Where foreign language requirements are appropriate, it is recommended that students satisfy these requirements before commencing thesis research.



## Plan II: (Nonthesis Plan)

HY 601	Historiography	3 hours
HY 602	Research and Writing	3 hours
U.S. History	3 seminars	9 hours
Non-U.S. History	3 seminars	9 hours
Electives	4 courses	12 hours
Total		36 hours

Students interested in Teaching Certification for Public Schools should contact the School of Education Certification Office, EB 229, 1530 3rd Avenue South, Birmingham, Alabama 35294-1250 (telephone 205-934-5323).

## Additional Information

For detailed information, contact Dr. Michael N. McConnell, History Graduate Program Director, Department of History, U401, 1530 3rd Avenue South, Birmingham, Alabama 35294-3350.

Telephone 205-934-5634

E-mail [mcconnel@uab.edu](mailto:mcconnel@uab.edu)

## Course Descriptions

### History (HY)

Courses are for 3 hours of credit unless otherwise indicated. All seminars except 601 and 602 may be taken more than once. Students may take no more than two Directed Readings courses (681) or internships (682).

**601. Historiography.** Seminar on various theoretical perspectives and methodologies of professional historians. What historians do, how they do it, and why.

**602. Historical Research and Writing.** Methods of historical research, including research in primary sources, and the distinctive characteristics of historical writing.

**612. Seminar in Early America.** Topics and issues in the history and historiography of Colonial North America, circa 1500-1775.

613. **Seminar in the Civil War Period.** Specialized themes and military, political, social and economic developments related to Civil War; particular emphasis on the South, 1860-1865.

614. **Seminar in Recent American History.** Topics in the politics of modern America.

615. **Seminar in American Myths, American Values.** Recommended for students teaching at the secondary-education level and for traditional history students alike. Examines the major myths that inform, and that are informed by, traditional American values and how both shape social relationships.

621. **Southern History to 1877.** Subjects ranging from the Antebellum through Reconstruction periods.

622. **Seminar in Southern History Since 1877.** Subjects pertaining to the New South era.

623. **Seminar in Alabama History.** Specific social, political, and economic aspects of Alabama history.

631. **Seminar: Topics in American History.** Historical topics of American history (e.g., conservatism, crime and punishment).

632. **Seminar in U.S. Urban History.** Topics in urban history.

633. **Seminar in American Constitutional and Legal History.** Study of major trends and cases in the history of American law, with special emphasis on the interpretation of the American constitution by the Supreme Court.

634. **Seminar in American Foreign Relations.** Selected topics related to American experience with foreign relations.

635. **Seminar in American Social History.** A reading and research seminar examining the history of the structure and power of social groups in America.

637. **Seminar in U.S. Labor History.** Development of labor force and movements in U.S. nineteenth and twentieth centuries.

638. **Seminar in Civil Rights History.** An analysis of history and historiography of Civil Rights Movement in America since the 19th century.

639. **Seminar in Women's History.** An analysis of the changing economic, political, and social roles of women.

641. **Seminar in Latin American History.** Issues in history of Latin America since the late 18th century: economic development, dependency and popular resistance, role of the Catholic Church, social revolution, and nationalism.

650. **Seminar. Topics in European History.**

651. **Seminar in Medieval Europe.** Survey of the Middle Ages focusing on society, religion, and culture from 500-1500.

652. **Seminar in the Renaissance.** Special attention given to the new urban context of society, culture, politics, art, and religion.
653. **Seminar in Modern Europe.** Reformation to the present; major topics such as society and politics, warfare, religious trends, state building, and industrialization.
654. **Seminar in British History.** Focuses on a particular period or problem in British history. Reading and discussion of current publications on the topic.
655. **Seminar in Russian/Soviet History.** Analysis of primary sources and secondary works dealing with political and social history of Imperial Russia or Soviet Union and their successor states.
656. **Seminar in French History.** Seminar dealing with various periods and issues in the history of France.
671. **Seminar in Asian History.** Topics in Asian History.
672. **Seminar: Topics in World History.** Seminar in historical topics of world history.
673. **Seminar in World Environmental History.** Comparative examination of cultures and their relationship with the natural environment in a modern world context.
674. **Seminar in Comparative History.** Explores through reading and research varied issues in comparative history; revolution, war, slavery, labor cities, industrialization, and social and cultural topics.
681. **Directed Readings in History.** Individually designed course of readings in various fields. May be repeated. Only two directed reading courses will count toward degree requirements for history majors. Prerequisite: Permission of instructor. 1, 2, 3, and 6 hours.
682. **Internship in Public History.** Individually designed program that places students in local historical museums and sites to gain professional experience in public history. Prerequisite: Permission of instructor. 1 to 3 hours.
683. **Seminar in Public History.** Explores the diverse approaches and methods of presenting history to public audiences, museums, historic sites, architectural preservation, documentary editing, and archival preservation.
693. **Special Topics in History.** Seminar exploring the historiography of a specialized topic in history.
698. **Nonthesis Research.** Individual research project. 3-6 hours.
699. **Thesis Research.** Research culminating in master's thesis in history. Prerequisite: Admission to candidacy. 3-6 hours.
771. **Special Projects in History.** Prerequisite: Open only to those who hold the M.A. degree. 1-3 hours.

Last modified 09/20/04

## UAB Graduate School

### Integrative Biomedical Sciences

(Ph.D. in participating departments)

Graduate program director: *Kirk*

## Faculty from Participating Departments

Environmental Health Sciences [www.soph.uab.edu](http://www.soph.uab.edu)

Pathology [www.path.uab.edu](http://www.path.uab.edu)

Pharmacology [www.uab.edu/pharmtox](http://www.uab.edu/pharmtox)

Physiology and Biophysics [www.physiology.uab.edu](http://www.physiology.uab.edu)

## Program Information

The Integrative Biomedical Sciences (IBS) Graduate Program, offered through the Departments of Environmental Health Sciences, Pathology, Pharmacology and Toxicology, and Physiology and Biophysics, consists of course work and individual laboratory research leading to a terminal degree (Ph.D.). The IBS Graduate Program is designed to provide interdisciplinary training of high quality to a select group of predoctoral students, preparing them to become independent investigators in the disciplines of cellular, molecular, and organ-based physiology and pathology, complex human diseases, toxicology or disease therapies. Students are immersed in research at the forefront of scientific endeavor and provided with sufficient guidance and course work to place their research in the proper perspective.

The first-year curriculum emphasizes the following three areas: acquisition of a working knowledge of contemporary cellular and molecular biology; an integrated approach toward understanding the principles of physiology, pathology, toxicology, and disease therapy; and the role of genetics and genetic models of disease in basic biology. Involvement in laboratory training through research rotations, and the acquisition of skills in reading, writing, and speaking are also emphasized. Advanced students are engaged primarily in research but also take advanced courses and tutorials in specialized areas of interest as well as participate in seminars. Completion of requirements for the terminal degree usually takes 4 to 6 years. No foreign language is required.

Graduates typically go on to postdoctoral research appointments followed by careers in academic research and teaching or research in

the biotechnology industry.

## Facilities and Resources

Faculty members participating in the program have more than 100,000 square feet of laboratory space. In addition to well-equipped labs, a number of special facilities are available, including several multiprobe NMR spectrometers, advanced confocal microscopic equipment, state of the art mass spectrometry facilities, electron microscopes, protein and nucleic acid synthesis and analysis instrumentation, bacterial fermentation facilities, X-ray diffraction equipment, a P3 containment laboratory, computer facilities, and a hybridoma facility.

## How to Apply

The admission decision is based on scores achieved on the Graduate Records Examinations (GRE; a combined score of 1100, nominally, on the verbal and quantitative portions of the General Test), undergraduate GPA, letters of evaluation, laboratory experience, and, whenever possible, a personal interview with members of the Admissions Committee. There is no application deadline, but all applications received will be reviewed by March 1 of each academic year.

To be accepted into the program, the student should have completed a B.A. or B.S. degree that includes the following undergraduate course work by the time of entrance: calculus, physics, general and organic chemistry, and at least one introductory course in zoology or biology. Courses in physical chemistry, genetics, and cell biology are also to the benefit of the candidate. Any remedial course work must be completed with a grade of "B" or better before the end of the first full year of doctoral studies.

## Additional Information

For more information, contact Randy L. Seay, Program Coordinator, MCLM 909, 1530 3rd Avenue South, Birmingham, AL 35294-0005.

Telephone 205-934-7810

Fax 205-934-5787

E-mail [rseay@uab.edu](mailto:rseay@uab.edu)

Web [www.ibs.uab.edu](http://www.ibs.uab.edu)

Last modified 10/11/04

## UAB Graduate School

### Mathematics (M.S.)

Graduate program director at UAB: *Weikard*

## Faculty

**Alexander Blokh**, Professor (Mathematics); Dynamical Systems.

**James J. Buckley**, Associate Professor (Mathematics); Analysis, Econometrics, Operations Research

**Nikolai Chernov**, Professor (Mathematics); Dynamical Systems, Ergodic Theory

**Louis Dale**, Professor (Mathematics); Ring Theory

**Marcel Griesemer**, Associate Professor (Mathematics); Mathematical Physics

**Yulia Karpeshina**, Professor (Mathematics); Partial Differential Equations and Mathematics Physics

**Ian W. Knowles**, Professor (Mathematics); Ordinary and Partial Differential Equations, Numerical Analysis

**Roger T. Lewis**, Professor (Mathematics); Differential Equations, Spectral Theory

**John C. Mayer**, Professor (Mathematics); Topology, Continuum Theory, Dynamical Systems

**Mubenga N. Nkashama**, Professor (Mathematics); Differential Equations, Dynamical Systems, Nonlinear Functional Analysis

**Peter V. O'Neil**, Professor Emeritus (Mathematics); Graph Theory, Combinatorics

**Lex G. Oversteegen**, Professor (Mathematics); Topology, Continuum Theory, Dynamical Systems

**Yoshimi Saito**, Professor (Mathematics); Scattering Theory, Differential Equations

**Nandor Simanyi**, Professor (Mathematics); Dynamical Systems With Some Algebraic Flavour

**Gunter Stolz**, Professor (Mathematics); Spectral Theory, Mathematical Physics

**James R. Ward, Jr.**, Professor (Mathematics); Differential Equations, Nonlinear Analysis, Dynamical Systems

**Rudi Weikard**, Professor (Mathematics); Ordinary and Partial Differential Equations, Mathematical Physics

**Gilbert Weinstein**, Associate Professor (Mathematics); Partial Differential Equations, General Relativity, Differential Geometry

**Yanni Zeng**, Associate Professor (Mathematics); Nonlinear Partial Differential Equations, Numerical Analysis, Gas Dynamics

**Henghui Zou**, Associate Professor (Mathematics); Nonlinear Partial Differential Equations, Nonlinear Analysis

## Program Information

Mathematics has always been divided into a pure and an applied branch. However, these have never been strictly separated. The M.S. program in mathematics stresses the interconnection between pure mathematics and its diverse applications.

### Areas of Specialization

The student must choose a primary and a secondary specialization from a list of areas determined by the expertise of the faculty. As soon as the student is ready to choose specialization areas, he or she should contact the mathematics graduate program director, who will nominate a graduate study committee for the student. Courses offered to meet degree requirements must be approved by the mathematics graduate program director and the student's graduate study committee.

### Degree Requirements

#### Plan I (Thesis)

The student must complete 30 semester hours approved by the mathematics graduate program director and the student's graduate study committee. The grade in each course has to be a B or better. A minimum of 24 hours must be on the 600 level or above. See Course Descriptions for which courses at the 500 level may not be counted toward the M.S. degree. In addition the following specific requirements must be met:

- at least 9 hours must be in the primary area of specialization,
- at least 6 hours must be in the secondary area of specialization,
- at least 9 hours must be outside the primary area,
- at most 6 hours of research may be included in the 30-hour requirement,
- a thesis must be completed, and
- an examination must be passed on material in the primary area of specialization (the exam may be written, oral, or both, at the discretion of the student's graduate study committee).



The student's performance in all respects must be approved by the graduate program director and the student's graduate study committee.

## Plan II (Nonthesis)

The student must complete 30 semester hours approved by the mathematics graduate program director and the student's graduate study committee. The grade in each course has to be a B or better. A minimum of 24 hours must be on the 600 level or above. See Course Descriptions for which courses at the 500 level may not be counted toward the M.S.degree. In addition, the following specific requirements must be met:

- at least 12 hours must be in the primary area of specialization,
- at least 6 hours must be in the secondary area of specialization,
- at least 9 hours must be outside the primary area,
- no research may be included in the 30-hour requirement,
- two examinations must be passed on material in the two areas of specialization. (The exams may be written, oral, or both, at the discretion of the student's graduate study committee.)

## Additional Information

For detailed information, contact Dr. Rudi Weikard, Mathematics Graduate Program Director, UAB Department of Mathematics, Campbell Hall, 1500 University Boulevard, Birmingham, Alabama 35294-1170.

Telephone 205-934-2154

E-mail [graduate@math.uab.edu](mailto:graduate@math.uab.edu)

Web [www.math.uab.edu](http://www.math.uab.edu)

## Course Descriptions

All courses carry 3 hours of credit unless otherwise noted. A course may count as a prerequisite only if it was completed with a grade of B or better. The instructor can waive any prerequisite. Courses numbered 513-519 and 540-541 may not be counted toward a graduate degree in mathematics.

**513. Geometry for Teachers.** Topics may include foundations of Euclidean and non-Euclidean geometry, construction problems, elementary theory of area, projective geometry, Klein's Erlanger Programme. Prerequisite: MA 141.

**514. Real Number System.** Axiomatic development of properties of real number system for development of mathematical maturity. Prerequisite: MA 141.

515. **Set Theory and Logic.** Basic principles of elementary logic and naïve set theory. Prerequisite: MA 141.

517. **Theory of Equations.** Existence, properties, and methods of finding solutions to polynomial equations. Prerequisite: MA 142.

518. **Statistics for Teachers.** Descriptive and inferential statistics, probability distributions, estimation, hypothesis testing. Prerequisite: MA 102.

519. **Special Topics for Teachers.** With permission of instructor, may be used as continuation of any of MA 513 through 518. May be repeated for credit when topics vary.

531. **Linear Algebra II.** Characteristic polynomials and roots, Jordan canonical form, inner product spaces. Prerequisite: MA 330.

534. **Algebra I.** Abstract vector spaces, subspaces, dimension, bases, linear transformations, matrix algebra, matrix representations of linear transformations, determinants. Prerequisites: MA 142 or permission of instructor.

535. **Algebra II.** Groups, homomorphisms, quotient groups, isomorphism theorems, rings and ideals, integral domains, fields. As time permits, Galois theory, semigroups, modules, or other areas of algebra may be included. Prerequisites: MA 534 or permission of instructor.

540. **Advanced Calculus I.** Introduction to the real numbers; sequences and series of real numbers; functions and continuity; differentiation. This course is taught as a do-it-yourself course and will meet 4 hours per week. Prerequisites: Admission to the graduate program or permission of instructor.

541. **Advanced Calculus II.** Integration; sequences and series of functions; uniform vs. pointwise convergence; some elementary and special functions. This course is taught as a do-it-yourself course and will meet 4 hours per week. Prerequisites: Admission to the graduate program or permission of instructor.

544. **Vector Analysis.** Review and applications of multiple integrals, Jacobians and change of variables in multiple integrals; line and surface integrals; theorems of Green, Gauss, and Stokes with application to the physical sciences; computation in spherical and cylindrical coordinates. Prerequisite: MA 244.

545. **Complex Analysis.** Analytic functions, complex integration and Cauchy's theorem, Taylor and Laurent series, calculus of residues and applications, conformal mappings. Prerequisite: MA 244.

553. **Transforms.** Theory and applications of Laplace and Fourier transforms. Prerequisite: MA 252.

554. **Intermediate Differential Equations.** Topics from among Frobenius series solutions, Sturm-Liouville systems, nonlinear equations, and stability theory. Prerequisite: MA 252.

555, 556. **Partial Differential Equations I, II.** Classification of second-order partial differential equations, background on eigenfunction expansions and Fourier series, solution of the wave equation, reflection of waves, solution of the heat equation in bounded and

unbounded media, Laplace's equation, Dirichlet and Neumann problems. Prerequisite: MA 252.

563, 564. **Operations Research I, II.** Mathematical techniques and models with application in industry, government, and defense. Topics usually chosen from dynamic, linear, and nonlinear programming, decision theory; Markov chains, queuing theory, inventory control, simulation, network analysis, and selected case studies. Prerequisite: MA 243.

568, 569. **Numerical Analysis I, II.** Integrals, interpolation, rational approximation, numerical solution of ordinary differential equations, iterative solution of algebraic equations in single variable, least squares. Gaussian elimination for solution of linear equations. Prerequisites: MA 252 and either MA 263 or CS 210.

570, 571. **Differential Geometry I, II.** Theory of curves and surfaces: Frenet formulas for curves, first and second fundamental forms of surfaces. Global theory; abstract surfaces, manifolds, Riemannian geometry. Prerequisite: MA 244.

574, 575. **Introduction to Topology I, II.** Separable metric spaces, basis and sub-basis, continuity, compactness, completeness, Baire category theorem, countable products, general topological spaces, Tychonov theorem. Prerequisite: MA 244.

580, 581. **Statistical Analysis I, II.** Applications of statistical techniques, tests of significance and confidence intervals, analysis of variance, analysis of covariance, orthogonal contrasts and multiple-range procedures, simple and multiple linear regression, design of experiments. Prerequisite: MA 243.

585. **Introduction to Probability.** Sample spaces, combinatorics, absolute and conditional probability, discrete and continuous random variables, probability distributions and density functions. Prerequisite: MA 244.

590. **Math Seminar.** Topics vary; may be repeated for credit. Prerequisites vary with topics. 1-3 hours.

591-597. **Special Topics in Mathematics.** These courses cover special topics in mathematics and the applications of mathematics. May be repeated for credit when topics vary. Prerequisites vary with topics. 1, 2, or 3 hours.

598-599. **Research in Mathematics.** Topics vary; may be repeated for credit. Prerequisites vary with topics. 1-3 hours.

610. **Introduction to Set Theory.** Set theory, products, relations, orders and functions, cardinal and ordinal numbers, transfinite induction, axiom of choice, equivalent statements.

630. **Algebra I.** Propositional and predicate logic; set, relations, and functions; the induction principle; vector spaces and their bases; linear transformations; eigenvalues and eigenvectors; Jordan canonical form; multilinear algebra and determinants; norms and inner products. Prerequisites: Admission to graduate program or permission of instructor.

631. **Algebra II.** Groups, in particular symmetry groups, permutations groups, and cyclic groups; cosets and quotient groups; group homomorphisms; rings, integral domains, and

fields; ideals and rings homomorphisms; factorization; polynomial rings. Prerequisites: Admission to graduate program or permission of instructor

**642. Calculus of Several Variables.** Functions of several variables; total and partial derivatives; the implicit function theorem, integration of different forms; Stokes' Theorem. Prerequisites: A grade of at least B in MA 441/541 or permission of instructor.

**645. Real Analysis I.** Abstract measures and integration; positive Borel measures;  $L^p$  spaces. Prerequisites: A grade of at least B in MA 642 or permission of instructor.

**646. Real Analysis II.** Complex measures and the Radon-Nikodym theorem; differentiation; integration on product spaces and Fubini theorem. Prerequisites: A grade of at least B in MA 645 or permission of instructor.

**648. Complex Analysis.** The algebraic and topological structure of the complex plane, analytic functions, Cauchy's integral theorem and integral formula, power series, elementary functions and their Riemann surfaces, isolated singularities, residues, the Laurent expansion, the Riemann mapping. Prerequisite: A grade of at least B in MA 642 or permission of instructor.

**650. Differential Equations.** Separable, linear, and exact first-order equations; existence and uniqueness theorems; continuous dependence of solutions on data and initial conditions; first order systems and higher order equations; stability for two-dimensional linear systems; higher order linear systems; boundary value problems; stability theory. Prerequisites: A grade of at least B in MA 630 or permission of instructor.

**660. Numerical Linear Algebra.** Vectors and matrix norms; the singular value decomposition; stability; condition numbers and error analysis; QR factorization; LU factorization; least squares problems; computation of eigenvalues and eigenvectors; iterative methods. Prerequisites: A grade of at least B in MA 630 or permission of instructor.

**661, 662. Numerical Differential Equations I, II.** Finite difference methods, consistency, stability and convergence for linear multistep methods for ODE, Runge-Kutta methods linear second-order PDE, parabolic equations, Crank-Nicholson and ADI, von Neumann stability analysis, method of lines, first-order hyperbolic systems, method of characteristics, CIR method, Lax-Wendroft schemes, shooting methods for ODE boundary value problems, invariant embedding, finite element methods, introduction to Sobolev spaces, Gateaux derivative and optimization of functionals, variational formulation of boundary value problems, Euler-Lagrange equation, Lax-Milgram lemma, Ritz and Galerkin methods. Prerequisite: MA 660 or 632.

**663-665. Operations Research I-III.** Mathematical optimization techniques. Formulation, solution, and analysis of problems arising from business, engineering, and science. Prerequisite: MA 244.

**670. Topology I.** Definition of topologies; closure; continuity; product topology; metric spaces. Prerequisites: A grade of at least B in MA 630 or permission of instructor.

**671. Topology II.** Connectedness; completeness and compactness (in particular in metric spaces); countability and separation axioms; Tychonoff's theorem; homotopy; partitions of unity. Prerequisites: A grade of at least B in MA 670 or permission of instructor.

675. **Differential Geometry I.** Local and global theory of curves and surfaces: Fenchel's theorem; the first and second fundamental forms; surface area; Bernstein's theorem; Gauss theorema egregium; local intrinsic geometry of surfaces; Riemannian surfaces; Lie derivatives; covariant differentiation; geodesics; the Riemann curvature tensor; the second variation of arclength; selected topics in the global theory of surfaces. Prerequisites: A grade of at least B in MA 642 or permission of instructor.

691-697. **Special Topics in Mathematics.** These courses cover special topics in mathematics and the applications of mathematics. May be repeated for credit when topics vary. Prerequisites vary with topics. 1, 2, or 3 hours.

698. **Nonthesis Research.** Prerequisite: Permission of instructor. 1-6 hours.

699. **Thesis Research.** Prerequisite: Admission to candidacy and permission of instructor. 1-6 hours.

Last modified 09/29/04

## UAB Graduate School

### Mathematics, Applied (Ph.D.)

The Applied Mathematics graduate program is offered jointly by the University of Alabama at Birmingham, the University of Alabama (Tuscaloosa), and the University of Alabama in Huntsville.

Graduate program director at UAB: *Weikard*

## Faculty

**Alexander Blokh**, Professor (Mathematics); Dynamical Systems.

**James J. Buckley**, Associate Professor (Mathematics); Analysis, Econometrics, Operations Research

**Nikolai Chernov**, Professor (Mathematics); Dynamical Systems, Ergodic Theory

**Louis Dale**, Professor (Mathematics); Ring Theory

**Marcel Griesemer**, Associate Professor (Mathematics); Mathematical Physics

**Yulia Karpeshina**, Professor (Mathematics); Partial Differential Equations and Mathematics Physics

**Ian W. Knowles**, Professor (Mathematics); Ordinary and Partial Differential Equations, Numerical Analysis

**Roger T. Lewis**, Professor (Mathematics); Differential Equations, Spectral Theory

**John C. Mayer**, Professor (Mathematics); Topology, Continuum Theory, Dynamical Systems

**Mubenga N. Nkashama**, Professor (Mathematics); Differential Equations, Dynamical Systems, Nonlinear Functional Analysis

**Peter V. O'Neil**, Professor Emeritus (Mathematics); Graph Theory, Combinatorics

**Lex G. Oversteegen**, Professor (Mathematics); Topology, Continuum Theory, Dynamical Systems

**Yoshimi Saito**, Professor (Mathematics); Scattering Theory, Differential Equations

**Nandor Simanyi**, Professor (Mathematics); Dynamical Systems With Some Algebraic Flavor

**Gunter Stolz**, Professor (Mathematics); Spectral Theory, Mathematical Physics

**James R. Ward, Jr.**, Professor (Mathematics); Differential Equations, Nonlinear Analysis, Dynamical Systems

**Rudi Weikard**, Professor (Mathematics); Ordinary and Partial Differential Equations, Mathematical Physics

**Gilbert Weinstein**, Associate Professor (Mathematics); Partial Differential Equations, General Relativity, Differential Geometry

**Yanni Zeng**, Associate Professor (Mathematics); Nonlinear Partial Differential Equations, Numerical Analysis, Gas Dynamics

**Henghui Zou**, Associate Professor (Mathematics); Nonlinear Partial Differential Equations, Nonlinear Analysis

## Program Information

Mathematics has always been divided into a pure and an applied branch. However, these have never been strictly separated. The Ph.D. program in applied mathematics stresses the interconnection between pure mathematics and its diverse applications.

### Admission

Only students with a firm foundation in advanced calculus, algebra, and topology are considered for immediate admission to the Ph.D. program. A student lacking this background will be considered for admission to the M.S. program. Upon passing the qualifying examination, a student may transfer to the Ph.D. program. We expect at least a B average in a student's previous work and a score above 550 on each section of the Graduate Record Examination General Test.

### Program of Study

Each student in the Ph.D. program has to take the following steps:

- Passing the Joint Program Exam (JPE), also called the Qualifying Exam. This is an exam in real analysis and applied linear algebra. It is administered by the Joint Program Committee, which includes graduate faculty from all three participating universities. A student that is admitted directly into the Ph.D. program is expected to take this exam by the end of the first year at the latest. This examination may be taken no more than twice.
- Completing 54 semester hours of graduate courses. The grade of each course has to be at least a B. The student's supervisory committee and the Joint Program Committee must approve the selection of courses. At least 18 hours must be in a major area of concentration, selected so that the student will be prepared to conduct research in an area of applied mathematics, while at least 12 hours have to be in a minor area of study, which is a subject outside mathematics.
- Passing a language or tool of research exam.

- Passing the Comprehensive Exam, which consists of a written part and an oral part.
- Preparing a dissertation, which must be a genuine contribution to mathematics.
- Passing the Final Examination (thesis defense).

## Additional Information

For detailed information, contact Dr. Rudi Weikard , Mathematics Graduate Program Director, UAB Department of Mathematics, Campbell Hall, 1500 University Boulevard, Birmingham, Alabama 35294-1170.

Telephone 205-934-2154

E-mail [graduate@math.uab.edu](mailto:graduate@math.uab.edu)

Web [www.math.uab.edu](http://www.math.uab.edu)

## Course Descriptions

For courses at cooperating universities, see the graduate catalogs of the University of Alabama (Tuscaloosa) and the University of Alabama in Huntsville. Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

In addition to courses offered in the M.S. program, the following courses are offered in the Ph.D. program. All courses carry 3 hours of credit unless otherwise noted.

**740. Advanced Complex Analysis.** Varying topics. May be repeated for credit.

Prerequisites: Having passed the Qualifying Exam or permission of instructor.

**745. Functional Analysis I.** Normed and Banach spaces, inner product and Hilbert spaces, linear functionals and dual spaces, operators in Hilbert spaces, theory of unbounded sesquilinear forms, Hahn-Banach, open mapping, and closed graph theorems, spectral theory. Prerequisites: Having passed the Qualifying Exam or permission of instructor.

**746. Functional Analysis II.** Varying topics. May be repeated for credit. Prerequisites: Having passed the Qualifying Exam or permission of instructor.

**747. Linear Operators in Hilbert Space.** Hilbert space, Bessel's inequality, Parseval's formula, bounded and unbounded linear operators, representation theorems, the Friedrichs extension, the spectral theorem for self-adjoint operators, spectral theory for Schrödinger operators. Prerequisites: Having passed the Qualifying Exam or permission of instructor.

**748. Fourier Transforms.** Fourier transform and inverse transform of tempered distributions; applications to partial differential equations. Prerequisites: Having passed the Qualifying Exam or permission of instructor.



750. **Advanced Ordinary Differential Equations.** Varying topics. May be repeated for credit. Prerequisites: Having passed the Qualifying Exam or permission of instructor.

753. **Nonlinear Analysis.** Selected topics including degree theory, bifurcation theory, and topological methods. Prerequisite: Having passed the Qualifying Exam or permission of instructor.

755. **Advanced Partial Differential Equations.** Selected topics varying with instructor. : Having passed the Qualifying Exam or permission of instructor.

760. **Dynamical Systems I.** Continuous dynamical systems. Limit sets, local sections, minimal sets, centers of attraction, recurrence, stable and wandering points, flow boxes, and monotone sequences in planar dynamical systems, Poincare-Bendixson theorem. Prerequisites: Having passed the Qualifying Exam or permission of instructor.

761. **Dynamical Systems II.** Discrete dynamical systems. Hyperbolicity, symbolic dynamics, chaos, homoclinic orbits, bifurcations, and attractors (theory and examples). Prerequisite: Having passed the Qualifying Exam or permission of instructor.

770. **Continuum Theory.** Pathology of compact connected metric spaces. Inverse limits, boundary bumping theorem, Hahn-Muzukiewicz theorem, composants, chainable and circle-like continua, irreducibility, separation, unicoherence, indecomposability. Prerequisite: Having passed the Qualifying Exam or permission of instructor.

772. **Complex Analytic Dynamics.** Riemann surfaces, iteration theory of polynomials, rational functions and entire functions, fixed point theory, Mandelbrot set, Julia sets, prime ends, conformal mappings. Prerequisite: Having passed the Qualifying Exam or permission of instructor.

774. **Algebraic Topology.** Covering spaces; introduction to homotopy theory, singular homology, cohomology. Prerequisites: Having passed the Qualifying Exam or permission of instructor.

776. **Advanced Differential Geometry.** Varying topics. May be repeated for credit. Prerequisite: Having passed the Qualifying Exam or permission of instructor.

790-797. **Special Topics in Mathematics.** These courses cover special topics in mathematics and the applications of mathematics. May be repeated for credit when topics vary. Prerequisites Permission of instructor. 1, 2, or 3 hours.

798. **Nondissertation Research.** Prerequisite: Permission of instructor. 1-6 hours.

799. **Dissertation Research.** Prerequisite: Admission to candidacy and permission of instructor. 1-6 hours.

## **Biomathematics (BST)**

Please see Biostatistics (BST) course descriptions for additional graduate courses in applied mathematics.

Last modified 09/29/04

## UAB Graduate School

### Materials Science (Ph.D.)

UAB, the University of Alabama (Tuscaloosa), and the University of Alabama in Huntsville offer a joint, interdisciplinary program leading to the Ph.D. degree in materials science.

Graduate program director at UAB: *Janowski*

## UAB Faculty

**J. Barry Andrews**, Professor (Materials Science and Engineering); Solidification, Microgravity Processing, Physical Metallurgy, Intermetallic Materials, Electronic Properties

**Renato Camata**, Assistant Professor (Physics), Pulsed Laser Deposition, Nanostructured Materials, Biomaterials

**Aaron Shane Catledge**, Research Assistant Professor (Physics), Hard Carbon Films, Nanostructured Diamond, Homoepitaxial Diamond Growth, Transport Measurements

**Krishan K. Chawla**, Professor (Materials Science and Engineering); Metal-, Ceramic-, and Polymer-Matrix Composite Materials; Fibers, Interfacial Phenomena

**Juan P. Claude**, Assistant Professor (Chemistry); Electrosynthesis and Photophysics of Semiconductor Nanoparticles

**Derrick R. Dean**, Associate Professor (Materials Science and Engineering); Structure-Property Relationships of Polymers and Multiphase Polymer Systems

**Lawrence J. DeLucas**, Professor (Optometry); Microgravity Processing of Protein Crystals

**Alan Eberhardt**, Associate Professor (Biomedical Engineering); Solid Mechanics, Analytical and Numerical Methods, Biomechanics

**Dale S. Feldman**, Associate Professor (Biomedical Engineering); Porous Polymeric Soft-Tissue Implant Biocompatibility, Biodegradable Composites, Biomechanics

**Gary M. Gray**, Associate Professor (Chemistry); Synthesis, Characterization and Applications of Inorganic Polymers

**Robin D. Griffin**, Associate Professor (Materials Science and Engineering); Electron Microscopy, Physical Metallurgy

**Tracy P. Hamilton**, Associate Professor (Chemistry); Chemistry of Small Atom Clusters and Interactions

**Joseph G. Harrison**, Associate Professor (Physics); Energy-Band Structure, Electronic Structure of Defect Systems, Molecular Metals

**Gregg M. Janowski**, Associate Professor (Materials Science and Engineering); Electron Microscopy, Composite Materials, Physical Metallurgy, Structure-Processing-Property Relationships

**Chris Lawson**, Professor (Physics); Nonlinear Optics, Fiber Optics, Optical Fibers

**Jack E. Lemons**, Professor (Dentistry); Design of Ligament and Tendon Prostheses, Development of Synthetic Bone Products

**Burton R. Patterson**, Professor (Materials Science and Engineering); Powder Processing, Physical Metallurgy, Composite Materials, Quantitative Microscopy

**E. Douglas Rigney**, Academic Associate Professor (Biomedical Engineering); Corrosion, Biomaterials, Metal-Ceramic Interfaces

**Rosalia N. Scripa**, Professor (Materials Science and Engineering); Ceramics and Glass, Extractive Metallurgy, Semiconductor of Crystal Growth, Electronic-Magnetic Materials

**David L. Shealy**, Professor (Physics); X-ray Telescopes, Microscopes and Lithography, Optics, Free Electron Lasers

**Andrei Stanishevsky**, Assistant Professor, (Physics), Processing, Characterization and Applications of Thin Films and Structures

**Yogesh K. Vohra**, Professor (Physics); Thin Diamond Films, Laser and X-ray Characterization of Materials at Extreme Conditions

**Mary Ellen Zvanut**, Associate Professor (Physics); Electrical Studies and EPR Studies of Insulators and Semiconductors

## **Participating Faculty from the University of Alabama (Tuscaloosa)**

**Viola Acoff**, Associate Professor (Metallurgical and Materials Engineering); Physical Metallurgy, High Temperature Materials, Electron Microscopy, Welding

**Chester Alexander, Jr.**, Professor (Physics); Magnetic Resonance of Organic and Magnetic Materials

**Martin G. Bakker**, Associate Professor (Chemistry); Physical Chemistry;

Electron Paramagnetic Resonance, Surfactants

**Mark E. Barkey**, Associate Professor (Aerospace Engineering and Mechanics); Structural Durability and Fatigue Performance;

**Richard C. Bradt**, Professor (Metallurgical and Materials Engineering); Ceramic Materials

**Michael P. Cava**, Ramsay Professor Emeritus (Chemistry); Organic Conductors, Synthetic Methods

**Peter Clark**, Associate Professor (Chemical Engineering); Fluid Rheology, Flow of Fluid Complex Mixtures-Slurries, Emulsions, and Gels

**William D. Doyle**, Professor (Physics); Magnetic Materials and Devices for Information Storage

**Nagy H. El-Kaddah**, Professor (Metallurgical and Materials Engineering); Materials Process Modeling

**James W. Harrell, Jr.**, Professor (Physics); Nuclear Magnetic Resonance of Molecular Motions in Solids

**Stanley E. Jones**, Cudworth Professor (Aerospace & Mechanics); Plasticity Analysis, Nonlinear Mechanics, and Applied Mathematics

**Lowell D. Kispert**, Research Professor (Chemistry); Structure of Free Radicals in Single Crystals, Magnetic Resonance Methods, Conducting Polymers, Solid-State Photochemistry

**Gary Mankey**, Associate Professor (Physics); Nanostructure Ferromagnets

**Robert M. Metzger**, Professor (Chemistry); Solid-state Chemistry, Organic Conductors, X-ray Crystallography, Solid-State Theory

**David Nikles**, Professor (Chemistry); Chemistry, Application of Materials for Optics and Information Technology, Optical Data Storage, Flexible Magnetic Media

**Raghvendra K. Pandey**, Cudworth Professor (Electrical and Computer Engineering); Bulk Single Crystal and Thin Film Growth of Electronic Materials, Integrated Structures and Devices

**Ramana Reddy**, ACIPCO Professor (Metallurgical and Materials Engineering); High-Temperature Materials Processing, Thermodynamics

**Sanjoy K. Sarker**, Associate Professor (Physics); Statistical Mechanics and High-Field Effects in Semiconductors

**Doru M. Stefanescu**, Cudworth Professor and University (Metallurgical and Materials Engineering); Nucleation and Growth in Solidification Processes, Physical Chemistry of Surface and Interface Reactions

**Shane C. Street**, Assistant Professor (Chemistry); Analytical Chemistry; Ultrathin Oxide Films; Tribology

**Pieter B. Visscher**, Professor (Physics); Metals Physics, Viscoelastic Properties of Materials

**Garry W. Warren**, Professor (Metallurgical and Materials Engineering); Corrosion and Surface Electrochemistry

**Mark Weaver**, Associate Professor (Metallurgical and Materials Engineering); Microstructure-Property Relations; Intermetallic Compounds; Structural Materials; Thin Films; Materials Characterization

## **Participating Faculty from the University of Alabama in Huntsville**

**James K. Baird**, Professor (Chemistry); Theory of Ostwald Ripening, Electron Transport, Radiation Effects

**Ramon Luis Cerro**, Professor (Chemical and Materials Engineering); Langmuir-Blodgett Ultrathin Films, Capillary Hydrodynamics

**Liqing Chen**, Assistant Research Professor (Chemistry); X-ray Crystallography, Structural Biology, Structural Genomics, Structure-Based Drug Discovery And Development.

**Krishnan Chittur**, Associate Professor (Chemical and Materials Engineering); Biological Thin Films, Polymer Films

**Enrico L. DiGiammarino**, Assistant Research Professor (Chemistry); Tumor Suppressor Proteins, NMR, Structure of Proteins

**John Dimmock**, Professor (Physics); Polymers, Composites, Fluid Dynamics, Electromagnetic Scattering and Antennae

**Stephen Edmondson**, Associate Research Professor (Chemistry); Thermodynamics, Structure of Proteins and Nucleic Acids

**Andreas Gebauer**, Assistant Professor (Chemistry); Interests: Inorganic Metal Complexes, Three Dimensional Non-Covalent Compounds, NMR, Electrochemical Methods

**Michael A. George**, Assistant Professor (Chemistry); Interactions Between Adsorbate Layers and Surfaces of Thin Films

**John C. Gregory**, Professor (Chemistry); Interaction of Atomic Oxygen and High-Energy Particles with Surfaces and Bulk Materials

**Douglas G. Hayes**, Associate Professor (Chemical and Materials Engineering); Enzymatic Reactions in Nonaqueous media, Protein Behavior at Interfaces, Microemulsions, Lipid Chemistry

**William F. Kaukler**, Assistant Research Professor (Chemistry); Solidification, X-ray microscopy of solidification dynamics

**Edward J. Meehan, Jr.**, Professor (Chemistry); Crystal Growth of Proteins, X-ray Crystallography of Protein Single Crystals

**Robert J. Naumann**, Professor (Chemistry); Crystal Growth in Low Gravity, Space Processing

**Carmen Scholz**, Assistant Professor (Chemistry); Green Chemistry, Biodegradable Biomaterials

**John Shriver**, Professor (Chemistry); Protein Structure and Stability, NMR, Microcalorimetry, Thermophile Protein

**William N. Setzer**, Professor (Chemistry); NMR and X-ray Conformational Analysis of Novel Organic Compounds

**James E. Smith**, Professor (Chemical and Materials Engineering); Catalysis, Powder Metals

**Bernhard Vogler**, Assistant Professor (Chemistry); NMR Analysis of Biological Molecules.

**Jeffrey Weimer**, Associate Professor (Chemistry); Surface Banding Studies

**Francis C. Wessling**, Professor (Mechanical and Aerospace Engineering); Space Processing of Materials

## Admission

Admission into the materials science graduate program through UAB is by recommendation of the UAB Materials Science Program Committee. On acceptance into the program, the student will be affiliated with a "host" department. Assistantships can be awarded either by the host department or by the materials science program. Until a student has chosen a mentor, the Materials Science graduate program director, or his or her designate, will advise the student.

## Course Work

Students enter this program with diverse undergraduate training in engineering, physical, or biological sciences. The multidisciplinary curriculum has been structured to develop a common philosophy of the interrelationship of structure, properties, and synthesis of materials. The program committee can waive some course work for a student entering the program with a master's degree in an appropriate discipline.

During the first phase of instruction (usually 12 semester hours), the student is expected to acquire a core of knowledge in materials science through formal course work and

independent study. The core is divided into four topical areas: (1) structure and analysis; (2) condensed matter science; (3) thermodynamics and kinetics; and (4) structure, processing, and properties. Each student's background will be evaluated in order to develop an individual program of study, which may involve some undergraduate course work to satisfy prerequisites for graduate courses and to provide sufficient breadth of coverage of the core areas. To complete this phase, the student must pass Program Examination I which is offered twice per year. The student is expected to choose a mentor before completion of Program Examination I.

The second (specialization, normally 24 semester hours) and the third (electives, 12 semester hours) phases of the curriculum are planned by the student and the research adviser, with approval of the student's graduate study committee. Available areas of specialization are (1) structure and properties of materials; (2) macromolecular materials; (3) electronic, optical, and magnetic materials; (4) materials processing; (5) biomaterials or (6) mechanical behavior of materials.

Courses may be taken at UAB, the University of Alabama (Tuscaloosa), or the University of Alabama in Huntsville. Near the end of the formal course work, the student must pass a comprehensive examination (Program Examination II) set by the student's graduate committee and present a dissertation proposal.

## **Foreign Language Requirement**

Each student is required to demonstrate reading proficiency in a foreign language or proficiency in a technique or skill that is a useful adjunct to the research degree. In the case of a foreign language, competency will be established by an examination that consists of the student translating (with dictionary) a research article, chosen by the student's graduate study committee. A pass/fail determination will be made by the student's graduate study committee after receiving an assessment of merit from a foreign language professor. The language chosen may not be the native tongue of the student and must be from the following list: Chinese, French, German, Japanese, or Russian. A particular research technique or skill must be approved by the student's graduate study committee.

## **Program Completion**

Since the Ph.D. is a research degree, all students are expected to acquire most of their advanced knowledge through research training. These activities will be directly supervised by the student's mentor. The student will write a dissertation and defend it by oral examination.

## **Additional Information**

For detailed information, contact Dr. Gregg M. Janowski, Graduate Program Director, The University of Alabama at Birmingham, Department of Materials Science and Engineering, BEC 254, 1530 3rd Avenue South, Birmingham, AL 35294-4461.

Telephone: 205-934-8450,

E-mail: [janowski@uab.edu](mailto:janowski@uab.edu)



Web [www.eng.uab.edu](http://www.eng.uab.edu)

## Course Descriptions

### UAB Courses

For courses at cooperating universities, see the graduate catalogs of the University of Alabama (Tuscaloosa) and the University of Alabama in Huntsville. Unless otherwise noted, all courses are for 3 semester hours of credit.

Courses at UAB have the following prefixes:

Biomaterials CD	(Clinical Dentistry)
Biomedical Engineering	BME
Chemistry	CH
Materials Science and Engineering	MSE
Physics	PH

A partial list of courses that prepare students for Program Examination I (See program director for reading list) is as follows:

#### Structure and Analysis

BME 716 Instrumental Methods of Analyses.

CH 580 Polymer Chemistry for Graduate Study I.

CH 730 Physical Organic Chemistry I.

CH 740 Bonding and Structure in Inorganic Compounds.

MSE 464 Characterization of Materials. 4 hours.

MSE 743 Materials Characterization I.

MSE 744 Materials Characterization II.

PH 745 Molecular Spectroscopy.

#### Condensed Matter Science

CD 661 Physical Properties of Biomaterials.

CH 725 Molecular Structure and Spectroscopy.

PH 753 Advanced Solid State Physics I.

PH Advanced Solid State Physics II.

- 754  
PH  
771 Quantum Mechanics I.  
PH  
772 Quantum Mechanics II.

#### Thermodynamics and Kinetics

- CH 729 Special Topics in Physical  
Chemistry. 1-3 hours.  
MSE 703 Thermodynamics of Materials.  
PH 635 Statistical Mechanics.

#### Structure, Processing, and Properties

- CH 580 Polymer Chemistry I for Graduate  
Study.  
MSE  
280 Engineering Materials.  
MSE  
281 Physical Materials I.  
MSE  
381 Physical Materials II.  
MSE  
570 Ceramic Materials.

A partial list of courses for each specialization is given below. Additional courses may be accepted at the discretion of the graduate committee.

### **Specialization 1: Structure and Properties of Materials.**

Must include 3 hours in instrumentation, 3 hours in methods of chemical analysis, and 3 hours in spectroscopy.

- BME  
542 Principles of Medical Imaging  
BME  
546 Principles of MRI  
BME  
716 Instrumental Methods of Analyses  
BME  
742 Medical Imaging Instrumentation  
CH 729 Special Topics in Physical  
Chemistry  
CH 749 Special Topics in Inorganic  
Chemistry  
CH 750 Advanced Analytical Chemistry

CH 751	Advanced Analytical Chemistry II
CH 755	Electroanalytical Chemistry
CH 757	Analytical Spectroscopy
MSE 703	Thermodynamics of Materials
MSE 718	Surfaces, Interfaces, and Thin Films
MSE 737	Quantitative Microscopy
MSE 743	Materials Characterization I
MSE 744	Materials Characterization II
MSE 753	Phase Diagrams

### **Specialization 2: Macromolecular Materials.**

Must include 3 hours in advanced inorganic or organic chemistry, 3 hours in macromolecular chemistry, and 3 hours in macromolecular physics.

BME 511	Polymers for Biomedical Applications I
BME 520	Tissue Interactions
BME 712	Polymers for Biomedical Applications II
BME 750	Implants in Dentistry
CH 580	Polymer Chemistry I for Graduate Study II
CH 581	Polymer Chemistry II for Graduate Study II
CH 729	Special Topics in Physical Chemistry
CH 739	Special Topics in Organic Chemistry

### **Specialization 3: Electronic, Optical, and Magnetic Materials.**

Must include 3 hours in spectroscopy and 6 hours in the electronic, optical, or magnetic properties of materials.

CH 729	Special Topics in Physical Chemistry
CH 743	Chemical Applications of Group Theory
CH 744	Spectroscopy of Inorganic Chemistry
MSE	Electronic, Magnetic and Thermal

584 Properties of Materials  
 MSE Surfaces, Interfaces, and Thin Films  
 718  
 MSE Materials Characterization I  
 743  
 PH 623 Modern Optics I  
 PH 655 Advanced Solid State Laboratory  
 PH 715 Advanced Statistical Mechanics  
 PH 741 Mössbauer Spectroscopy  
 PH 742 Electron Spin Resonance  
 PH 750 Classical Electrodynamics I  
 PH 751 Classical Electrodynamics II  
 PH 753 Advanced Solid State Physics I  
 PH 754 Advanced Solid State Physics II  
 PH 760 Methods of Mathematical Physics  
 PH 762 Computational Physics

### **Specialization 4: Materials Processing.**

Must include 6 hours in solidification or crystal growth and 3 hours in processing technology.

CD 633 Alloy Systems in Dentistry  
 MSE Materials Processing  
 503  
 MSE Mechanical Behavior of Materials  
 713  
 MSE Nucleation and Growth  
 715  
 MSE Microstructural Processes  
 716  
 MSE Surfaces, Interfaces, and Thin  
 718 Films  
 MSE Solidification  
 723  
 MSE Phase Diagrams  
 753

### **Specialization 5: Biomaterials.**

Must include 6 hours in the structure and properties of biomaterials and 3 hours in biomaterials applications.

BME Polymers for Biomedical Applications  
 511 I  
 BME Implant Tissue Interactions

- 520  
 BME 712 Polymers for Biomedical Applications II  
 BME 750 Implants in Dentistry  
 BME 753 Ceramic Materials in Dentistry  
 BME 754 Alloy Systems in Dentistry  
 BME 790 Special Topics in Biomaterials, 1-6 hours  
 BME 791 Individual Study in Biomaterials, 1-6 hours  
 CD 626 Surgical Implants in Dentistry  
 CD 629 Ceramic Cements, Alloy-Ceramic Systems  
 CD 633 Alloy Systems in Dentistry  
 CD 661 Physical Properties of Biomaterials  
 CD 662 Laboratory Methods for Biomaterials Research

### **Specialization 6: Mechanical Behavior of Materials.**

Must include 3 hours in ceramic, metallurgical, or polymer engineering, 3 hours in the mechanical behavior of materials, and 3 hours in the characterization of materials.

- BME 716 Instrumental Methods of Analyses  
 BME 733 Tissue Mechanics  
 BME 737 Biomechanics: Tissue Mechanics II  
 BME 776 Fracture Mechanics  
 MSE 713 Mechanical Behavior of Materials  
 MSE 737 Quantitative Microscopy  
 MSE 743 Materials Characterization I  
 MSE 744 Materials Characterization II  
 PH 610 Classical Mechanics I  
 PH 611 Classical Mechanics II  
 PH 710 Advanced Classical Mechanics I  
 PH 711 Advanced Classical Mechanics II

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## UAB Graduate School

### Concurrent and Combined Degree Programs

## Degree Requirements

Through UAB's coordinated degree programs, outstanding students with appropriate career goals may be allowed to pursue two advanced degrees concurrently. (The general policy is that students pursue only one degree at a time.)

The majority of these programs permit students to pursue both a research degree (such as the PhD. or M.S.) and a professional degree (such as the M.D., D.M.D., O.D., or M.P.H.) simultaneously. The Graduate School is eager to cooperate with all qualified students who wish to extend their professional capabilities into the areas of independent scholarship, originality, and research characterizing graduate study.

### Medical Scientist Training Program: M.D.-Ph.D.

Graduate Program Director: *R. Pat Bucy, MD, PhD*

Phone: (205) 934-6246

E-mail: [bucy@uab.edu](mailto:bucy@uab.edu)

Web site: [www.uab.edu/mdphd](http://www.uab.edu/mdphd)

UAB's outstanding research and clinical training programs provide an unusual opportunity for students interested in careers in basic biomedical research. Such students may be admitted concurrently to the School of Medicine and the Graduate School in order to pursue both the M.D. degree and the Ph.D. degree. Ph.D. study in this program is available in the broad areas of biochemistry, molecular genetics, epidemiology, cell biology, microbiology, neurobiology, pathology, pharmacology, and physiology.

Individuals admitted to this highly competitive program must have excellent undergraduate academic record and MCAT score. In addition, successful applicants must have demonstrated their commitment to a career pathway as an investigator with active participation in an original research project prior to admission. Fellowship support, including a stipend and payment of tuition and fees, is provided to successful applicants.

In general, M.D.-Ph.D. students will complete the basic science phase of the medical curriculum and the core curriculum of the basic biomedical sciences designed for Ph.D. students. The second phase of study will focus on completion of a dissertation research project leading to the

Ph.D. degree. The final phase of the program is a series of clinical rotations and an abbreviated set of acting internships to complete the M.D. degree. Normally, the program involves about 7.5 years for completion, depending on the time required to complete the dissertation research.

Interested applicants must complete the standard AMCAS application to the UAB School of Medicine and a short supplementary application to the combined degree program available on the [MD/PhD web site](#).

Students who have initiated study in the school of Medicine may also apply for Graduate School admission. Graduate study can be pursued during the summer, during time scheduled electives in the medical curriculum, or at other times with permission of the dean of the School of Medicine. Alternatively, upon approval of the appropriate graduate program director and the dean of the School of Medicine, a student may be granted a temporary leave from the medical curriculum to complete the requirements for a graduate degree. Approval for pursuit of Ph.D. degrees rests with the Graduate School and the appropriate graduate program or department. Students should contact the graduate program director of the program in which they wish to enroll.

## **Other Coordinated Degree Options**

Other coordinated degree opportunities, and appropriate contact persons are listed below:

### **O.D.—M.S. & O.D.—Ph.D.**

Graduate program director: *Dr. Kent Keyser*

Phone: (205) 934-6743

E-mail: [ntravis@uab.edu](mailto:ntravis@uab.edu)

### **M.D.—M.S.B.M.S.**

Graduate program director: *Dr. Lisa Schwiebert*

Phone: (205) 934-3970

E-mail: [lschieb@uab.edu](mailto:lschieb@uab.edu)

Web site: [www.physiology.uab.edu](http://www.physiology.uab.edu)

### **M.B.A.—M.P.H.**

Graduate program director: *Dr. Stuart A. Capper*

Phone: (205) 934-3748

E-mail: [dept@uab.edu](mailto:dept@uab.edu)>

### **M.S.H.A.—M.B.A.**

Graduate program director: *Admissions Coordinator*

Phone: (205) 934-1669

### **M.P.A.—J.D.**

(Coordinated degree program with Cumberland School of Law)

Graduate program director: *Dr. R. Steven Daniels*

Phone: (205) 934-9680

E-mail: [sdaniels@uab.edu](mailto:sdaniels@uab.edu)

### **M.P.A.—M.P.H.**

Graduate program director: *Dr.R. Steven Daniels*

Phone: (205) 934-9680

E-mail: [sdaniels@uab.edu](mailto:sdaniels@uab.edu)

Graduate program director: *Dr. Janet Bronstein*

Phone: (205) 934-8962

E-mail: [jbronstein@uab.edu](mailto:jbronstein@uab.edu)

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## UAB Graduate School

### Microbiology (Ph.D.)

Graduate program director: *Burrows*

## Faculty

**Ronald T. Acton**, Professor (Microbiology); Immunogenetics

**Prescott Atkinson**, Associate Professor (Pediatrics); Primary Immune Deficiencies and the Role of Infection in Asthma and other Chronic Diseases

**L. Andrew Ball**, Professor (Microbiology); RNA Virus Replication and Assembly

**Scott R. Barnum**, Associate Professor (Microbiology); Complement in CNS Inflammation, EAE

**David M. Bedwell**, Professor (Microbiology); Mechanism of Translation Termination, Treatment of Genetic Diseases Caused by Premature Stop Mutations

**William H. Benjamin**, Assistant Professor (Pathology); Genetics of Host-Bacterial Relationship

**S. Louis Bridges**, Associate Professor (Medicine); B Lymphocytes and Immunoglobulin Gene Expression in Rheumatoid Arthritis and Hepatitis C; Pharmacogenetics of Rheumatoid Arthritis

**David E. Briles**, Professor (Microbiology); Bacterial Pathogenesis, Pneumococcus, Vaccines, Virulence, Immunity

**William J. Britt**, Professor (Pediatrics); Herpesvirus Envelope Assembly

**R. Pat Bucy**, Professor (Pathology); T Cell Development, Immune Regulation

**Peter D. Burrows**, Professor (Microbiology); B Cells, Developmentally Regulated Genes, Isotype Switching

**Robert Carter**, Associate Professor (Medicine); Molecular Mechanisms of Control of B Lymphocyte Responses

**David D. Chaplin**, Professor and Chair (Microbiology); Regulation of Secondary Lymphoid Tissue Development and Function

**Debasish Chattopadhyay**, Assistant Professor (Medicine); Structure-

Based Drug Design, Vesicular Trafficking, Structural Biology of Parasites

**Chen-lo H. Chen**, Research Professor (Microbiology); Avian T- and B-Cell Development, Evolution of Immune System, Graft Versus Host Reactions

**Noel K. Childers**, Professor (Oral Biology); Oral Immunization, Dental Caries

**Mashkoo A. Choundhry**, Assistant Professor (Surgery); Intestinal Immune and Barrier Functions Following Alcohol Intoxication and Burn Injury

**Max D. Cooper**, Professor (Medicine); Immune System Ontogeny and Phylogeny

**Marilyn J. Crain**, Associate Professor (Pediatrics); Pediatric and Perinatal HIV, Molecular Epidemiology of *Streptococcus pneumoniae*

**Creg Darby**, Assistant Professor (Microbiology); Host-Pathogen and Vector-Pathogen Interactions, Bacterial Pathogenesis, Animal-Bacteria Symbiosis

**Terje Dokland**, Associate Professor (Microbiology); Virus Structure and Assembly

**Kevin Dybvig**, Professor (Genomics and Pathobiology); Mycoplasmas: Genetics, Phenotypic Switching, DNA Rearrangements

**Jeffrey C. Edberg**, Associate Professor (Medicine); Autoimmunity, Complex Genetic Diseases, Immunoglobulin Receptors, Phagocytes

**Marianne Egan**, Research Associate Professor (Microbiology); Natural Killer Activity and Autoimmune Diseases

**Charles O. Elson**, Professor (Medicine); Regulation of Mucosal Immune Responses, Pathogenesis of Chronic Intestinal Inflammation and Inflammatory Bowel Disease

**Kohtaro Fujihashi**, Professor (Oral Biology); Mucosal Immunity & Tolerance, Mucosal Vaccine Development and Mucosal Aging

**Patricia N. Fultz**, Professor (Microbiology); Retroviral Pathogenesis, HIV Vaccines

**James F. George**, Associate Professor (Surgery); Transplantation Immunology, Mechanisms of Immunologic Tolerance, Immunologic Mechanisms of Atherosclerosis

**Vithal K. Ghanta**, Professor (Biology); Tumor Immunology and CNS &

immune System Interactions

**G. Yancey Gillespie**, Professor (Surgery); Malignant Brain Tumors, Cell Biology, Immunobiology, Viral Vector Therapies, Murine Brain Tumor Models

**Beatrice H. Hahn**, Professor (Medicine); Human Retroviruses and Associated Diseases

**Zdenek Hel**, Assistant Professor (Pathology); HIV and Cancer Vaccines, Gene Therapy

**Susan K. Hollingshea**, Research Associate Professor (Microbiology); Mechanisms of Variation in Microbial Pathogenesis

**Eric Hunter**, Professor (Microbiology); Retrovirus Molecular Biology, Virus Assembly, HIV Entry and Transmission

**Victoria A. Johnson**, Associate Professor (Medicine); HIV Pathogenesis and Drug Development and Resistance, Hepatitis B and C Pathogenesis

**Louis B. Justement**, Professor (Microbiology); Lymphocyte Activation/Differentiation, T and B Cell Antigen Receptor Signaling, Regulation of Programmed Cell Death

**Janusz Kabarowski**, Assistant Professor (Microbiology); Lysophospholipid receptors in the regulation of innate immunity and inflammation

**John C. Kappes**, Associate Professor (Medicine); HIV Molecular Virology and Pathogenesis

**Richard A. Kaslow**, Professor (Epidemiology); Immunogenetic Determinants in AIDS and Other Infectious and Immune Diseases

**John F. Kearney**, Professor; (Microbiology); B Cells, Immunology of Anthrax, Transgenic Mice

**Earl R. Kern**, Research Professor (Pediatrics); Pathogenesis of Herpesvirus and Poxvirus Infections

**Robert P. Kimberly**, Professor (Medicine); Immunologic Diseases and Autoimmunity

**Christopher A. Klug**, Associate Professor (Microbiology); Hematopoietic Stem Cell Biology and Leukemia

**Hiromi Kubagawa**, Associate Professor (Pathology); Immunoglobulin-like Molecules and Fc Receptors

**Elliot J. Lefkowitz**, Associate Professor (Microbiology); Bioinformatics,

Genomics, Biodefense

**Robin G. Lorenz**, Associate Professor (Pathology); Mucosal Immunology, Inflammatory Bowel Disease, Helicobacter-Associated Gastritis and Adenocarcinoma

**Ming Luo**, Professor (Microbiology); Structure-Based Approaches to Anti-Infectious Agents

**Cindy L. Luongo**, Assistant Professor (Microbiology); Double-Stranded RNA Virus

**Jerry R. McGhee**, Professor (Microbiology); Immunoregulation, Isotype-Specific Responses, Mucosal Vaccines

**Jiri Mestecky**, Professor (Microbiology); Mucosal Immunity, Vaccines

**Suzanne M. Michalek**, Professor (Microbiology); Vaccine Delivery Systems, Mucosal Immunity, Inflammation, T Cells and Cytokines, Innate Immune System

**Zina Moldoveanu**, Research Associate Professor (Microbiology); Mucosal Immunology, IgA, Vaccines

**Richard P. Morrison**, Professor (Medicine); *Chlamydia* Pathogenesis and Immunity

**Casey D. Morrow**, Professor (Cell Biology); Viral Replication, Vaccines

**John D. Mountz**, Professor (Medicine); Autoimmunity; Genetics, Arthritis, Apoptosis, Cell Senescence

**Mark J. Mulligan**, Associate Professor (Medicine); HIV, Glycoprotein Vaccine, Viral Assembly, Retroviruses

**Moon H. Nahm**, Professor (Pathology); Bacterial Vaccines, Antibody Structure and Function, B Cell Development

**Peter E. Prevelige**, Associate Professor (Microbiology); Viral Capsid Self-Assembly

**Firoz Rahemtulla**, Professor (Prosthodontics and Biomaterials); Salivary Peroxidase System, Salivary Glands

**Chander Raman**, Assistant Professor (Medicine); Autoimmunity and Tolerance, Lymphocyte Activation, Signal Transduction, Lymphocyte Development

**Julian C. Rayner**, Assistant Professor (Medicine); Biology and

Pathogenesis of the Malaria Parasite, *Plasmodium falciparum*

**Harry W. Schroeder**, Professor (Medicine); Developmental Genetics, Clinical Immunology

**George M. Shaw**, Professor (Medicine); Human Retroviruses, Molecular Virology and Viral Pathogenesis

**Andries J. Steyn**, Assistant Professor (Microbiology); Molecular Mechanism of *Mycobacterium Tuberculosis* V

**Virulence; Functional Genomics; Identification of Virulence Pathways Through Protein-Protein Interactions**

**Wayne M. Sullender**, Associate Professor (Pediatrics); Respiratory Syncytial Virus, Antigenic Diversity

**Jianming Tang**, Assistant Professor (Medicine); HIV/AIDS, Genetics, Immunogenetics, Immunology, Infectious Diseases

**Charles L. Turnbough Jr.**, Professor (Microbiology); Bacterial Gene Regulation and Structure/Function of the *Bacillus anthracis* Exosporium

**Thomas R. Unnasch**, Professor (Medicine); River Blindness: Evolution, Immunotherapy, Diagnosis

**Mark R. Walter**, Associate Professor (Microbiology); Signal Transduction, Cytokine Structure and Function

**Bracie Watson Jr.**, Assistant Professor (Medicine); Genetics of Complex Disorders, Hypertension and Alzheimer's Disease, Population Genetics, Role of Mitochondria in the Etiology of Complex Genetic Disease

**Casey T. Weaver**, Associate Professor (Pathology); T Cell Development

**Gail W. Wertz**, Professor (Microbiology); Molecular Virology, RNA Replication

**Richard J. Whitley**, Professor (Pediatrics and Medicine); Herpesviruses

**Craig M. Wilson**, Associate Professor (Pediatrics and Medicine); HIV in Adolescents, Clinical and Pathophysiologic Studies

**Janet L. Yother**, Associate Professor (Microbiology); *Streptococcus pneumoniae* Genetics and Pathogenesis

**Allan Zajac**, Assistant Professor (Microbiology); Antiviral Immunity, T-Cell Responses

**Zhixin (Jason) Zhang**, Assistant Professor (Medicine); Molecular

## Graduate Program Objectives

The Department of Microbiology participates in the Cellular and Molecular Biology (CMB) graduate program, which is designed to provide a core curriculum to graduate students interested in the broad area of cellular and molecular biology. The CMB program involves student recruitment, admissions, and the first-year curriculum. At the end of the first year, each CMB student chooses a mentor and elects to pursue a degree in biochemistry and molecular genetics, cell biology, microbiology or neurobiology.

The Microbiology graduate program has as its primary objective to provide high quality, multidisciplinary training leading to the Ph.D. degree. Trainees who complete this program are expected to make significant future contributions in research in the basic biomedical sciences and to teach future generations of competent and productive research scientists.

The program consists of a core curriculum that emphasizes (a) the multidisciplinary and quantitative aspects of modern biomedical sciences; (b) a diversity of laboratory research training experiences; and (c) the development of skills in reading, writing, and speaking. Advanced students take courses and tutorials in specialized areas of interest, participate in seminars, and have opportunities to gain teaching experience while satisfying other requirements for their doctoral programs.

Areas of specialization for Ph.D. dissertation research include prokaryotic and eukaryotic molecular biology; molecular virology; viral, microbial, and mammalian cell genetics; immunogenetics; cellular, developmental, and tumor immunology; biosynthesis, and structure of biological macromolecules and membranes; and host-parasite relationships, pathogenesis, and infectious disease.

## Administration of Graduate Program

The Microbiology graduate program is administered by a graduate committee, chaired by the Microbiology graduate program director. The committee consists of six faculty members representing different scientific subdisciplines of microbiology.

## Admission Requirements and Financial Aid

The CMB admissions committee considers applications for admission to the Ph.D. program from prospective graduate students who present evidence of superior scholarship and who have completed courses in general and organic chemistry; mathematics, and at least one

introductory course in zoology or biology. Completion of courses in physical chemistry and biology, including genetics and biochemistry, is also recommended. Students with M.S., M.D., D.D.S., D.M.D., and D.V.M. degrees are encouraged to apply.

Admission criteria for the Ph.D. program are those of the Graduate School, plus a personal interview. Students accepted into the program during the last several years have had average scores of greater than 600 on the quantitative portion of the GRE General Test and 1,200 on the combined verbal and quantitative sections. All students accepted into the program are provided with fellowships or traineeships. Fellows and trainees are required to undertake full-time studies and are not permitted to do any other remunerative work. Financial support will be continued provided the student's performance is satisfactory. During the 2002-2003 academic year, entering students were provided with stipends of \$18,156 per annum plus funds for tuition, fees, and health insurance. These amounts are reviewed yearly.

## **Ph.D. Program Requirements**

Students entering with B.S. or B.A. degrees normally need five to six years to complete the curriculum. There are no language requirements. Requirements for the Ph.D. degree are as follows:

1. Completion of the following courses or their equivalent: CMB 700, 701, 702, 703, 704, 705, 712, 721, 722, and 723.
2. Completion of at least three advanced courses (700 level) in an area of the student's interest;
3. Attendance and participation in at least one Journal Club and the Development of Communication Skills for Biological Research (MIC 710) during each term of residence after the first year.
4. Satisfactory performance in one preliminary examination in which the student must propose and defend an original research proposition;
5. Admission to candidacy for the Ph.D. degree (upon completion of the above requirements and approval of a dissertation research program by the student's advisor and dissertation committee);
6. A dissertation reporting the results of original, significant, and publishable scientific research;
7. A final oral examination on the dissertation, conducted by the student's dissertation committee; and
8. A formal public seminar presentation of the dissertation research.

### **Additional Information**

For detailed information, contact Ms. Debbie Sirles, Program Manager, UAB Department of Microbiology, Bevill Biomedical Research Building, Suite 264, 1530 3rd Ave South, Birmingham, AL 35294-2170.

Telephone 205-934-0621

E-mail: [sirles@uab.edu](mailto:sirles@uab.edu)

Web [www.microbio.uab.edu](http://www.microbio.uab.edu)

## Course Descriptions

### Cellular and Molecular Biology (CMB)

**700. Cellular and Molecular Biology I . Biomolecules. Structural and biochemical properties of proteins, enzymes, and coenzymes are discussed. 5 hours.**

**701. Cellular and Molecular Biology II.** Genetics. Prokaryotic and eukaryotic genetics; control of gene expression; DNA recombination, replication, transcription, and translation. 5 hours.

**702. Cellular and Molecular Biology III.** Cells. Fundamental aspects of cell biology. 5 hours.

**703. Cellular and Molecular Biology IV.** Signaling. Mechanisms of cellular signaling. 5 hours.

**704. Cellular and Molecular Biology V.** Virology/Immunology. Virology; theoretical and experimental aspects of the immune system. 5 hours.

**705. Cellular and Molecular Biology VI.** Special Topics. 2 hours.

**721-723. Laboratory Research.** 12 week rotations in each of three laboratories conducting research; 15-minute oral presentations on accomplishments each rotation. 4 hours each.

### Microbiology (MIC)

The following courses may be taken more than once.

**710. Development of Communication Skills for Biological Research.** 2 hours.

**721. RNA Silencing (RNAi) Journal Club.** 1 hour. Fall, spring.

**722. Bacterial Pathogenesis Journal Club.** 1 hour. Fall, spring.

**723. Gene Expression and Regulation Journal Club.** 1 hour. Fall, spring.

**737. Mucosal Immunology Journal Club.** 1 hour.

**772. Bacterial Pathogenesis Journal Club.** 1 hour. Fall, spring.



785. **Biology of Parasitism Discussion Group.** Fall, spring. 1 hour.

786. **Retrovirus Journal Club.** 1 hour. Fall, spring.

789. **Journal Club in Biological Crystallography.** 1 hour. Fall, spring.

794. **Structural Virology Journal Club.** 1 hour. Fall, spring, summer.

796. **Neuroimmunology Journal Club.** 1 hour. Fall, spring.

797. **Cellular and Molecular Immunology Journal Club.** Fall, spring. 1 hour.

798. **Nondissertation Research.** 1-10 hours.

799. **Dissertation Research.** Prerequisite: Admission to candidacy. 1-10 hours.

#### Advanced Courses

758. **Topics in Prokaryotic Biology.** 3 hours. Yother, Turnbough

757. **Protein Folding and Association.** 3 hours. Preveliege

Other advanced courses are offered in a one-time "Contemporary Topics" format. Please consult the departmental web page for current listings.

Last modified 11/30/04

## UAB Graduate School

### Neurobiology

Graduate program director: *Theibert*

### Primary Faculty

**Michael Brenner** , Associate Professor (Neurobiology); Molecular Control of Transcription in Astrocytes; Protein Aggregate Disease; Spinal Injury

**Lynn E. Dobrunz** , Assistant Professor (Neurobiology); Synaptic Transmission; Presynaptic Properties of Single Synapses

**Michael J. Friedlander** , Professor and Chair (Neurobiology); Molecular Mechanisms of Synaptic Plasticity in the Cerebral Cortex—Role of Calcium Signaling

**John J. Hablitz** , Professor and Vice-Chair (Neurobiology); Development of Ion Channel Gating and Synaptic Transmission by Excitatory Amino Acids in the Mammalian Forebrain

**Robin A. J. Lester** , Associate Professor (Neurobiology); Molecular Pharmacology of Ligand- and Voltage-Gated Ion Channels in the Central Nervous System

**Stuart C. Mangel** , Professor (Neurobiology); Pharmacological Modulation of Intra-Retinal Synaptic Circuits; Circadian Rhythms

**Lucas D. Pozzo-Miller** , Assistant Professor (Neurobiology); Micro-Compartmentalization of Calcium in Synaptic Function and Plasticity; Role of Brain-Derived Neurotrophic Factor

**Harald W. Sontheimer** , Professor (Neurobiology); Regulation and Function of Ion Channels in Glia; Pathology of Gliomas

**Anne B. Theibert** , Associate Professor (Neurobiology); Molecular Mechanisms of the PI 3-Kinase Cascade in Neuronal Development

**David S. Weiss** , Professor (Neurobiology); Molecular Biophysics of Receptors; Structure and Function of GABA Receptors

**Scott M. Wilson** , Assistant Professor (Neurobiology); The Role of the Ubiquitin-Proteasome Pathway in the Nervous System.

**Yi Zhou** , Assistant Professor (Neurobiology); Modulation of Ion Channels, Regulation of Neuronal Excitability and Synaptic Transmission

## Secondary Faculty

**Franklin R. Amthor** , Professor, Psychology

**Dale J. Benos** , Professor and Chair, Physiology & Biophysics

**Etty Benveniste** , Professor and Chair, Cell Biology

**J. Edwin Blalock** , Professor, Physiology & Biophysics

**William J. Britt**, Professor, Pediatrics

**Steven L. Carroll** , Associate Professor, Pathology

**Charles S. Cobbs** , Associate Professor, Neurosurgery

**Ramon F. Dacheux** , Professor, Ophthalmology

**Peter J. Detloff** , Associate Professor, Biochemistry and Molecular Genetics

**Leon S. Dure** , Associate Professor, Pediatrics and Neurology

**Alvaro G. Estevez**, Assistant Professor, Physiology & Biophysics

**Paul D. R. Gamlin** , Professor and Chair, Physiological Optics

**Gail V. W. Johnson** , Professor, Psychiatry and Behavioral Neurobiology

**Kent T. Keyser** , Professor, Physiological Optics

**Kevin L. Kirk** , Professor, Physiology & Biophysics

**Timothy W. Kraft**, Associate Professor, Physiological Optics

**Michael S. Loop** , Associate Professor, Physiological Optics

**Richard B. Marchase** , Professor of Cell Biology and Associate Dean, School of Medicine

**Guillermo Marques**, Assistant Professor, Cell Biology

**Lori L. McMahon** , Assistant Professor, Physiology & Biophysics

**Anthony Nicholas** , Assistant Professor, Neurology

**Alan K. Percy** , Professor, Pediatrics and Neurology

**Steven Rosenfeld** , Professor, Neurology

**Kevin A. Roth** , Professor, Clinical Pathology

**Douglas M. Ruden** , Professor, Environmental Health Sciences

**J. Michael Wyss** , Professor, Cell Biology

## Program Information

### Objectives

The mission of the Neurobiology Graduate Program is to train a new generation of neuroscientists to become leading contributors to basic and health-related brain research. Students receive a breadth of knowledge of the fundamentals of modern neurobiological research, from molecular and cellular to integrative and systems approaches. Training also includes in-depth research in a specific area, with topics ranging from understanding the development, structure and function of the normal nervous system to disease mechanisms and treatment. In addition to interfacing with other basic science departments at UAB, students have the opportunity to receive training in clinical topics from Neurology, Neurosurgery, Psychiatry, Pediatrics, and Rehabilitation Medicine. The Neurobiology Graduate Program provides a firm foundation for fundamental neuroscience research and teaching careers at academic health science centers, research institutions and industry.

### Admission Requirements

Students enter the Neurobiology Graduate Program through either an interdisciplinary program or by direct admission. The interdisciplinary programs include the Cellular and Molecular Biology (CMB) program, Neuroscience program, Behavioral Neuroscience (BN) program, Vision Science (VS) program and the Medical Scientist Training Program (MSTP). Direct applications to the Neurobiology Graduate Program will also be considered. Recommendations for acceptance of direct applications will be based on Graduate School admissions criteria and, when possible, a personal interview. The deadlines for the CMB, Neuroscience, BN, VS and MSTP interdisciplinary programs are posted on their websites. The Neurobiology Program will consider direct admission applications until the class is filled.

### Overview of the Program

In the first year, students participate in a core curriculum that is defined by the program through which they enter. In addition, each student obtains research experience and identifies potential mentors through three laboratory rotations. At the end of the first year, students choose a mentor and laboratory for their dissertation research. In the second year, students conduct research and participate in the Graduate Neuroscience:

From Molecules to Mind course. The objectives of Graduate Neuroscience: From Molecules to Mind are to broaden and reinforce an understanding of fundamental concepts in molecular, cellular, integrative, systems, and medical neuroscience and serve as part of the departmental qualifying exam. At the end of the second year, a graduate dissertation committee is chosen by the student. In the third year, a formal written proposal of the student's dissertation project is presented to and evaluated by the student's graduate dissertation committee. Once the core and Graduate Neuroscience courses have been completed and the dissertation proposal is approved, the student is admitted to candidacy for the Ph.D. degree in Neurobiology. In the third and fourth years, students perform dissertation research and can participate in an advanced graduate course. All Neurobiology students attend the Neurobiology Seminar Series and a journal club colloquium throughout their graduate studies.

## Coursework

**First Year:** All Neurobiology students are required to take a set of courses during the first year of the graduate program that provide a fundamental understanding in biochemistry, cell biology, genetics, and cellular physiology. For M.D.-Ph.D. students, this course curriculum is a two-year program. First year courses are determined by the program through which the student enters and include the CMB Core (Biomolecules, Genes, and Cells), and a selection from the following: Cell Signaling, Cellular and Molecular Neurobiology, Integrative Neuroscience, Developmental Neuroscience and Immunology. The Neurobiology Department requires all students to achieve a grade of B or higher in all courses.

**Second Year:** The centerpiece of the second-year is Graduate Neuroscience: From Molecules to Mind course, which is taken during the spring semester. The Graduate Neuroscience course is based on lecture material in the Medical Neuroscience course plus an advanced graduate component in which four areas are emphasized: concepts in neuroscience, literature evaluation, oral presentation, and writing skills. The qualifying exam involves successfully completing the Graduate Neuroscience course and passing an oral exam given immediately following this course.

**Third and Fourth Years:** After completing the Graduate Neuroscience course and passing the oral exam, the student will have qualified in the Department and is ready to prepare for admission to candidacy for the Ph.D. in the third year. Admission to candidacy involves successfully writing and presenting the dissertation proposal by the end of the third year. In the third or fourth year, students are required to complete one pertinent advanced course in Neurobiology. Offerings of the Department include Biophysics of Membrane Excitability, Mechanisms of Signal Transduction, Mind and Brain, Neurobiology of Disease, and Principles of Synaptic Transmission and Plasticity. Advanced courses may also be selected from offerings of other departments. Students must also take Principles of Scientific Integrity and Statistics, which are usually taken

during the third year.

## **Admission to Candidacy**

After successfully completing the first year core and Graduate Neuroscience courses and passing the oral exam, students are required to write and give an oral presentation of their dissertation proposal by August 10 at the end of the third year. The dissertation proposal is similar in organization to an eight-ten page NIH NRSA style grant application. For acceptance of the proposal by the dissertation committee, the student must describe a significant and original scientific problem, formulate a testable hypothesis, write a clear and concise experimental design that addresses the problem, discuss her or his ideas orally in an effective manner, and demonstrate comprehension of the problem in a broad and critical context.

## **Completion of the Ph.D. Program**

After being admitted to candidacy, the student meets at least once a year with the dissertation committee. It is expected that most students will complete the entire program in four to five years. However, in extenuating circumstances, up to seven years is allowed for completion of the Ph.D. degree. To further develop presentation and teaching skills, students give research seminars in the Neurobiology Student/Fellow Seminar Series and at the Neurobiology Retreat. Students also participate in a teaching practicum that can take the form of didactic lectures, running a journal club, or assisting in a lab course or discussion group.

## **Financial Assistance**

Doctoral students will receive financial aid in the form of a fellowship. Current stipends are \$21,000 per year plus tuition for 2004 entering students, contingent upon availability of funds. Doctoral students are considered full time; therefore, no work or other activity unrelated to pursuit of the doctoral degree is permitted.

## **Additional Information**

For detailed information, contact Dr. Anne B. Theibert, Program Director, UAB Department of Neurobiology, CIRC 576, 1719 Sixth Avenue South, Birmingham, Alabama 35294-0021.

Telephone (205)934-7278

Fax (205)934-6571

E-mail [theibert@nrc.uab.edu](mailto:theibert@nrc.uab.edu)

Web [www.neurobiology.uab.edu](http://www.neurobiology.uab.edu)

## Course Descriptions

### Neurobiology (NBL)

**713. Graduate Neuroscience: From Molecules to Mind:** The objective of this course is to broaden and reinforce understanding of fundamental concepts in neurobiology. Five areas are emphasized: i) review concepts in the structure and function of the normal developing and mature nervous system from the molecular level to the behavioral level; ii) provide a basic science introduction to medically relevant areas of neuroscience at the molecular, cellular and system's level as pertains to Neurology, Psychiatry and Pediatrics; iii) critically evaluate original research literature, iv) develop oral presentation skills in exposition, analysis and critiquing of research topics and v) develop writing skills for presenting topics in neurobiology and designing experiments to evaluate relevant hypotheses. The Graduate Neuroscience course is based on lecture and laboratory material in the Medical Neuroscience course and research article presentation and discussion. The course is organized around five modules including: Module 1-Genesis of the nervous system and its internal environment, Module 2-Electrical properties of cells in the nervous system, Module 3-Chemical signaling in the nervous system including synaptic transmission and signal transduction, Module 4-Information processing and functional circuitry of sensory and motor systems and Module 5- Higher level processing in the brain –recognition, categorization, learning, memory, reward, motivation and reasoning. 10 hours.

**703. Neurobiology Seminar.** This weekly research seminar series features prominent outside speakers and UAB faculty. Thursdays at 1, September through May. 1 hour.

**711. Medical Neuroscience.** Introduction to the structure and function of the normal developing and mature nervous system from the molecular level to the behavioral level; provides a basic science introduction to clinical neuroscience. 5 hours.

**715-717. Laboratory Rotation I-IV.** Research in neurobiology as applied to specific problems in areas of faculty interest. 1-6 hours.

**720. Biophysics of Membrane Excitability.** Selected topics in ion permeation across biological membranes via ion channels, transporters, and pumps. 4 hours.

**729. Mechanisms of Signal Transduction (CB 729).** Molecular mechanisms involved in transduction of neural signals via cell-surface

receptors, targets of intracellular second messengers, and production and outcome of cellular responses. 4 hours.

730. **Neurobiology of Disease.** Investigations into diseases of the nervous system at the cellular and molecular level. 4 hours.

742. **Synaptic Dynamics.** Mechanisms underlying the control of neurotransmitter release, the time course of the synaptic response, and modulation of synaptic signaling. 4 hours.

751. **Cellular and Molecular Neuroscience** (CMB 754/ Neur 702). An introduction to the principles of molecular and cellular neurobiology, including the properties of membranes, synaptic transmission, structure and function of ion channels, and mechanisms of neuromodulation. 5 hours.

752. **Developmental Neuroscience** (CMB 763/ Neur 720). Birth, migration, growth, and differentiation of neurons; establishment of synaptic connections; regulation and plasticity. 4 hours.

784-789. **Neurobiology Journal Club I-II.** Students, postdoctoral fellows, and faculty critically evaluate recently published work from specific areas of neurobiology. Separate sections focus on ion channels, synaptic plasticity, signal transduction, neurodegenerative diseases, biology of glial cells, and neurotrophins 1 hour.

798. **Nondissertation Research.** Laboratory research performed prior to admission to candidacy. 1-12 hours.

799. **Dissertation Research.** Prerequisite: Admission to candidacy. 1-12 hours.

Last modified 10/06/04



## UAB Graduate School

### Neuroscience Training Program

Graduate Program Director: *Paul Gamlin, PhD*

Program Coordinator: *Clifford Kennon, MPA, EdS*

## Faculty

**Frank R. Amthor**, Associate Professor (Psychology); Retinal Physiology, Neural Information Processing

**Karlene K. Ball**, Professor (Psychology); Cognitive Impairment and Aging

**Scott R. Barnum**, Associate Professor (Microbiology); Role of complement in CNS diseases

**Dale J. Benos**, Professor and Chair (Physiology & Biophysics); Elucidation of the molecular basis of operation of epithelial and astrocyte ion channels and transporters.

**Etty N. Benveniste**, Professor and Chair (Cell Biology); Bidirectional Communication Between the Immune and Nervous Systems

**Kathleen H. Berecek**, Professor (Physiology & Biophysics); Hypertension and Cardiovascular Remodeling

**Mark O. Bevensee**, Assistant Professor (Physiology & Biophysics); Acid-Base Transport and pH Regulation in the Nervous System

**Mary M. Boggiano**, Assistant Professor (Psychology); Neural Control of Feeding

**Michael Brenner**, Associate Professor (Neurobiology); Molecular Neurobiology

**Stephen L. Carroll**, Assistant Professor (Pathology); Neuregulins in Nervous System Regeneration and Neoplasia

**Yiu-Fai Chen**, Research Professor (Medicine-Cardiovascular Disease); Molecular Mechanisms of Hypoxia-Induced Pulmonary Hypertension

**James E. Cox**, Associate Professor (Psychology); Physiological Psychology, Obesity

**Christine Curcio**, Associate Professor (Ophthalmology); Anatomy of Human Retina, Aging

**Ramon F. Dacheux**, Professor (Ophthalmology); Morphological and Physiological Organization of Mammalian Retina

**Peter J. Detloff**, Associate Professor (Biochemistry & Molecular Genetics); Mouse Models of Human Genetic Disorders

**Allan C. Dobbins**, Assistant Professor (Biomedical Engineering); Space and Form in Vision, fMRI

**Lynn Dobrunz**, Assistant Professor (Neurobiology); synaptic Transmission, Presynaptic Properties of Single Synapses

**Alvaro G. Estevez**, Assistant Professor (Physiology & Biophysics); Oxidative Stress in Motor Neuron Apoptosis

**James E. Flege**, Professor (Speech & Hearing Sciences); Speech and Language

**Michael J. Friedlander**, Professor and Chair (Neurobiology); Synapse Function, Role of Nitric Oxide in Neural Signaling, Molecular Basis of Learning

**Ken Fukuchi**, Associate Professor (Genomics and Pathobiology); Alzheimer's Disease

**Paul D.R. Gamlin**, Professor and Chair (Physiological Optics); Eye Movements, Central Visual Processing, fMRI

**Craig C. Garner**, Professor (Neurobiology); Molecular Neurobiology

**Timothy J. Gawne**, Assistant Professor (Physiological Optics); Central Visual Processing, fMRI

**Vithal K. Ghanta**, Professor (Biology); Tumor Immunology; Immune System and Aging; CNS and Immune System Interactions

**Yancey G. Gillespie**, Professor (Surgery-Neurosurgery); Molecular and Cellular Biology of Malignant Glia

**Candece Gladson**, Associate Professor (Pathology); Mechanisms Involved in Malignant Astrocytoma Cell Migration, Invasion, and Proliferation

**John J. Hablitz**, Professor (Neurobiology); Cellular Mechanisms of Neurotransmission

**Lindy E. Harrell**, Professor (Neurology); Alzheimer's Disease, Aging, Behavioral Neurology

**Gail V.W. Johnson**, Professor (Psychiatry-Behavioral Neurobiology); Phosphorylation and Function of Cytoskeletal Proteins

**Richard Jope**, Professor (Psychiatry-Behavioral Neurobiology); Neuronal Signaling Systems; Mechanisms and Abnormalities in Neuronal Disorders

**Kent T. Keyser**, Professor (Physiological Optics); Neurotransmitters and Receptors

**Bruce Korf**, Professor (Genetics) ; Neurogenetics, molecular diagnostics and neurofibromatosis

**Timothy W. Kraft**, Associate Professor (Physiological Optics); Retinal Photoreceptors and Color Vision

**Matthieu Lesort**, Assistant Professor (Psychiatry-Behavioral Neurobiology); Metabolism dysfunctions in Huntington's disease

**Robin A. J. Lester**, Associate Professor (Neurobiology); Nicotinic Receptors in the CNS

**Xiaohua Li**, Assistant Professor (Psychiatry-Behavioral Neurobiology)- Mood Disorders, Neuropsychopharmacology and Molecular Neurobiology

**Michael S. Loop**, Associate Professor (Physiological Optics); Human and Animal Psychophysics, Color Vision

**Stuart Mangel**, Associate Professor (Neurobiology); Synaptic Plasticity and Modulation in the Retina; Circadian Rhythmicity

**Richard B. Marchase**, Professor/Associate Dean of Medicine (Cell Biology); Glucose Metabolism and Cytoplasmic Glycosylation

**Lori L. McMahon**, Assistant Professor (Physiology & Biophysics); Hippocampal Neurophysiology and Plasticity

**Anthony P. Nicholas**, Assistant Professor (Neurology); Movement Disorders

**Thomas T. Norton**, Professor (Physiological Optics); Regulation of Ocular Development

**Suzanne Oparil**, Professor (Medicine-Cardiovascular Disease); Pathophysiology of High Blood Pressure

**Cynthia Owsley**, Professor (Ophthalmology); Visual Psychophysics, Aging

**Jean Peduzzi-Nelson**, Research Associate Professor (Physiological Optics); Nervous System Regeneration using the visual system and the spinal cord.

**Alan K. Percy**, Professor (Pediatrics); Inherited Degenerative Diseases, Rett Syndrome, Neonatal Neurology

**Steven J. Pittler**, Professor (Physiological Optics); Photoreceptor Function in Health and Disease

**Lucas Pozzo-Miller**, Assistant Professor (Neurobiology); Calcium Signaling; Synaptic Plasticity; Neurotrophic Factors

**Michael W. Quick**, Associate Professor (Neurobiology); Regulation of Proteins Involved in Neuronal Signaling

**Alan Randich**, Professor (Psychology); Experimental Psychology

**Steven S. Rosenfeld**, Professor (Neurology); Malignant Gliomas, Motility of Malignant Glial Cells

**Michael E. Sloane**, Associate Professor (Psychology); Visual Perception, Psychophysics

**Harald Sontheimer**, Professor (Neurobiology); The Role Of Neuroglia In Brain Function

**Edward Taub**, Professor (Psychology); Biofeedback

**Anne B. Theibert**, Associate Professor (Neurobiology); Role of Phosphoinositides in Developmental Neurobiology

**Donald B. Twieg**, Associate Professor (Biomedical Engineering); MRI Technique Development for Functional Brain Imaging

**Shu Zhen Wang**, Assistant Professor (Ophthalmology); Molecular Mechanisms of Early Neural Development

**Ray Watts**, Professor and Chairman (Neurology); Neurological Movement Disorders: Parkinson's and other clinical disorders of association

**David S. Weiss**, Professor (Neurobiology); Structure/Function and Regulation of Ligand Activated Ion Channels

**Rosalyn E. Weller**, Associate Professor (Psychology); Neuroanatomy of the Visual System, fMRI

**Michael J. Wyss**, Professor (Cell Biology); Control of the Autonomic Nervous System

## Program Information

Graduate study in the multidisciplinary area of Neuroscience is coordinated through the Neuroscience Graduate Program. Faculty mentors from more than twelve basic and clinical departments participate in this program. The current research of these faculty include molecular, cellular, systems, behavioral, immunological, developmental, neurological, genetic, and psychiatric approaches to the nervous system. With more than sixty participating faculty, students enrolled in the neuroscience graduate program have numerous potential research laboratories in which to pursue their doctoral training.

The neuroscience graduate program administers an intensive, year-long core curriculum designed to provide entering graduate students with a comprehensive introduction to Neuroscience. The core curriculum includes Biochemistry, Cellular and Molecular Neurobiology, Developmental Neuroscience, and Integrative Neuroscience. Students are exposed to ongoing research projects as they rotate through three different laboratories during their first nine months of residency. In addition, a highly recommended, 2½ week residential course—Introduction to Neurobiology—is offered at the Dauphin Island Sea Laboratory for incoming Neuroscience students. For more details, see [www.disl.org/location.html](http://www.disl.org/location.html) and [univ-prog.disl.org/spdescription.html](http://univ-prog.disl.org/spdescription.html)

Students enter the neuroscience graduate program with the intent of using their classroom and laboratory experiences during the first year to help them further define their research interests. The minimum admission criteria are those of the Graduate School (B-level scholarship and a combined score of at least 550 on each section of the GRE) and a suitable background in the biological and physical sciences. Students for whom English is a second language are also required to take the TOEFL examination. At the beginning of their second year in graduate school, Neuroscience students who successfully complete the neuroscience

core curriculum select an advisor and become affiliated with a departmental graduate program.

Advanced courses in Neuroscience are offered by individual departments, and seminar series bring outstanding neuroscientists to the UAB campus. Since large numbers of neuroscientists are actively involved in research on the campus, a variety of journal clubs and special-interest discussion groups meet weekly.

All students conduct their dissertation research and their initial laboratory rotations in the laboratories of the various faculty members in the program. The outstanding facilities for neuroscience research at UAB include state-of-the-art equipment in the laboratories of the faculty members, and unique shared resources such as high-resolution microscopic imaging and high-field MRI systems. Perhaps the greatest strength of graduate training in neuroscience at UAB is the willingness of the faculty to allow students to gain a wide range of expertise and thus greatly facilitate the students' investigation of neuroscience questions of interest to them. The program is designed to recruit and train individuals who will become future leaders in neuroscience research. The program anticipates admitting 6-12 students each year.

### **Additional Information**

For detailed information, contact Mr. Clifford Kennon, Neuroscience Graduate Program, 601 Worrell Building, 924 South 18th Street, Birmingham, AL 35294-4390.

Telephone 205-934-8249.

Fax 205-934-5725

E-mail [neuroscience@uab.edu](mailto:neuroscience@uab.edu)

Web [www.neuroscience.uab.edu](http://www.neuroscience.uab.edu)

## **Course Descriptions**

### **Cellular and Molecular Biology (CMB)**

(See CMB for complete course description)

700. Cellular and Molecular Biology I. Biochemistry. 4 hours.

### **Neuroscience (NEUR)**

702. **Cellular and Molecular Neurobiology.** Electrical properties of nervous system in currents and channels; synapse, physiology, and pharmacology of neurotransmission; second messenger systems, neuroimmunology, signal transduction. 5 hours.

704. **Introduction to Neurobiology.** Lectures and extensive laboratories introduce students to the neuroanatomy and neurophysiology of marine invertebrates and vertebrates. 4 hours.

710. **Integrative Neuroscience** Sensory systems; motor systems; sensorimotor integration; control of the cardiovascular system; fluid and energy balance, circadian rhythms, learning and memory, genetic bases of behavior. 5 hours.

715-718. **Lab Rotation I-IV.** Techniques of neuroscience as applied to specific problems in areas of faculty interest. pass/fail 1-6 hours each.

720. **Developmental Neuroscience.** Birth, migration, growth and differentiation of neurons; establishment of synoptic connections; regulation and plasticity. 4 hours.

780-782. **Seminar I-III: Current Topics in Neuroscience.** Students and faculty critically evaluate recently published work from all areas of neuroscience. 1 hour.

Last modified 09/29/04

## UAB Graduate School

### Nurse Anesthesia (M.N.A)

Graduate program director: *Williams*

## Faculty

**Pamela Binns-Turner** , Assistant Professor (Nurse Anesthesia);  
Respiratory

**Michael Humber**, Assistant Professor (Nurse Anesthesia) General  
Anesthesia

**Joe R. Williams** , Associate Professor (Nurse Anesthesia);  
Pharmacology

**E. Laura Wright** , Assistant Professor (Nurse Anesthesia), General  
Anesthesia

## Program Information

The Nurse Anesthesia program prepares the registered nurse in all aspects of nurse anesthesia practice at the graduate level. The sequence of student coursework combines the knowledge of basic health sciences, scientific methodology in anesthesia, and advanced preparation to include a state-of-the-art scientific paper. Completion of the prescribed coursework and clinical practice comprise the requirements for the degree. The graduate is eligible to take the National Certification Examination, which, upon passing, allows them to practice as a certified registered nurse anesthetist.

The Nurse Anesthesia Program has received ten years of full accreditation by the Council on Accreditation of Nurse Anesthesia Educational Programs.

## Admission Requirements

Admission to the Master of Nurse Anesthesia (M.N.A.) program will be based on the prediction of the candidate's academic ability, work experience, and aptitude for a career in nurse anesthesia. In addition to meeting the admission requirements of the Graduate School, applicants must be graduates of an accredited nursing program and have earned a baccalaureate degree in nursing or in an appropriate science concentration; have a current professional R.N. license within the United States and be eligible for licensure within the State of Alabama; have a minimum of one year experience as an R.N. in a critical care area; have official exam results that indicate a minimum acceptable score of 500 on the verbal and quantitative sections of the GRE test or a score of 50 on

the MAT exam; submit satisfactory letters of reference to include an immediate nursing supervisor; and complete a personal interview with the program admission committee. The deadline to apply for admission is November 20.

## Curriculum

The Master of Nurse Anesthesia Program begins in the fall semester of each year. It comprises 63 semester hours of didactic instruction and 46 semester hours of clinical practicum and requires 27 months of full-time commitment. Students complete all foundation courses before beginning the clinical practicum, which starts after the first nine months of enrollment. The curriculum does not permit enrollment on a part-time basis.

## Additional Information

For detailed information, contact Mr. Joe R. Williams, Program Director, Master of Nurse Anesthesia Program, UAB School of Health Related Professions, RMSB 230, 1530 3rd Avenue South, Birmingham, AL 35294-1212.

Telephone 205-934-3209

E-mail [mna@uab.edu](mailto:mna@uab.edu)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Nurse Anesthesia (NA)

600. **Research Methods & Statistics.** Computer applications of inferential statistics employing parametric and nonparametric techniques; emphasis on hypotheses testing applicable to problems in health related settings; includes one-way analysis of variance. Prerequisite: Knowledge of descriptive statistics. 3 hours.

601. **Gross Anatomy.** Structure and functions of human body examined through laboratory dissection, lecture, models, and preceptorials. 4 hours.

610. **Medical Physiology.** Normal physiology of all major organ systems; emphasis on pathological conditions. 5 hours.

620, 621. **Anesthesia Pharmacology I, II.** Basic principles of pharmacology, emphasizing drugs directly related to practice of



anesthesia. 3 hours each.

630. **Biochemistry for Anesthetists.** Chemistry related to the practice of anesthesia. 3 hours.

640. **Anesthesia Principles I .** Principles and theories of anesthesia practice with emphasis on fundamental concepts of anesthesia care, and the principles of physics and monitoring related to anesthesia practice. 2 hours.

641. **Anesthesia Principles II.** The study of basic principles and monitoring techniques as they relate to the delivery of anesthesia. 3 hours.

645. **Professional Aspects.** An introduction to topics on professional issues related to the nurse anesthesia specialty. 2 hours.

646. **Legal Consideration and Quality Assurance Issues.** Malpractice and quality assurance concerns in anesthesia practice. 1 hour.

650. **Regional Anesthesia.** Techniques used to provide regional anesthesia for surgical procedures. 2 hours.

660. **Obstetrical Anesthesia.** Concepts concerning anesthesia management of pregnant patients. 1 hour.

661. **Anesthesia for Extremes of Age.** Introduction to anesthesia management of pediatric, geriatric, trauma, and same-day-surgery patients. 2 hours.

670, 671. **Anesthesia Pathophysiology I, II.** Detailed review of disease states and their influence on anesthesia management of patients. 3 hours each.

672, 675. **Clinical Practicum I, IV.** Operating room experience; application of theoretical principles of anesthesia management. 8 hours each.

673, 674, 676. **Clinical Practicum II, III, V.** (Continuation of NA 672 and 675). 10 hours each.

678. **Electrocardiography.** Supplements content in pathophysiology and advanced practice courses. Content relative to cardiovascular electrophysiology and its implication in the perioperative period. 3 hours.

680. **Anesthesia and Surgical Specialties.** Detailed review of major surgical specialties and their relationship to anesthesia care. 3 hours.

698. **Graduate Project.** Students develop selected topics into state-of-the-art review articles. 2 hours each.

695-697. **Special Topics.** Review of specialty concepts as presented in NA 670, 671, and 680. 3 hours each.

Last modified 11/11/04

## UAB Graduate School

### Nursing (Ph.D., M.S.N.)

Ph.D. Program Director: Dashiff

## Faculty

**Susan Appel**, Assistant Professor (Nursing); Metabolic Syndrome, Health Promotion

**Rachel Booth**, Professor (Nursing); Administrator of Higher Education, Leadership, Primary Care

\* **Kathleen Brown**, Professor (Nursing); Community Health Nursing, Occupational Health, Back Injury Prevention

**Joe Burrage, Jr.**, Associate Professor (Nursing); Psychosocial and Cultural Aspects of HIV Infection

**Ann Clark**, Associate Professor (Nursing); Women's Health, Alternative Therapies

\* **Carol Dashiff**, Professor (Nursing); Family Processes Influencing Adolescent Autonomy, and Self-Care in Health and Chronic Illness

\* **Linda Davis**, Professor (Nursing); Family Systems, Caregiving and Chronic Illness

**Anne Foote**, Associate Professor (Nursing); Nursing Education, Neuroscience Nursing

**Pamela Fordham**, Assistant Professor (Nursing); Palliative Care, Death and Dying, Nursing Education

**Dorothy Gauthier**, Associate Professor (Nursing); Pathophysiology, Psychoneuroimmunology

\* **Joan Grant**, Professor (Nursing); Nursing Diagnosis, Family Caregiving

\***Barbara Habermann**, Associate Professor (Nursing); Family Management of Adult Chronic Illness, Qualitative Methods

\* **Lynda Harrison**, Professor (Nursing); Effects of Human Touch on Preterm Infants, Maternal-Child Health, Parenting

**Gail Hill**, Associate Professor (Nursing); Health Systems, Acute Care

**Vicki Johnson**, Assistant Professor (Nursing); Urinary Dysfunction;

## Muscle Adaptation to Exercise

\* **Duck-Hee Kang**, Associate Professor (Nursing);  
Psychoneuroimmunology, Immune Responses and Stress in Asthmatic  
Youth and Cancer Patients

**Norman Keltner**, Professor (Nursing); Psychopharmacology, Psychiatric  
Nursing

**Alberta McCaleb**, Associate Professor (Nursing); Self-Care Activities  
and Health Promotion in Adolescents

**Linda Miers**, Associate Professor (Nursing); Nurse Caring Behaviors,  
Roy Adaptation Model

**Jacqueline Moss**, Assistant Professor (Nursing); Nursing Informatics

**Judy Pemberton**, Assistant Professor (Nursing); Nursing and Health  
Systems Administration, Quality and Outcomes Management,  
Organization/Team Performance Excellence

**Erica Pryor**, Assistant Professor (Nursing); Epidemiology; Statistics;  
Infectious Disease

\* **Marti Rice**, Associate Professor (Nursing); Anger, Stress, Blood  
Pressure, Exercise, and Cardiovascular Risk in Children and  
Adolescents

**Mona Shattell**, Assistant Professor (Nursing); Mental Health, Health  
Care Environments, Patient Care Quality

**Norma Stullenbarger**, Professor (Nursing); Nursing Education and  
Administration; Meta-analysis

\* **Anne Turner-Henson**, Professor (Nursing); Children with Special  
Health Care Needs, Caregiving Within Families

\* **Mary Umlauf**, Professor (Nursing); Gerontology, Incontinence, Sleep

\* **Michael Weaver**, Professor (Nursing); Health Promotion, Occupational  
Health, Biostatistics, Statistical Genetics

**Anne Williams**, Assistant Professor (Nursing); Stroke Victims,  
Caregiving

**Barbara Woodring**, Professor (Nursing); Improving Care of Children,  
Supporting Intergenerational Families

**Penelope Wright**, Associate Professor (Nursing); Pediatric Oncology,

Quality of Life

\* Ph.D. core faculty

## Ph.D. Program Description

The Doctor of Philosophy in Nursing is designed to prepare professional nurses as scholars and researchers who will make a substantive contribution to the body of knowledge for the discipline of nursing and, thereby, improve health services for those who receive nursing care. Graduates will improve the delivery of health care by investigating factors related to (1) biobehavioral interaction, (2) protecting, promoting, and restoring health, or (3) caregiving and family health. Two options are available for program entry. Applicants may either hold a master's degree in nursing (master's degree Ph.D. option) or a baccalaureate degree in nursing (Postbaccalaureate Ph.D. option)

### Program Goals

The curriculum prepares graduates to critique models, concepts, and theories for their utility in defining, organizing, and expanding the body of nursing and health care knowledge within the focal areas; contribute to nursing through theory-testing and theory-generating research; conduct health care investigations based on scientifically sound conceptual and methodological decisions about research designs, measures, and statistics; reflect a consistent commitment to human values and high ethical standards in nursing practice and science; and initiate and collaborate in interdisciplinary and multidisciplinary endeavors that contribute to the health and functional status of individuals and communities and that foster the ability of families, including caregivers, to facilitate the health of family members.

### Admission Requirements

In addition to the requirements of the UAB Graduate School, admission to this program depends upon the following criteria:

- Master's degree in nursing from an accredited program, or baccalaureate degree in nursing from an accredited program for those applying to the Postbaccalaureate Ph.D. option;
- At least an overall B average on all graduate level coursework;
- Scores of at least 550 on the verbal and quantitative sections of the GRE, or a total of 1650 on the verbal, quantitative, and analytical sections of the GRE;
- Satisfactory TOEFL scores for students from non-English-speaking countries (minimum of 550);
- Evidence of graduate coursework in research methods and

inferential statistics required for those with master's degree in nursing. Postbaccalaureate Ph.D. students complete these requirements during the program;

- Eligibility for licensure as a registered nurse in Alabama;
- A written goal statement that describes congruence between the applicant's research interests and one of the program focal areas;
- A current curriculum vita;
- Submission of an independent work that demonstrates the applicant's scholarship potential;
- Letters of reference;
- A personal interview, required for applicants meeting all other requirements;

Individuals who do not meet the above criteria will be considered on an individual basis.

## **Degree Requirements**

Candidates for the degree of Doctor of Philosophy in Nursing must complete the following requirements:

- Coursework and experiences based on the student's background and focal area, with an overall GPA of B or better, and grades of B or better in all required courses in the School of Nursing;
- A statistical analysis sequence;
- A comprehensive examination administered upon completion of an individualized program of studies; and
- A written dissertation demonstrating competence in research, individual inquiry, critical analysis, and in-depth treatment of a health care problem in the focal area. The investigation must make a genuine contribution to knowledge, concepts, and theories in nursing. A final defense of the dissertation is required.

## **M.S.N. and Postmaster's Programs in Nursing**

For information on the Master of Science in Nursing Program and Certificate of Advanced Study in Nursing, please see the UAB School of Nursing catalog or contact Dr. Norma Stullenbarger, Associate Dean, UAB School of Nursing, 1530 3rd Avenue South, Birmingham, AL 35294-

1210 (telephone 205-934-0610).

## Postdoctoral Study

Postdoctoral studies in nursing are individually arranged based on a student's learning needs in specific areas of interest that match the strengths of the graduate faculty. The focus of postdoctoral study is on expanding and extending the student's knowledge base in nursing theory, practice, research, and generally centers on a research effort of mutual interest to the student and faculty mentor. Special faculty strength supports postdoctoral study in the areas of physical exercise, functional status, psychoneuroimmunology, health promotion and family caregiving.

## Financial Aid

Many opportunities for financial aid available in the form of living stipends, tuition and fee coverage and support for scholarship including graduate teaching or research assistantships; Graduate Fellowships; scholarships; and federal professional nurse traineeships. Additional internal and external sources of support include the Florence A. Hixson Scholarship; Alabama Graduate Nurse Scholarships; federal National Research Service Awards for predoctoral and postdoctoral study and part-time employment for registered nurses licensed in Alabama. For further information concerning these, contact the Chair for Graduate Studies in Nursing (see below) or the Office of Student Affairs in the School of Nursing.

## Other Policies of the School of Nursing

All students enrolled in clinical nursing courses must have Alabama registration, malpractice insurance, CPR certification, and evidence of hepatitis B immunization and instruction in OSHA.

## Additional Information

For detailed information, contact Dr. Carol Dashiff, Chair, Graduate Studies, UAB School of Nursing, NB 301, 1530 3rd Avenue South, Birmingham, AL 35294-1210.

Telephone 205-934-6852 or 934-6102

E-mail [dashiffc@uab.edu](mailto:dashiffc@uab.edu)

Web [www.uab.edu/son](http://www.uab.edu/son)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit.

Courses numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

**NBB 760. Biobehavioral Foundations in Nursing Research.**

Biobehavioral interactions among psychological and cognitive domain, social and environmental domain, and biology as they affect health outcomes. The emphasis will be placed on theories and concepts of each domain of biobehavioral interactions. 3 hours. Fall. (Kang)

**NBB 761. Biobehavioral Research: State of the Science.** In-depth exploration and critical analysis of current biobehavioral interaction research including conceptual and methodological issues. In addition, the course will be focused on examining the effectiveness of interventions on biobehavioral domains and health outcomes and identifying future directions for research. 3 hours. Spring. (Rice)

**NBB 762. Biobehavioral Research Seminar.** In-depth understanding of a selective area of biobehavioral research. Biological interactions with psychological, cognitive, social and environmental domains will be included in relation to actual and potential health outcomes. Current understanding in a selective area of biobehavioral research will be critically analyzed for conceptual and methodological issues. 1-3 hours. Summer. (Kang, Rice)

**NFH 760. Family Health and Caregiving Across the Lifespan.** A survey of current research related to the reciprocal relationship between the family and health and caregiving within the context of the family lifespan. The student develops an understanding of health and illness within a framework of human development, interaction and adaptation, as well as cultural and gender norms. 3 hours. Fall. (Davis)

**NFH 761. Theory Development in Family Health and Caregiving.** Skill development in evaluating selected family and caregiving theories for their current or potential relevance to research on family health and individual health in the context of the family, and family caregiving processes in health and illness. 3 hours. Spring. (Habermann)

**NFH 762. Family Research Methods.** Skill development in the critical analysis and application of family research methods as a foundation for conducting family research. Experience is gained in instrument evaluation and selection, decision-making regarding level of variable formation, model validation through multiple measurement, and selection of appropriate statistical tests to capture the complexity and dynamic nature of the family. 3 hours. Summer. (Dashiff)

**NPR 760. Conceptual Foundations for Promoting, Protecting, and Restoring Health:** This course will be focused on theories, concepts, and research related to promoting, protecting, and restoring health. Students are expected to analyze cultural, social, racial, and gender influences on health and research related to health promotion, protection, and restoration. 3 hours. Fall. (Brown)



**NPR 761. Interventions to Promote, Protect, and Restore Health:**

This course will be focused on in-depth exploration and critical analysis of current intervention research including conceptual and methodological issues. In addition, the course will be focused on designing research to evaluate the outcomes of interventions designed to promote, protect, or restore health on individuals or community groups. 3 hours. Spring. (Harrison)

**NRM 770. Designs for Nursing Studies I.** The beginning phases of the research process, including formulation of research questions/aims, integration of theory and /or conceptual framework in the development of research, the critique and review of knowledge that supports an identified area of research, and the discussion of the type of research design. 3 hours. Summer. (Rice, Kang)

**NRM 771. Methods/Measurement in Nursing Research.** Overview of the theories, principles, and techniques that yield reliable and valid measurement of human systems. 3 hours. Spring. (Davis)

**NRM 772. Designs for Nursing Studies II.** Design, sampling, collection of data, data analysis plans, presentation of findings, conclusions in various research designs and the reintegration of these into the body of knowledge in an identified focal area of research. Ethical and cultural issues related to the conduct of research will be addressed. Students will develop a research proposal. 3 hours. Fall. (Kang, Rice)

**NRM 773. Qualitative Research Methods:** This is a survey course, which focuses on the analysis of research traditions that guide the collection and analysis of qualitative data in the development of nursing science. Included are naturalistic, conceptual, interpretive and analytical research methods such as phenomenology, grounded theory, ethnography and narrative analysis. In addition, the course includes an analysis of strategies for mixed method designs. 2 hours. Spring. (Habermann)

**NST 775. Introduction to Statistical Software Packages:** SPSS and SAS: Special emphasis of this laboratory course will be on the use of statistical packages, SAS and SPSS, in the creation of data files, data entry, manipulation of data, descriptive analysis, and selected statistical techniques. 2 hours. Fall. (Rice, Pryor)

**NST 776. Linear Models for Clinical Nursing Research.** Survey course on the application of advanced General Linear Model and related techniques in health care research. 3 hours. Spring. (Pryor)

**NST 777. Multivariate Statistical Methods for Clinical Nursing Research.** Survey course on the application of multivariate techniques in health care research. The course will focus on application of multivariate statistical methods to nursing-related research questions, with emphasis on interpretation within clinical nursing research problems. 3 hours. Summer. (Weaver)

NUR 706. **Theory Building in Nursing.** The nature of knowledge in practice disciplines with an emphasis on critical analysis of selected theories and concepts, approaches to theory and conceptual development, and criteria for evaluation of theory. 3 hours. Fall. (Dashiff)

\* NUR 730. **Special Topics.** A special topic seminar with variable focus. 1-3 hours. Each Term. (TBA)

\* NUR 790. **Independent Study in Nursing.** Pass/Fail. 1-9 hours.

\* NUR 791. **Independent Study in Nursing Practice.** Pass/Fail. 1-9 hours.

\* NUR 798. **Research Practicum.** A series of course credits taken throughout the student's doctoral coursework to provide continuous research experience under the supervision of the mentor. Credits may vary by term, from a minimum of one hour credit to a maximum of nine hours credit. Offered every term. Pass/Fail. 1-9 hours.

\* NUR 799. **Dissertation Research.** Prerequisites: Comprehensive Exam, admission to candidacy and IRB approval. Pass/Fail. 1-9 hours.

Last modified 10/06/04

## UAB Graduate School

### Nutrition Sciences (Ph.D., M.S.)

Ph.D. Program Director (Nutrition Sciences): *Brooks*

M.S. Program Director (Clinical Nutrition): *Brown*

## Faculty

For additional courses in epidemiology and other public health areas, see the catalog of the School of Public Health.

**David B. Allison**, Professor (Biostatistics); Obesity (causes; effects on longevity; treatment), caloric Restriction & Longevity, Statistical Genetics

**Jamy Ard**, Assistant Professor (Nutrition Sciences); Culturally appropriate Dietary Interventions, Hypertension

**Joseph E. Baggott**, Assistant Professor (Nutrition Sciences); Folate and Antifolate Metabolism, One-Carbon Metabolism, Purine Biosynthesis

**C. Michael Brooks**, Professor (School of Health Related Professions); Nutrition Education; Cancer Education, Prevention and Control; Asthma/COPD Self-Management

**M. Amanda Brown**, Assistant Professor (Nutrition Sciences); Dietetics Education.

**Pi-Ling Chang**, Associate Professor (Nutrition Sciences); Vitamin D and Cancer, Osteoporosis, Bone-Matrix Proteins, Osteoblast Differentiation

**Isao Eto**, Associate Professor (Nutrition Sciences); Nutritional Biochemistry, Folate Metabolism and Interactions, Cancer Biology and Biochemistry

**Jose R. Fernandez**, Assistant Professor (Nutrition Sciences); Gene Mapping, Genetic Admixture, Racial Differences, Obesity, Diabetes

**Frank A. Franklin**, Professor (Pediatrics); Gastroenterology, Lipids, Nutrition

**Yuchang Fu**, Assistant Professor (Nutrition Sciences); Gene Expression and Regulation Related to Lipid Metabolism in Atherosclerosis and Diabetes

**W. Timothy Garvey**, Professor and Chair (Nutrition Sciences);

Molecular, Metabolic, and Genetic Pathogenesis of Insulin Resistance, Type 2 Diabetes, and Obesity

**Barbara Gower**, Associate Professor (Nutrition Sciences); Endocrinology, Body Composition, Postmenopausal Hormone Replacement Therapy, Insulin Sensitivity

**J. Michael Hardin**, Professor (Health Services Administration); Informatics, Linear Models, Data Mining, Time Series, Data Warehouses

**Douglas C. Heimbarger**, Professor (Nutrition Sciences); Clinical Nutrition Support and Assessment, Nutrition and Cancer

**Gary Hunter**, Professor (Human Studies); Exercise Physiology

**Mohammed A. Khaled**, Associate Professor (Nutrition Sciences); Body Composition, Energy Metabolism, Oxidants and Antioxidants, International Public Health

**Carlos L. Krumdieck**, Professor Emeritus (Nutrition Sciences); Folic Acid Metabolism, Carcinogenesis, Homocysteine Metabolism

**Sarah L. Morgan**, Professor (Nutrition Sciences and Medicine); Nutrition and Rheumatic Diseases, Folate and Antifolates, Osteoporosis

**Tim R. Nagy**, Associate Professor (Nutrition Sciences); Regulation of Energy Expenditure; Body Fat/Caloric Restriction/Cancer; Small Animal Phenotyping

**Chandrika Piyathilake**, Associate Professor (Nutrition Sciences); Lung Cancer and Biomarkers

**Charles W. Prince**, Professor (Nutrition Sciences); Bone Metabolism, Vitamin D Function; Osteopontin, Orthopedic Implant Biocompatibility, Cellular Transduction of Mechanical Load

**Susan Sell**, Assistant Professor (Nutrition Sciences); Molecular Genetics, Diabetes and Obesity

**Bonnie A. Spear**, Assistant Professor (Pediatrics); Pediatric and Adolescent Nutrition

**Tsunenobu Tamura**, Professor (Nutrition Sciences); Folate Metabolism, Trace Element Nutrition, Metabolic Inborn Errors

**Nancy H. Wooldridge**, Assistant Professor (Pediatrics); Pediatric Nutrition, Nutrition Management of Patients with Pediatric Disease

## **M.S. Program in Clinical Nutrition**

The program leading to the Master of Science degree with a major in clinical nutrition is designed to provide training and experience related to treatment and prevention of disease through the science and art of optimal nutritional care. Professionals with backgrounds in the science of nutrition or dietetics will have an opportunity to learn the metabolic and biochemical basis for nutritional care while being involved in direct patient management and in either laboratory or clinical research. Opportunities exist for specialization within clinical subspecialty areas such as pediatrics, children with special health care needs, general clinical research, exercise science, health education, health services administration, and public health.

## **Admission**

The Clinical Nutrition graduate program recommends fall-term entry. Interested students must first obtain admission to the UAB Graduate School. Graduate School admission standards include

1. a B average computed overall, or alternatively computed over the last 60 semester hours of earned credit;
2. evidence of a bachelor's degree from a regionally accredited university or college in the United States; and
3. a score of at least 500 on each section of the GRE General Test.

Additionally, eligible students must be registered dietitians, registration-eligible dietitians, or have a baccalaureate degree from an American Dietetic Association-approved Didactic Program in Dietetics. A nutrition laboratory sciences option is offered to nondietetics students with strong chemistry backgrounds.

## **Degree Requirements**

The graduate program in clinical nutrition offers the Plan I (thesis) option only. Candidates for the M.S. degree are expected to complete a minimum of 30 hours of graduate-level course work, and submit and defend thesis research that makes a contribution to the knowledge of clinical nutrition.

## **Curriculum Core Requirements**

Successful completion of the M.S. degree will require completion of a minimum of 20 semester hours in Clinical Nutrition core courses, 6 semester hours of thesis research, and additional courses to be selected from departmental offerings.

## **Additional Information**

For detailed information, contact Dr. Amanda Brown, Assistant Professor and Director, Graduate Program in Clinical Nutrition and Dietetic Internship, Department of Nutrition Sciences, UAB School of Health Related Professions, Webb Building, Room 212, 1675 University Boulevard, Birmingham, AL 35294-3360.

Telephone 205-934-3006

E-mail [cntr@uab.edu](mailto:cntr@uab.edu)

Web [www.uab.edu/nutrition](http://www.uab.edu/nutrition)

## Dietetic Internship

The Dietetic Internship Program is accredited by the Commission on Accreditation of Dietetics Education of the American Dietetic Association and is designed to prepare entry-level dietitians for careers in a variety of health care and food service facilities. Internship appointments are awarded on a competitive basis through a national computer matching process. Dietetic interns must also be admitted to the Graduate School (admission standards are listed under the M.S. in Clinical Nutrition above) and are required to enroll in a full graduate course load each term during the internship.

A full-time (9-month) internship with a general emphasis is offered in Birmingham, and a part-time (11-month) internship is offered in each of the following cities in Alabama: Dothan, Huntsville, Mobile, Montgomery, and Birmingham. Upon completion of the internship, the student will be eligible to take the national examination to become a registered dietitian. Full-time interns will have 12 hours of graduate credit, and part-time interns will have 9 hours of graduate credit which may be applied toward the requirements for the M.S. in Clinical Nutrition. Students may elect to continue in the M.S. program in Clinical Nutrition to complete requirements for the M.S. degree on a full or part-time basis.

## Additional Information

For detailed information, contact Dr. Amanda Brown, Assistant Professor and Director, Graduate Program in Clinical Nutrition and Dietetic Internship, Department of Nutrition Sciences, UAB School of Health Related Professions, Webb Building, Room 212, 1675 University Boulevard, Birmingham, AL 35294-3360.

Telephone 205-934-3006

E-mail [dintr@uab.edu](mailto:dintr@uab.edu)

Web [www.uab.edu/nutrition](http://www.uab.edu/nutrition)

## Ph.D. Program in Nutrition Sciences

The program leading to the Ph.D. in Nutrition Sciences at UAB is designed to provide coursework and research experience that emphasize the science of nutrition in maintaining

the health of individuals and populations and preventing a variety of diseases. The doctoral program is rather traditional in structure and combines required and elective didactic coursework in basic sciences and nutrition with research conducted in superb facilities in an outstanding research environment. Two tracks are currently in place in the Ph.D. program—one with a physiology emphasis, the other with a molecular biology emphasis. Required and elective coursework for each track includes didactic courses in clinical nutrition, nutritional biochemistry, molecular biology, statistics and experimental design, as well as elective courses chosen from among the many doctoral level courses at UAB. This flexibility allows students to tailor programs to their specific interests while insuring that they are exposed to a broad knowledge base of nutrition sciences.

## **Admission**

To meet Graduate School and departmental standards, a student must have a combined GRE score of 1100, an undergraduate degree with a strong science background, three letters of recommendation based on thorough knowledge of the applicant's background and abilities, and, of great importance, a statement of goals and purpose that delineates the student's motivation and purpose in seeking this degree. Fall-term entry is recommended.

## **Coursework and Other Requirements**

Successful completion of the Ph.D. will require completion of a minimum of 33 semester hours in core courses (encompassing the disciplines of cellular and molecular biology, biochemistry, physiology, nutritional biochemistry, clinical nutrition, and statistics and experimental design) and at least 24 additional graduate semester hours of elective coursework; passing a comprehensive written qualifying examination; and defense of a dissertation reporting the results of original scientific research that makes a genuine contribution to the knowledge of nutrition sciences. In fulfilling the latter requirement, a student must author at least two papers that are publishable in peer-reviewed journals.

## **Additional Information**

For detailed information, contact Dr. C. Michael Brooks, Director of the Ph.D. Program in Nutrition Sciences, Department of Nutrition Sciences, UAB School of Health Related Professions, Susan Mott Webb Nutrition Sciences Building, Room 419, 1675 University Boulevard, Birmingham, AL 35294-3360.

Telephone 205-975-8034

E-mail [mbrooks@uab.edu](mailto:mbrooks@uab.edu)

Web [www.uab.edu/nutrition](http://www.uab.edu/nutrition)

## ***Course Descriptions***

Unless otherwise noted, all courses are for 3 semester hours of credit. Courses numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

## Nutrition Sciences (NTR)

589. **Internship Practicum.** Clinical experience in food service management and clinical nutrition. Fall, spring, summer.

601. **Advanced Medical Nutrition.** Nutrition in relationship to health; prevention of disease and correction of disorders resulting from nutritional imbalance throughout the life cycle. Prerequisite: Permission of instructor. Fall.

604. **Principles and Practice of Nutrition Support.** Nutrition support for critically ill patients; theory integrated with clinical practice.

611. **Advanced Food Service Systems Management.** Management systems, application to hospital food service. Prerequisite: Permission of instructor.

618. **Nutritional Biochemistry.** Metabolism and functions of nutrients; biosynthesis of vitamins and cofactors; human requirements for energy, amino acids, minerals, and vitamins; food fortification; current human nutritional problems. Spring. 6 hours.

622. **Nutrition, Obesity, and Prevention of Cardiovascular Disease and Cancer.** Critical evaluation of the effects of genetics and environmental factors, especially nutrients, on the development and prevention of obesity, atherosclerosis, and cancer. Prerequisite: Permission of instructor.

633. **Laboratory Instruments and Methods in Nutrition Research.** Operation, capabilities, and limitations of laboratory instruments. Prerequisite: Permission of instructor. 1-3 hours.

636. **Scientific Methods.** Investigations in nutrition using animal models and laboratory procedures, design of experiments, data collection, analysis, interpretation, and communication of experimental results. Prerequisite: Permission of instructor.

650. **Body Composition and Energy Metabolism.** Methods of measurement and relationship to human health and disease. Prerequisite: Permission of instructor.

680. **Journal Club in Clinical Nutrition.** Review and critique of current literature in clinical nutrition. 1 hour.

685. **Pediatric Pulmonary Care: An Interdisciplinary Approach.** Health care delivery to pediatric clients at risk for or compromised by pulmonary disease. Prerequisite: Permission of instructor.

690. **Seminar.** Review of current literature and research in nutrition. Prerequisite: Permission of instructor. 1 hour.

691. **Clinical Practicum: Nutritional Aspects of Mental Retardation and Developmental Disabilities.** Clinical experiences in evaluation of nutritional status, feeding behavior and food habits of mentally retarded and developmentally disabled children. Prerequisite: Permission of instructor. 1-6 hours.

692. **Clinical Practicum: Community Nutrition.** Clinical experiences in health care delivery systems with nutrition components. Prerequisite: Permission of instructor. 6 hours.



693. **Clinical Practicum: Pediatric Nutrition.** Clinical experiences in normal growth patterns in children; nutritional needs in health and disease. Prerequisite: Permission of instructor. 6 hours.

694. **Clinical Practicum: General Clinical Research.** Clinical experiences in a multidisciplinary research facility involving human subjects. Prerequisite: permission of instructor. 1-6 hours.

695. **Special Problems.** To meet individual student needs; clinical rotation, review of current literature, completion of defined objectives. Prerequisite: Permission of instructor. 1-3 hours.

696. **Clinical Practicum: Nutritional Support of Pediatric Clients with Pulmonary Problems.** Observation of and participation in interdisciplinary team delivery of health care to pediatric patients with pulmonary disease. Prerequisite: Permission of instructor. 1-6 hours.

697. **Clinical Practicum: Nutrition Support Service.** Interdisciplinary team delivery of nutrition support to critically ill hospitalized patients and ambulatory patients. 3-6 hours.

698. **Master's Nonthesis Research.** Prerequisite: Permission of instructor. 1-6 hours.

699. **Master's Thesis Research.** Prerequisites: Admission to candidacy and permission of instructor. 1-9 hours.

711. **Clinical Nutrition.** Nutritional aspects of growth, development, pregnancy, chronic diseases, nutrient requirements, sources, toxicities. Malnutrition in, and nutritional support of, hospitalized patients. Prerequisites: Biochemistry and permission of instructor. Spring. 4 hours.

718. **Nutritional Biochemistry.** Metabolism and functions of nutrients; biosynthesis of vitamins and cofactors; human requirements for energy, amino acids, minerals, and vitamins; food fortification; current human nutritional problems. Spring. 6 hours.

722. **Nutrition, Obesity, and Prevention of Cardiovascular Disease and Cancer.** Critical evaluation of the effects of genetics and environmental factors, especially nutrients, on the development and prevention of obesity, atherosclerosis, and cancer. Prerequisite: Permission of instructor. Fall.

723. **Assessment of Nutritional Status in Populations.** Theoretical and hands-on instruction in methods of assessment of dietary intakes, body composition, and biochemical levels of macro- and micronutrients. Proper techniques for collecting measurements and review of computer software packages that specialize in analysis of specific measurements.

733. **Laboratory Instruments and Methods in Nutrition Research.** Operation, capabilities, and limitations of laboratory instruments. Prerequisite: Permission of instructor. Fall, spring, summer. 1-3 hours.

734. **Laboratory Methods in Vitaminology.** Vitamin determinations in clinical and other specimens. Prerequisite: Permission of instructor. Fall, spring, summer.

747. **Molecular Biology and Nutrition Sciences.** Overview of molecular biology applications in nutrition science research. Examination of basic molecular biology

techniques, current usage of molecular biology to solve nutrition problems, and application of biotechnology to study disorders with a nutritional component. Prerequisite: Permission of instructor. Fall.

**750. Body Composition and Energy Metabolism.** Methods of measurement and relationship to human health and disease. Prerequisite: Permission of instructor. Fall.

**778. Special Topics in Nutrition Sciences.** Fall, spring, summer. 1-5 hours.

**788. Advanced Nutrition Seminar.** Fall, spring, summer. 1 hour.

**791. Advanced Clinical Nutrition, Diagnosis, and Treatments.** Clinical rounds with nutrition support team; approximately 12 hours weekly. Limited enrollment. Prerequisite: NTR 711 or equivalent. 4 hours.

**798. Doctoral Nondissertation Research.** 1-12 hours.

**799. Doctoral Dissertation Research.** Prerequisite: Admission to candidacy. 1-12 hours.

Last modified 12/10/04

## UAB Graduate School

### Occupational Therapy (M.S.) \*

Occupational Therapy (M.S.) \*

Graduate program director: *Moyers*

Postprofessional graduate program director: *Vogtle*

## Faculty

**Elizabeth A. Barstow**, Instructor (Occupational Therapy); Low-Vision Rehabilitation, Neurodevelopmental Intervention, Functional Capacity Evaluations, Driver's Assessment

**Jo Ann Clelland**, Professor Emerita (Physical Therapy); Pain Management, Facilitation and Inhibition of Motor Activity

**Penelope A. Moyers**, Professor and Chair (Occupational Therapy); Continuing Competence, Substance Use Disorders, Mental Health Practice, Upper Extremity Intervention

**Jan A. Rowe**, Associate Professor (Occupational Therapy); Pediatrics, Community: Family Centered Practice and Assistive Technology

**Emily K. Schulz**, Associate Professor (Occupational Therapy); Certified Family Life Educator, Geriatrics, Spirituality and Adolescent Wellness, Spirituality and Individuals with Disabilities, Spirituality Assessment

**Laura K. Vogtle**, Associate Professor (Occupational Therapy); Pediatrics, Research Methods, Program Evaluation, Outcomes Research

**Mary Warren**, Assistant Professor (Occupational Therapy); Low-Vision Rehabilitation, Neurology, Physical Dysfunction

**Sally B. Whitley**, Assistant Professor (Occupational Therapy); Pediatric Practice, Neonatology, Sensory Integration

**Lawrence E. Zachow**, Associate Professor (Occupational Therapy); Developmental Disability, Mental Health

## Program Information

### MSOT Occupational Therapy

The Master of Science in Occupational Therapy at the University of Alabama at Birmingham offers two master's degree programs and a graduate certificate in low vision. The professional program is an entry-

level program in occupational therapy for individuals who hold a baccalaureate degree in a field other than occupational therapy. The Postprofessional Program provides advanced learning for the individual who already holds a degree in occupational therapy. In addition to the master's degrees, the department offers a graduate certificate in low vision rehabilitation for those who are already an occupational therapist or for those who are in the MSOT entry-level program. The Certificate in Low Vision Rehabilitation is the only university program in the United States to offer extensive graduate training in this area of practice.

## **Professional Degree Program**

The MSOT entry-level or professional program is a full-time day program. A portfolio or thesis is required for graduation .

## **Accreditation**

The program is fully accredited by the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA), located at 4720 Montgomery Lane, PO Box 31220, Bethesda, MD 20824-1220; telephone: (301)652-AOTA.

## **Credentials Conferred**

The Master of Science in Occupational Therapy is awarded by the University of Alabama at Birmingham.

## **Professional Certification**

Graduates of the program are eligible to sit for the national occupational therapist certification examination administered by the National Board for Certification in Occupational Therapy (NBCOT). After successful completion of the exam, the individual will be an Occupational Therapist, Registered (OTR). Most states require licensure in order to practice; however, state licenses are usually based on the results of the NBCOT Certification Examination.

Applicants should be aware that fieldwork placement sites, professional licensing agencies and prospective employers frequently require criminal history disclosures and background checks, although convictions do not necessarily disqualify someone for licensure or employment. Applicants with criminal convictions should recognize that such convictions may impede eventual licensure or employment and that the University of Alabama at Birmingham cannot predict the future decisions of fieldwork sites, licensing agencies, or employers.

## **Length of Study**

Minimum of 7 semesters (2 1/2 years) as a full-time student .

## **Program Entrance Date**

Fall Semester of each year a new class is enrolled .

## **Application Deadline**

Applications can be accepted at anytime. Early submission of application for admission is recommended. Rolling admission begins September 1 st and concludes July 15 th before the expected date of Fall Semester enrollment. Applications received after July 15 th will be reviewed and admission will occur on a space-available basis. If space is not available, the application at the student's request will remain on file for consideration for the next year.

## **Application Procedure**

Contact the Department of Occupational Therapy or the OT website ([www.uab.edu/occupationaltherapy](http://www.uab.edu/occupationaltherapy)) for an application packet, including the Graduate School and the occupational therapy applications. The OT application form and the recommendation letter forms can be downloaded from the OT website but cannot be submitted electronically. The application form and the following materials must be submitted directly to the Department of Occupational Therapy.

A complete application includes

- UAB Graduate School and Department of Occupational Therapy applications;
- nonrefundable application fee;
- two official transcripts from each college or university attended;
- test scores (GRE);
- and three Graduate School evaluation forms and/or the 3 recommendation letter forms from the Department of Occupational Therapy .

## **International Students**

Applicants submit the following to the Department of Occupational Therapy:

- UAB Graduate School international application form and the Department of Occupational Therapy application form.
- The requirements outlined under Application Procedures.
- A transcript evaluation by an external agency prior to the submission of application materials. It is the student's responsibility to have the transcripts evaluated. Please contact the UAB Graduate School (205-934-8227) for information regarding agencies that will complete a transcript review.
- Students from countries where English is not the official and primary language must also take and receive an acceptable score on the TOEFL.

## **Requirements for Admission**

Selection into the program will be based on the student's academic performance record and aptitude for a career as an occupational therapist. The candidate must satisfy the following requirements:

- hold a baccalaureate degree in a discipline other than occupational therapy from an accredited college or university; or receive a baccalaureate degree in a discipline other than occupational therapy by the time of enrollment.
- have a minimum overall undergraduate GPA of 3.0 (A = 4.0)
- have a minimum undergraduate GPA of 3.0 (A = 4.0) in the prerequisite coursework;
- have a minimum GRE score of 1000 (500 in each [verbal and quantitative] (GRE scores must be within the last five years);
- participate in a personal interview with members of the faculty of the Department of Occupational Therapy . The interview is scheduled once the application is received; and
- complete UAB Graduate School and Occupational Therapy applications
- submit three Graduate School evaluation forms and/or three recommendation letter forms from the Department of Occupational Therapy.

Variations in these requirements are considered. In cases where applicants do not meet the principle requirements for admission, they may be admitted on probation with approval of the Dean of the Graduate School .

## **Procedures Following Acceptance**

Once admitted, students will be allowed to enroll into the program in the desired entry year only if the following has been received by the dates designated in the Enrollment Information Packet.

- complete d UAB Medical History Questionnaire and physical examination, including proof of required immunizations with satisfactory screening by the UAB Medical Center Student Health Service.
- proof of health insurance coverage,
- updated transcripts indicating successful completion of prerequisites and proof of degree completion,
- signed Letter of Intent
- \$300 nonrefundable tuition deposit to reserve a seat in the program (deposit will be applied to tuition)

## **Essential Requirements**

Fundamental tasks, behaviors, and abilities necessary to successfully complete the academic and practice/fieldwork requirements of the program and to satisfy licensure/certification requirements, if any, have been outlined and are available upon request from the academic program office. Students requesting disability accommodations must do so by filing a disability accommodation request in writing with Disability Support Services (phone 205-934-4205; fax 205-934-8170; e-mail [diss@uab.edu](mailto:diss@uab.edu)) .

## **Program Prerequisites - UAB Equivalents\***

(Course requirements are listed in semester credit hours)

The applicant must have completed successfully (minimum grade of C, courses taken pass/fail are not accepted) prerequisite coursework in addition to, or in conjunction with the baccalaureate degree . The professional occupational therapy program is a progressive and challenging curriculum. These prerequisites are designed to prepare the applicant for

success once admitted into the program. To that end, applicants should pursue the highest level of preparation possible.

**Arts and Humanities (18 Hours) to include**

English Composition - EH 101, 102 3  
 Electives (e.g., literature, public speaking, English, foreign languages, philosophy, theater, art, music, dance, photography) 1 5

**Natural Sciences and Mathematics (14 - 16 hours) to include**

Human Anatomy \* - BY 115 4  
 Human Physiology\* - BY 116 4  
 Statistics - MA 180, PY 214, or SOC 110\* 3-4  
 Electives (e.g., Chemistry [highly recommended] , Mathematics, Physics [highly recommended] , Biology, Computer Science) 3-4  
 6-8  
 (by  
 2006)  
 \*\*  
 Medical Terminology 2-3

**Social and Behavioral Sciences (15 hours) to include**

Abnormal Psychology\* - PY 218\* 3  
 Developmental Psychology - PY 212\* (Human Development/Lifespan) 3  
 Electives (e.g., psychology, sociology, anthropology) 9\*\*

\*Course must be completed within the last seven years; basic science coursework taken more than seven years ago must be repeated.

\*\*Course must be completed within the last 10 years.

**Typical Program**

(Course requirements are listed in semester credit hours)

**Fall Semester I**

OT 607 Analysis of Occupational Performance+ Lab (3)  
 OT 604 Activities of Daily Living + Lab (3)  
 OT 620 Gross Anatomy + Lab (6)  
 OT 631 Biomechanics of Occupation + Lab (4)  
 OT 675 History and Theory of Occupation (3)  
 OT 698 Non-Thesis Research/Intro to Portfolio (1)

**Spring Semester II**

OT 606 Framework for Occupational Therapy Practice (4)  
 OT 609 Barriers to Occupational Performance + Lab (3)  
 OT 623 Human Neuroscience I + Lab (3)

- OT 624 Therapeutic Enhancement of Occupation I + Lab (4)
- OT 667 Research Methods (4)
- OT 698 Non-Thesis Research/Intro to Portfolio (1)

**Summer (12 week session) Semester III**

- OT 608 Human Neuroscience II (3)
- OT 628 Pharmacology in Rehabilitation (3)
- OT 632 Fieldwork Seminar I (1)
- OT 674 Technology Applications (2)
- OT 698 Non-Thesis Research (1)
- Electives (2-3)
- OT 677 Foundations in Low Vision Rehabilitation I (4)

**Fall Semester IV**

- OT 605 Therapeutic Skills + Lab (3)
- OT 625 Therapeutic Enhancement of Occupation II + Lab (4)
- OT 633 Fieldwork Seminar II (1)
- OT 653 Using the Literature for Evidence Based Practice (3)
- OT 665 Therapeutic Enhancement of Occupation III + Lab (4)
- OT 698 Master's Level Non-Thesis Research (1)
- Electives (2-3)
- OT 660 Seminar: Interdisciplinary Svcs/Developmental Disabilities (1-2)
- OT 679 Foundations in Low Vision Rehab II (4)

**Spring Semester V**

- OT 668 Therapeutic Enhancement of Occupation IV + Lab (4)
- OT 634 Seminar in Professional Readiness (1)
- OT 651 Spectrum of Client Care PBL Seminar + Lab (4)
- OT 664 Ethics of Management and Practice + Lab (4)
- OT 662 Upper Extremity Function in Occupation + Lab (3)
- OT 698 Master's Level Non-Thesis Research (2)
- Electives (2-3)
- OT 689 Foundations in Treatment/Brain Injury (3)
- OT 660 Seminar: Interdisciplinary Svcs/Devel Disabilities (1-2)

**Summer Semester VI**

- OT 685 Advanced Field Experience I (10)

**Semester VII**

- OT 686 Advanced Field Experience II (10)



## Additional Information

For further information contact:  
Program Director  
Master of Science in Occupational Therapy  
School of Health Related Professions  
RMSB 353  
1530 3 rd Avenue South  
University of Alabama at Birmingham  
Birmingham, AL 35294-1212

Telephone 205-934-3568

E-mail [msot@uab.edu](mailto:msot@uab.edu)

Web [www.uab.edu/OT](http://www.uab.edu/OT)

## Postprofessional Occupational Therapy Program

The program offers postprofessional education to occupational therapists who wish to learn advanced theoretical, practice, and research skills. The 33 semester hour program guides the student through four specific domains: foundations, specialty practice application, research methodology, and a project or thesis. Elective course work from related departments may be approved for degree requirements. Students may also choose to complete the graduate certificate in low vision rehabilitation as part of the coursework for the postprofessional master's degree. Each student meets individually with a graduate advisor and the Director of the Postprofessional Program to design a plan of study. Graduates of the program may use this degree to enter specialized areas of practice, to assume leadership positions within the profession, or to prepare for doctoral-level study.

### Credentials Conferred

The Master of Science degree is awarded by the University of Alabama at Birmingham.

### Length of Study

Minimum of four semesters (16 months) for the full-time student and approximately seven semesters for part-time students.

### Program Entrance Date

Any semester throughout the academic year.

### Application Deadline

During the term preceding the expected semester of enrollment.

### Application Procedure

The following materials must be submitted to the Department of Occupational Therapy :

- completed UAB Graduate School application materials (all forms available from Graduate School, Hill University Center, Room 511, 1400 University Boulevard, Birmingham, Alabama 35294-1150,
- nonrefundable application processing fee,
- official transcripts from each college attended,
- official test score report (GRE), and
- three evaluations (references).

## **International Students**

Applicants submit the following to the Department of Occupational Therapy:

- UAB Graduate School international application form.
- The requirements outlined under Application Procedures.
- A transcript evaluation by an external agency prior to the submission of application materials. It is the student's responsibility to have the transcripts evaluated. Please contact the UAB Graduate School (205-934-8227) for information regarding agencies that will complete a transcript review.
- Students from countries where English is not the official and primary language must also take and receive an acceptable score on the TOEFL.

## **Requirements for Admission**

For unconditional acceptance, the student must satisfy the following requirements:

- a baccalaureate degree in occupational therapy from an accredited educational program with a minimum cumulative GPA of 3.0 (A = 4.0) computed over the last 60 hours of course work,
- eligibility for licensure as an occupational therapist,
- a score of at least 500 on each section (verbal and quantitative) of the GRE general test,
- completed application for admission to the UAB Graduate School,
- three letters of reference,
- personal interviews with members of the faculty of the Department of Occupational Therapy (interview may be by phone) , and
- if accepted, complete the UAB medical history questionnaire and physical, provide proof of required immunizations, and receive satisfactory screening by the UAB Medical Center Student Health Service.

## **Essential Requirements**

Fundamental tasks, behaviors, and abilities necessary to successfully complete the academic and practice/fieldwork requirements of the program and to satisfy licensure/certification requirements, if any, have been outlined and are available upon

request from the academic program office. Students requesting disability accommodations must do so by filing a disability accommodation request in writing with Disability Support Services (phone 205-934-4205; fax 205-934-8170; e-mail [diss@uab.edu](mailto:diss@uab.edu)) .

**T ypical Program** (Course requirements are listed in semester credit hours)

All students must specify an interest area upon entering the program. These include the following: administration, education, leadership, practice, or research. Students may identify a focus within the practice field ( e.g ., low vision, mental health, geriatrics or pediatrics). Course work will be chosen based on the four interest areas and include courses in a practice focus area if indicated. Students may choose to apply for the graduate certificate in low vision rehabilitation and use the 17 credit hours in that program to serve as the interest area and electives for the postprofessional degree. At least 12 hours of course work must be chosen from occupational therapy classes listed below:

- OT 608 Human Neuroscience II (3)
- OT 630 Occupational Performance (3)
- OT 636 Principles of Applied Forces in Upper Extremity (3)
- OT 655 Qualitative Research Methods for Health Professionals (3)
- OT 656 Data Mangement for Clinical Research (3)
- OT 667 Research Methods ( 4)
- OT 671 The Advanced Theory of the Assessment Process in Occupational Therapy (3)
- OT 674 Technology Applications (2)
- OT 675 History and Theory of Occupation (3)
- OT 680 Clinical Education and Supervision (3)
- OT 681 Practicum in Consultation (1-2)
- OT 682 Advanced Clinical Practicum (1-3)
- OT 683 Practicum in Teaching (1-3)
- OT 692 Directed Readings (1-3)
- OT 699 Master's Level Thesis Research (1-6)

Electives offered outside of the occupational therapy curriculum are allowed up to 15 hours. These electives must be chosen with the supervision and approval of the student's graduate advisor and may include courses that coincide with the student's interests. Examples of programs from which electives may be chosen are: public health, health administration, early childhood education, physical therapy, gerontology, psychology, and sociology. The Graduate School allows up to 12 hours of courses to be taken at institutions other than UAB as long as the student receives a grade of B or better. Transfer of such courses must be approved by the occupational therapy faculty.

For further information contact:

Program Coordinator  
Occupational Therapy Postprofessional Program  
UAB School of Health Related Professions  
RMSB 353  
1530 3 rd Avenue South  
Birmingham, AL 35294-1212.

Telephone 205-934-3568

E-mail [msot@uab.edu](mailto:msot@uab.edu)

Web [www.uab.edu/OT](http://www.uab.edu/OT)

### **Low Vision Rehabilitation Certificate**

The Graduate Certificate in Low Vision Rehabilitation prepares occupational therapists and current professional-level occupational therapy students to work in one of the top 10 emerging practice areas identified by the American Occupational Therapy Association. Occupational therapists obtaining the certificate acquire the skills to provide comprehensive, competent intervention to persons with visual impairment from various conditions including brain injury.

### **Credentials Conferred**

The Graduate Certificate in Low Vision Rehabilitation awarded by the University of Alabama at Birmingham.

### **Length of Study**

Students who are already occupational therapists complete the graduate certificate in low vision rehabilitation in seven semesters. Students who are working on their professional master's degree in occupational therapy complete the graduate certificate in low vision rehabilitation two semesters after completion of their degree.

### **Program Entrance Date**

Spring Semester (begins in January)

### **Application Deadline**

Applications to the program must be received by September 1 st preceding the spring semester in which the student wishes to enroll. A rolling admission process is used which means that candidates are selected as they apply until all slots are filled. Rolling admission begins January 1st and concludes September 1st. Early submission of application for admission is recommended. Later applicants will be reviewed and admitted on a space-available basis. Applicants will be notified of acceptance into the program approximately 2 weeks after the application packet has been processed.

### **Application Procedure**

The following materials must be submitted to the Department of Occupational Therapy if you are currently an occupational therapist:

- UAB Graduate School application
- Graduate Certificate in Low Vision Rehabilitation Program application

- Non-refundable application processing fee of \$35 (\$60 [ US currency] international students) payable to the Department of Occupational Therapy
- Two official transcripts from the college or university where received the OT degree
- Current resume or curriculum vitae
- Three recommendation letters including one from a recent employer, one from a healthcare professional familiar with your work as an occupational therapist and the third from a person of your choice (cannot be a relative, friend, or clergy member).

Current UAB Occupational Therapy professional program students should contact the Low Vision Rehabilitation Program Director in the Department of Occupational Therapy for application information.

### **International students:**

Applicants submit the following to the Department of Occupational Therapy:

- UAB Graduate School international application form.
- The requirements outlined under Application Procedures.
- A transcript evaluation by an external agency prior to the submission of application materials. It is the student's responsibility to have the transcripts evaluated. Please contact the UAB Graduate School (205-934-8227) for information regarding agencies that will complete a transcript review.
- Students from countries where English is not the official and primary language must also take and receive an acceptable score on the TOEFL.

## **Requirements for Admission**

Class size is limited and admission is competitive; students are selected based on a combination of factors including practice experience, desire, ability to successfully complete the coursework in the timeframe allotted, commitment to completion of the certificate and potential for employment in the low vision rehabilitation field.

For unconditional acceptance, the student who is already an occupational therapist must satisfy the following requirements:

- a baccalaureate degree in occupational therapy from an accredited educational program with a minimum cumulative GPA of 3.0 (A = 4.0) computed over the last 60 hours of course work,
- eligibility for licensure as an occupational therapist,
- a score of at least 500 on each section (verbal and quantitative ) of the GRE general test),
- completed application for admission to the UAB Graduate School,
- three letters of reference,
- if accepted, complete the UAB medical history questionnaire and physical, provide proof of required immunizations, and receive satisfactory screening by the UAB Medical Center Student Health Service.

## **Essential Requirements**

Fundamental tasks, behaviors, and abilities necessary to successfully complete the academic and practice/fieldwork requirements of the program and to satisfy licensure/certification requirements, if any, have been outlined and are available upon request from the academic program office. Students requesting disability accommodations must do so by filing a disability accommodation request in writing with Disability Support Services (phone 205-934-4205; fax 205-934-8170; e-mail [diss@uab.edu](mailto:diss@uab.edu)) .

### **Typical Program** (Course requirements are listed in semester credit hours)

The curriculum is designed with the working practitioner in mind. Coursework emphasizes practical application of the information taught. Projects are designed to reinforce learning of application to practice. Materials for completion of the courses can be obtained through the internet and required texts. Direct access to a medical library is not required for the core courses and most electives; but the student must have consistent access to the internet. A high-speed connection (DSL, cable, satellite) is strongly recommended.

Two Tracks Are Available:

Students who are already an occupational therapist can enroll in the certificate program only or combine completion of the certificate program with a postprofessional master's degree in occupational therapy.

### **Certificate Only**

On completion of the required coursework the student will be awarded a Graduate Certificate in Low Vision Rehabilitation by the University of Alabama at Birmingham and the student's name will appear in the commencement bulletin. A transcript of the coursework taken for the certificate will be available.

The curriculum for the certificate will be offered online as web-based distance education for practitioners. Students accepted into the program begin the curriculum in January. One course per semester is completed. Because one course builds on another, students must take the core courses in sequence. These courses provide the foundation needed for completion of the elective courses and must be completed before the elective courses can be taken. Following completion of the core courses, the student will select one of two electives offered during the next two semesters. Following completion of the core courses and the electives, the student will complete an advanced intervention application course. All courses must be satisfactorily completed before the intervention application course is scheduled. Based on these requirements, course work for completion of the certificate will require 7 semesters.

### **Postprofessional Master's Degree Program**

Students may choose to make the low vision curriculum the major emphasis of the coursework for the postprofessional master's degree offered by the Department of Occupational Therapy. Students completing the certificate program will only need to complete an additional 10 credits of coursework and 6 credits of research to receive the postprofessional master's degree. Coursework for the postprofessional degree is also online.

### **Low Vision Rehabilitation Curriculum Sequence**

NOTE: OT 677, 679 and 689 may be taken on campus without application to the graduate certificate with the permission of the instructor. Online or Q courses can only be taken by students accepted into the graduate certificate program.

Spring Semester  
OT 677Q Foundations I 3 credits

Summer Semester  
no classes, complete clinical observations

Fall Semester  
OT 679Q Foundations II 3 credits

Spring Semester  
OT 689Q Foundations in Brain Injury 3 credits

Summer Semester  
OT 690Q Evaluation and Treatment 2 credits

Fall Semester  
Electives OT 694Q or OT 693Q 2 credits

Spring Semester  
Electives OT 695Q or OT 696Q 2 credits

Summer or Fall  
OT697 Advanced Treatment Application 2 credits

Total Credits 17 credits

For further information contact:

Program Coordinator  
Occupational Therapy Low Vision Rehabilitation Certificate Program  
UAB School of Health Related Professions  
RMSB 353  
1530 3 rd Avenue South  
Birmingham, AL 35294-1212.

Telephone 205-934-3568

E-mail [msot@uab.edu](mailto:msot@uab.edu)

Web [www.uab.edu/OT](http://www.uab.edu/OT)

# Course Descriptions

## Occupational Therapy (OT)

604. **Activities of Daily Living.** Lecture and laboratory experience in daily living skills evaluation and training for persons with impairments, activity limitations, and participation restrictions. Strategies that promote adaptation to disabilities and that increase role independence are taught including: using/designing adaptive equipment, prescribing wheelchairs, redesigning physical environmental barriers, driving training, restructuring cognitive complexity, providing ADL intervention, and training caregivers. 3 hours. PREREQUISITE: permission.

OT 605. **Therapeutic Skills.** Presents group theory and group dynamics. Teachers basic groups and individual client-therapist interaction skills including: selecting a theory base, designing groups, writing group protocols, analyzing group activities, implementing specific group techniques, and evaluating progress of group members. Methods of establishing rapport, giving feedback, and employing therapeutic use of self are emphasized. 3 hours. PREREQUISITE: permission.

606. **Frameworks for Occupational Therapy Practice.** Introduction to fundamental concepts and theories which shape occupational therapy practice. 4 hours. PREREQUISITE: permission.

607. **Analysis of Occupational Performance .** Introduction to treatment techniques commonly used in occupational therapy practice; activity analysis and synthesis; application of typical growth and development in relationship to different age and treatment populations. 3 hours. PREREQUISITE: permission.

60608. **Human Neuroscience II .** Underlying neuroanatomical and neurophysiological principles as basis for evaluation and intervention of clients with neurological disorders; study of current research in selected areas of applied neurophysiology. 3 hours . PREREQUISITE: permission.

609. **Barriers to Occupational Performance.** Exposure to content specific to human disease processes, injuries, and developmental or inherited abnormalities within body systems that affect an individual's occupational performance. 3 hours.

620. **Gross Anatomy.** Advanced study of human body by means of dissection, demonstration, and lecture. 6 hours. PREREQUISITE: permission.

623. **Human Neuroscience I.** Advanced study of structure and function of central nervous system augmented with client examples . 3 hours. PREREQUISITE: permission .

624. **Therapeutic Enhancement of Occupation I.** This is the first course in a four part series that addresses aspects of evaluation, intervention planning, implementation, and specific intervention strategies across diagnostic categories for children, birth through adolescents. Occupational therapy addresses client needs using a holistic approach that incorporates all aspects of an individual's lifestyle. This course will focus on components of occupational performance , and occupational performance issues related to adaptation and life satisfaction. 4 hours. PREREQUISITE: permission.



**625. Therapeutic Enhancement of Occupation II.** This is the second course in a four part series that addresses aspects of evaluation, intervention planning, implementation, and specific intervention strategies across diagnostic categories in adult rehabilitation.

Occupational therapy addresses client needs using a holistic approach that incorporates all aspects of an individual's lifestyle. This course will focus on occupational areas of work play, and leisure addressing components of occupational performance and context s and how these areas affect occupational performance. 4 hours. PREREQUISITE: permission.

**628. Pharmacology in Rehabilitation.** Survey of pharmacology with emphasis on medications used by clients referred to occupational therapy services; pharmacological principles that apply to all groups of drugs; emphasis on medications used for physical and behavioral disorders. 2 hours. PREREQUISITE: permission.

**631. Biomechanics of Occupation .** Basic kinesiological principles and functional movement patterns of the human body. Introduction to processes of clinical measurements; study of principles and techniques for obtaining data about the status of the clients' joint range of motion and muscle strength. 4 hours. PREREQUISITE: permission.

**632, 633. Fieldwork Seminar I, II.** Forum for exchange of ideas and experiences; detailed case study/in-service on modality and interventions chosen from client census during previous term's Level I Fieldwork experience. 1 hour each. PREREQUISITE: permission.

**634. Seminar in Professional Readiness.** Forum for exchange of ideas and experiences; student, faculty, and alumni presentations on variety of topics; integral part of Level II Fieldwork Experiences, OT 685 and 686. 1 hour. PREREQUISITE: permission.

**651. Spectrum of Client Care, PBL Seminar .** Explores the progression of professional roles from specific population's evaluation to intervention of occupational performance deficits; small groups mentored by interdisciplinary faculty to stimulate individual and cooperative skills. 4 hours. PREREQUISITE: permission.

**653. Using the Literature for Evidence Based Practice.** History of and rationale for evidence-based practice, introduction to typologies of evidence levels, search of data bases, developing practice questions, critiquing evidence, analyzing bodies of evidence developed in response to research questions, and integrating evidence into practice. 3 hours. PREREQUISITE: permission.

**662. Upper Extremity Function in Occupation.** Biomechanical principles utilized in the service delivery for orthopedic conditions of the upper extremity are taught. Skills in evaluating orthopedic conditions are developed, involving assessments of musculoskeletal and sensory body functions and occupational performance. Intervention strategies are taught including sensory reeducation, edema reduction, range of motion, pain control, muscle strengthening, scar management, and splinting and orthotics. Therapeutic occupations appropriate for remediating orthopedic conditions are analyzed. 3 hours. PREREQUISITE: permission.

**664. Ethics of Management and Practice .** Introduction to basic principles of organization and administration of occupational therapy programs related to practice in variety of settings. 4 hours. PREREQUISITE: permission.

**665. Therapeutic Enhancement of Occupation III .** Intervention for the elderly from the perspective of the functional impact of age-related changes, evaluation and remediation of

functional limitations, and personal and environmental adaptations to promote continuing autonomy. 4 hours . PREREQUISITE: permission.

**667. Research Methods.** Research ethics, experimental design, basic statistical concepts, and discussion of various types of research to enable students to critically analyze and use scientific literature to improve practice. Emphasis will be placed on understanding components of the research report and concepts associated with judging of internal and external validity. 4 hours. PREREQUISITE: permission.

**668 . Therapeutic Enhancement of Occupation IV.** Examines psychiatric conditions that result from disease, congenital, traumatic, environmental or social processes. Relationships among impairments, activity limitations and participation restrictions are emphasized in terms of the impact upon occupational performance. Evaluation, intervention planning, and intervention are studied. 4 hours. PREREQUISITE: permission.

**674. Technology Applications.** Acquaints students with RESNA technology competencies for occupational therapists; laws affecting the availability of assistive technology; assessments used in evaluation of clients for technology prescription, seating and wheelchairs, computer input devices, augmentative communication systems, and environmental controls. 2 hours. PREREQUISITE: permission.

**675. History and Theory of Occupation.** A historical survey of occupation, occupational meaning, and purposeful activity as used by occupational therapists in the study of the occupational nature of human beings across the life span. Students will gain an understanding of how leaders of the profession have articulated occupation and used occupations in the therapeutic applications across time . 3 hours. PREREQUISITE: permission .

**685. Advanced Fieldwork Experience I . Full time supervised practice experience designed to develop entry level professional skills consist of a 3-month experience. 10 hours. PREREQUISITE: permission.**

**686. Advanced Fieldwork Experience II.** Full time supervised practice experience designed to develop entry level professional skills consist of a 3-month experience. 10 hours. PREREQUISITE: permission.

**698. Master's Level Non-Thesis Research.** This lab-based course introduces students to the skills and requirements necessary for participation in the portfolio process. Specifically, the course aims to orient the student to the steps toward portfolio completion, introduce critical thinking and reflective learning methods, and provide students with foundational experiences for self-directed learning. ( 1-6 hours total). PREREQUISITE: permission.

## **OTHER COURSES**

**611. Occupation Centered Assessment.** A focus on assessment with activities and adaptation of tasks and environments to facilitate meeting needs of individuals and specific populations. 6 hours. PREREQUISITE: permission.

**612Q. Early Intervention Strategies of OT.** Early intervention is a specialty area that is explored. There are class assignments, EI observations, and practice experiences attached to this course for enhancing understanding of early intervention. ELECTIVE. 2 hours. PREREQUISITE: permission.

**613Q. Sensory Integration Theory Applied in OT.** Sensory processing is the ability to take in, organize and process a variety of sensory information on a daily basis. This class will illustrate how children with a variety of disorders, but in particular those with autism, have difficulties with the processing of sensory information. ELECTIVE. 2 hours. PREREQUISITE: permission.

**630. Occupational Performance.** Critical review of approaches to evaluating occupational performance including conceptual models, frames of reference, clinical applications, and development of assessment tools. Emphasis on documentation of clinical outcomes. 3 hours. PREREQUISITE: permission.

**636. Principles of Applied Forces in Upper Extremity.** Anatomical and biomechanical concepts of normal and pathological movement in the arm or hand; principles of dynamic assist, remodeling analysis, and clinical evaluation of adapted upper extremity performance. ELECTIVE. 3 hours. PREREQUISITE: permission.

**655. Qualitative Research Methods for Health Professionals.** Comparison of qualitative research methods. Explores the role of qualitative research in developing a deeper understanding of client populations and the development of theory in occupational therapy. Research design, data collection strategies, and methods of analysis will be discussed. 2 hours. PREREQUISITE: permission.

**656. Data Management for Clinical Research.** Strategies for collecting, storing, and analyzing data; methods for managing qualitative and quantitative data gathered in clinical settings and introduction to the use of SPSS and MS Word for analysis. 3 hours. PREREQUISITE: permission.

**660. Seminar in Interdisciplinary Services for Infants, Children, and Youth with Development Disabilities .** Synthesis of team-based approaches to intervention for infants, children, and youth with known or suspected disabilities. ELECTIVE. 1-2 hours. PREREQUISITE: permission.

**671. The Advanced Theory of the Assessment Process in OT.** This course provides an overview of tests and measurements as related to the practice of occupational therapy. Principles of test design and construction are introduced along with the appropriate statistical concepts. Issues related to standardized and non-standardized testing are discussed in terms of reliability, validity, sensitivity, specificity, and clinical relevance. The major types of instruments used in occupational therapy are examined including: screening instruments, interviews, questionnaires, observations, and outcome and performance measures. Students are given the opportunity to develop skills in selection of appropriate assessment tools for clients, in administration and scoring, in test interpretation, and in communicating results. 3 hours. PREREQUISITE: permission.

**676. Introduction to Problem Based Learning and Action Research.** Course based on problem based critical inquiry. Clinical problem solving is explored from the perspective of a client-centered base using action research methods. 3 hours. PREREQUISITE: permission.

**677. Foundations in Low Vision Rehabilitation I.** This course is the first of two providing instruction in low vision rehabilitation. As a prerequisite to Foundations in Low Vision Rehabilitation II, this course establishes the knowledge base needed to understand and implement the treatment intervention strategies taught in Foundations II. Students learn the anatomy of the eye and visual system, medical conditions causing low vision, admin is

tration and interpretation of low vision exams, principles of optics and optical devices. ELECTIVE . 4 hours. PREREQUISITE: permission.

**678. Animal Therapy.** This course is designed to provide students with a fundamental knowledge of the role of animals (dogs & horses) in occupational therapy; the basic anatomy and diseases of these species; and the methods for minimizing exposure of patients to zoonotic diseases. Emphasis will be placed on animal assisted therapy and therapeutic riding/hippotherapy. The student will also be introduced to the key organizations which govern these areas of practice (e.g., Delta Society and the North American Riding for the Handicapped Association) and their certification processes. ELECTIVE. 2 hours. PREREQUISITE: permission.

**679. Foundations in Low Vision Rehabilitation II.** This course is the second in a two course sequence providing instruction in low vision rehabilitation. Building on the information provided in OT 677, Foundations in Low Vision Rehabilitation I, this course addresses specific treatment strategies to enhance occupational performance in persons with visual impairment. Students learn to use information obtained from evaluations to select and implement appropriate treatment interventions to facilitate areas of occupational performance compromised by vision loss. ELECTIVE. 4 hours. PREREQUISITE: OT 677 and permission.

**680. Clinical Education and Supervision.** Departmental management and supervision of employees with secondary focus on occupational therapy fieldwork supervision. 3 hours. PREREQUISITE: permission.

**681. Practicum in Consultation.** Supervised consultation experience within area of specialized interest. 1-2 hours. PREREQUISITE: permission.

**682. Advanced Clinical Practicum.** Supervised clinical experience within area of specialized interest. 1-3 hours. PREREQUISITE: permission.

**683. Practicum in Teaching.** Supervised teaching experience. 1-3 hours. PREREQUISITE: permission.

**688. Advanced Practice Topics.** Student receives in depth exposure to one advanced practice section. ELECTIVE. 2 hours. PREREQUISITE: permission.

**689. Foundations in Treatment of Visual Impairment from Brain Injury.** An introduction to evaluation and treatment techniques for persons experiencing limitations in occupational performance secondary to visual impairment from brain injury. ELECTIVE. 3 hours. PREREQUISITE: permission.

**690Q. Treatment Design and Application in Vision Rehabilitation.** This course requires students to apply the knowledge gained in the three foundation courses to designing treatment plans for persons with various visual impairments. Students will work through case studies , analyzing evaluation results, writing appropriate goals and designing appropriate treatment interventions. They will critique plans of care to determine whether the goals and treatment plan are appropriate for the diagnosis and client needs. ELECTIVE. 2 hours. PREREQUISITES: OT 677, 679 AND 689 and permission.

**692. Directed Readings.** Readings for in depth study of specialized topics. 1-3 hours. PREREQUISITE: permission.

**693Q. Design and Implementation of Low Vision Rehabilitation Programs in the Health Care System.** In this self-directed course, students will go through the steps required to implement a viable low vision rehabilitation program using the medical rehabilitation model. Topics cover e d: procedures and issues unique to low vision programs; identifying the treatment population and services; establishing a program structure; developing evaluation tools and treatment materials; determining start up costs; identifying reimbursement sources; determining documentation requirements; budgeting and marketing. ELECTIVE. 2 hours. PREREQUISITES: OT 677, 679, 689 and permission.

694 Q . Tools for Working with Families and Clients (2 credits) OT 694Q Applying the occupational adaptation model, this course will enable students to explore and identify issues affecting adjustment to vision loss and develop effective treatment interventions to facilitate both client and family adaptation. ELECTIVE. 2 hours. PREREQUISITES: 677, 679, 689 and permission.

**695Q. Foundations in Treatment of Visual Impairment Brain Injury II.** Builds on information from OT 689 to explore additional evaluation and treatment strategies for persons experiencing visual processing impairment from brain injury. Topics: deficiencies in focusing, visual vestibular dysfunction, cortical visual impairment, optometric strategies for addressing hemianopsia, cognitive strategies for addressing visual neglect. ELECTIVE. 2 hours. PREREQUISITES: OT 677, 679, 689 and permission.

**696Q. Evaluation and Treatment of Children with Visual Impairments.** Introduction to evaluation and treatment techniques for infants and children who present with ocular and cortical visual impairments. ELECTIVE. 2 hours. PREREQUISITES: OT 677, 679, 689 and permission.

**697Q. Advanced Treatment in Low Vision Rehabilitation.** Required for completion of the graduate certificate in low vision rehabilitation. Student demonstrates capability in 4 measures of continuing professional competency: knowledge, skill, clinical reasoning, and ethical reasoning. ELECTIVE. 2 hours. PREREQUISITE: permission.

**699. Master's Level Thesis Research.** Elements of proposal and development of thesis/project; thesis and institutional review board procedures; student presentation, group discussion, recommendations, and critique. 1-6 hours. PREREQUISITE: Admission to candidacy.

ELECTIVES are available as scheduled.

Last modified 11/18/04

## UAB Graduate School

### Oral Biology (M.S)

Graduate program director: *Katz*

## Faculty

**Noel Childers**, Professor (Oral Biology); Mucosal Immunology as it Relates to the Immunobiology of Dental Caries

**Jeffery A. Engler**, Professor (Biochemistry and Molecular Genetics); Gene Cloning, DNA Sequencing, Virology, Metalloproteinases

**Kohtaro Fujihashi**, Professor (Oral Biology); Mucosal Immunity, Molecular Pathogenesis, Periodontal Disease, Gamma/Delta and Alpha/Beta T Cells and Epithelial Cells

**Jannet Katz**, Professor (Oral Biology); Periodontal Disease, Porphyromonas Gingivalis, Hemagglutinins and Proteases, Immune Response, Cytokines, Epithelial Cells

**Hiroshi Kiyono**, Research Professor (Oral Biology); Mucosal Immunobiology, T-Cell and Lymphokine Regulation

**Jack Lemons**, Professor (Biomaterials); Synthetic Materials, Surgical Implants, Implant to Tissue Interfaces, Biocompatibility

**Linda Lucas**, Professor (Biomedical Engineering); Biological Implants, Biocorrosion, Biocompatible Coatings

**Richard Mayne**, Professor (Cell Biology); Structure and Pathophysiology of Skeletal Muscle, Cartilage, Eye

**Jiri Mestecky**, Professor (Microbiology and Medicine); Regulation of the Secretory Immune System Response; Mucosal Vaccines

**Suzanne M. Michalek**, Professor (Microbiology); Oral Microbiology, Secretory Immune System, Vaccine Development, Caries Immunity, Host Mechanisms Involved in Periodontal Disease

**Jan Novak**, Assistant Professor (Microbiology); Immunoglobulin Glycosylation in Chronic Inflammatory Diseases; Periodontal Disease; Differential Gene Expression; Antimicrobials; Modified Peptides and Proteins

**Charles W. Prince**, Professor (Nutrition Sciences); Bone Metabolism, Vitamin D, Bone Proteins, Orthopedic and Dental Implant Biocompatibility

**Firoz Rahemtulla**, Professor (Biomaterials); Proteoglycans, Biosynthesis, Soft Connective Tissue, Oxidants

**Michael Reddy**, Professor (Periodontics); Bone Resorption, Attachment

Loss, Periodontitis, Implant Therapy, Regenerative Technology

## Program Information

The Department of Oral Biology in collaboration with the joint basic science departments at The University of Alabama School of Dentistry offers graduate studies leading to a Master of Science degree in Oral Biology. The objective of the program is to relate basic biological sciences to health and disease of the oral cavity. This program prepares dentists for careers in dental academics and teaching as well as in basic or applied research.

Students are required to pursue studies in oral biology, in the basic biological sciences, and in clinical research. These studies include course work, seminars, journal club, and a laboratory component. Course work includes formal lectures from within the Department of Oral Biology and courses offered by the basic sciences departments, School of Public Health and the School of Medicine. Seminars are organized jointly by the School of Dentistry, the Research Center in Oral Biology, the Specialized Caries Research Center, the Oral Cancer Research Center, the Postdoctoral Training Program in Caries Research, the Comprehensive Training Program for Clinical, Biomaterials or Immunological Research, and the Institutional Dentist Scientist Award Program. The Seminars cover a wide array of topics relevant to oral biology as well as other disciplines of dentistry. A weekly journal club serves to keep the trainee abreast of a broad range of topics in biomedical research as well as teach basic critical thinking and presentation skills. A significant portion of the program is devoted to the design and completion of a thesis research project, which is a requirement of the program. Students have the opportunity to select research advisors from several disciplines and topics from many basic science and clinical research. Thesis research will be carried out under the supervision of a faculty member. Members of the Department of Oral Biology and the Research Center in Oral Biology are actively engaged in research that represents a variety of oral and basic biomedical disciplines within the Medical Center. The diversity of the research interests offers opportunities for students to pursue studies in a stimulating research environment.

The program requires a minimum of 30 graduate credits beyond the professional degree in dentistry. Of these, at least 24 credits must be selected from graduate-level courses approved for the program and a minimum of 6 credits at the master's research level. Each student must orally defend a master's thesis based on their research. Some program may be combined with dental specialty training.

## Admission

Applicants to the Oral Biology graduate program must hold a B.S., D.D.S., D.M.D., M.D., Ph.D., or an equivalent degree and should possess a cumulative GPA of at least a 3.00 on a 4.00 scale. Students whose first language is not English must earn a score of 550 or better on the TOEFL.

Applicants are asked to submit a statement describing past research experience and current research interests, and stating how completion of

the M.S. program fits into their career goals.

Depending on the specialty program, stipends may be available. Financial assistance may also be available through other university scholarship and fellowship funds. The faculty of the Department of Oral Biology and of the Research Center in Oral Biology have access to a wide range of fellowships, training grants, research grants, etc., that may be used to support qualified students. Inquiries about available support mechanisms should be addressed directly to the sponsor with whom the student is interested in studying, since there is currently no support available through the department. Each year, three scholarships are made available from the Graduate School based upon open competition and merit.

## Contact

For detailed information, contact Dr. Jannet Katz, Program Director, UAB Department of Oral Biology, Mailing address: BBRB 713, 1530 3rd Avenue South, Birmingham, AL 35294-2170.

Telephone 205-934-2878

Fax (205) 934-1426

E-mail [meow@uab.edu](mailto:meow@uab.edu)

Web [www.dental.uab.edu](http://www.dental.uab.edu)

## Course Descriptions (OB)

600. **Graduate Cariology.** Review of etiological factors, preventive measures, and current literature in cardiology. Fall.

602. **Pharmacology and Therapeutics for Dentistry.** To provide important pharmacological issues related to dental patient care.

611. **Saliva: Composition and Function.** Physiology, biochemistry, and function of saliva in relation to oral health. Spring.

620. **Oral Microbiology and Immunology.** Areas of dental interest. Immunoglobulins, complement, microbial plaque, and gnotobiotic research. Spring.

622. **Biochemistry of Connective Tissue and Bone.** Biology, chemistry, and function of connective tissue elements. Methods and approaches to research. Spring.

625. **Design and Analysis of Clinical Dental Research** Rationale and logistics of setting up a clinical trial for testing the efficacy of treatment or procedure. Spring.

627. **Surgical Implants in Dentistry.** Basic aspects of dental implant-based treatment modalities. Spring



663. **Saliva as a Diagnostic Fluid.** Comprehensive knowledge about planning, performing, and interpreting results of saliva analyses. Fall.

687. **Oral Immunology and Vaccine Development.** Comprehensive knowledge of immune responses and “state of the art” mucosal vaccine development and their protection of oral/mucosal infectious diseases.

690. **Oral Biology Seminar.** Communication skills in areas of scientific writing, speech, and audiovisuals. 1 hour.

698. **Nonthesis Research.** 3-6 hours.

699. **Thesis Research.** Prerequisite: Admission to candidacy. 3-6

Last modified 08/19/04

## UAB Graduate School

### Pathology (Ph.D.)

Graduate program director: *Victor Darley-USmar, Ph.D.*

## Faculty

**Sarki Abdulkadir**, Assistant Professor (Pathology); Molecular mechanisms of prostate tumor initiation and progression

**Peter G. Anderson**, Professor (Pathology and Genomics & Pathobiology); Cardiovascular pathology; education

**Scott Ballinger**, Associate Professor (Pathology); Cardiovascular disease mediated by free radicals, mitochondrial damage, and dysfunction

**William H. Benjamin, Jr.**, Associate Professor (Pathology) Epidemiology of tuberculosis

**R. Pat Bucy**, Professor (Pathology); Regulation of in vivo immune responses by T cells

**Xu Cao**, Associate Professor (Pathology); Multipotent stem cells

**Stephen L. Carroll**, Associate Professor (Pathology); Neuregulin-1 in PNS Regeneration and Neoplasia

**Victor M. Darley-USmar**, Professor (Pathology); Mechanisms of redox signaling in cardiovascular disease

**Joanne T. Douglas**, Assistant Professor (Pathology); Gene therapy; adenoviral vectors; conditionally replicating adenoviruses

**Xu Feng**, Assistant Professor; Bone Metabolism in RRANKL/RANK signaling in osteoclast differentiation and function

**Andra Frost**, Associate Professor (Pathology); Effects of the microenvironment on breast carcinogenesis

**Candece L. Gladson**, Professor (Pathology); Malignant astrocytoma cell migration

**William E. Grizzle**, Professor (Pathology); Epithelial cancer

**Robert W. Hardy**, Associate Professor (Pathology); Insulin resistance; cancer cell proliferation

**Zdenek Hel**, Assistant Professor (Pathology); Insulin Development and testing of novel HIV/AIDS vaccine strategies

**Michael J. Klein**, Professor (Pathology); Arthritis and collagen degradation diseases

**Hiromi Kubagawa**, Research Assistant Professor (Pathology); Immunoglobulin-like receptors

**Dennis F. Kucik**, Assistant Professor (Pathology); Cell adhesion and motility

**Robin Lorenz**, Associate Professor (Pathology); Immune mediators of gastrointestinal disease

**Upender Manne**, Assistant Professor (Pathology); Translational research in gastrointestinal malignancies

**Jay M. McDonald**, Professor and Chair (Pathology); Cell signaling in bone disease, AIDS and cancer

**Joseph L. Messina**, Associate Professor (Pathology); Insulin and growth hormone action and resistance in trauma and infections

**Stephen A. Moser**, Professor (Pathology); Pulmonary mycotic infections

**Joanne E. Murphy-Ullrich**, Professor (Pathology); Regulation of cell death and motility by cell adhesion signaling and role of growth factor control in diabetic and fibrotic diseases

**Moon H. Nahm**, Professor (Pathology); Immune response to pneumococcal polysaccharide antigens

**Rakesh Patel**, Assistant Professor (Pathology); Inflammation; free radicals; atherosclerosis; sepsis; nitric oxide; hemoglobin; antioxidants; endothelial cell biology

**Selvarangan Ponnazhagan**, Associate Professor (Pathology); Adeno-associated virus gene therapy

**Brad Rodu**, Professor (Pathology); Smoking

**Kevin A. Roth**, Professor (Pathology); Molecular regulation of neuronal cell death

**Gene P. Siegal**, Professor (Pathology); Gene therapy of solid tumors

**Ken Waites**, Professor (Pathology); Diagnostic microbiology, epidemiology and mechanisms of antimicrobial resistance

**Casey T. Weaver**, Professor (Pathology); CD4 T cells

**Danny Welch**, Professor (Pathology); Biology and genetics of cancer metastasis

## Program Information and Objectives

A graduate program in molecular and cellular pathology, leading to the Ph.D. degree, is offered by the Department of Pathology. The program is administered by a committee composed of members of the graduate faculty and two Pathology Ph.D. candidates:

Victor Darley-USmar, Ph.D.- Program Director

Thomas Clemens, Ph.D.- Director, Division of Molecular and Cellular Pathology

Scott Ballinger, Ph.D.

Xu Cao, Ph.D.

James Cody, Pathology Ph.D. Candidate & Presiding Officer

Joanne Douglas, Ph.D.

Xu Feng, Ph.D.

Robin Lorenz, M.D., Ph.D.

Rakesh Patel, Ph.D.

Selvarangan Ponnazhagan, Ph.D.

Alexandra Silveira, Pathology Ph.D. Candidate & Vice-Presiding Officer

Students demonstrating superior scholarship who desire careers in academic and investigative pathology are encouraged to apply. Acceptance of students is based on Graduate School admission criteria, letters of recommendation, assessment of motivation, and a personal interview by the Pathology Graduate Committee.

Admission is open to highly motivated students with strong backgrounds in the biological sciences. It is recommended that students with B.Sc. degrees have completed undergraduate courses in physics, calculus, chemistry, organic chemistry, biology, or zoology and at least one advanced course in areas such as comparative anatomy, embryology, genetics, histology, or physiology.

The objective of the program is to train individuals for academic and investigative careers in disease mechanisms and processes. A combination of didactic and laboratory experience will be provided to achieve the following specific goals for each student: (1) understanding of basic disease mechanisms, (2) appreciation of modern techniques in cellular and molecular biology, (3) integration of molecular mechanisms of disease with pathophysiology, (4) application of the scientific method to problems in disease mechanisms through discerning experimentation, and (5) effective communication of information through teaching and writing skills.

Although the program is designed to acquaint the student with all major facets of experimental pathology and genomic research, specialization is encouraged. At present, students may choose to concentrate their efforts in any of the following areas: cardiovascular biology, immunopathology, oncology, comparative pathophysiology, metabolic and bone diseases, genetics of disease, animal models of disease, nutritional pathology, oral pathology, and pathology of various organ systems.

## Ph.D. Program

This degree is granted on the basis of scholarly proficiency, distinctive achievement, and original research. Additional course requirements are not rigidly fixed but are planned to meet the needs and interests of individual students. All students are expected to gain competence in cognate fields (e.g., scientific method, computer applications, cellular and molecular biology) and become independent investigators in experimental pathology. Students are given opportunities to study modern techniques of teaching and to participate in teaching under the supervision of experienced instructors. Preparation and defense of an acceptable dissertation is the final requirement for award of this degree. The core curriculum includes Integrative Biomedical Sciences (IBS 700, 701, 702) and Graduate Pathology (PAT 700, 701).

## **Additional Information**

For detailed information, contact Theresa Henson, Program Coordinator, Volker Hall G019, 1530 3rd Avenue South, Birmingham, AL, 35294-0019.

Telephone: (205) 934-2445;

E-mail: [thenson@path.uab.edu](mailto:thenson@path.uab.edu)

Web: <http://peir.path.uab.edu/pathgrad/>

## **Course Descriptions**

Please see website at <http://peir.path.uab.edu/pathgrad/> for a complete description of all required courses.

Last modified 09/27/04

## UAB Graduate School

### Pharmacology and Toxicology (Ph.D.)

Graduate program director: *Lamartiniere*

## Faculty

**Edward P. Acosta**, Assistant Professor (Clinical Pharmacology); Pharmacokinetics of and Pharmacodynamics of Antiviral and Antiretroviral Drugs in Adults and Children with HIV Disease

**Stephen Barnes**, Professor (Pharmacology and Toxicology, Biochemistry and Molecular Genetics); Pharmacokinetics of Dietary Phytoestrogens and Mechanism of Their Action on Cancer and Heart Disease; Molecular Biology of the Amino Acid Conjugation of Bile Acids in Mammals; HPLC-Mass Spectrometry

**Jimmy Bartlett**, Professor (Optometry, Pharmacology and Toxicology); Clinical Ocular Pharmacology; Diagnosis and Treatment of External Ocular Disease and Glaucoma; Clinical Trials of Investigational Anti-Inflammatory, Anti-Infective, and Anti-Glaucoma Drugs

**Donald Buchsbaum**, Professor (Pharmacology and Toxicology; and Radiation Biology); Experimental Therapeutics With Radiolabeled Monoclonal Antibodies and Immunotoxins; Radiation Biology

**Robert B. Diasio**, Professor and Chairman (Pharmacology and Toxicology; Medicine; and Director, Division of Clinical Pharmacology); Biochemical, Molecular, Chemical, and Clinical Pharmacology of Antineoplastic Agents; Pharmacogenetics

**Xu Cao**, Assistant Professor (Pathology, Pharmacology and Toxicology); the Mechanisms of Differentiation of Multipotential Stem Cells Into Functionally Distinct Cell Types, Particularly, the TGF-Beta/BMP Transcription Factors That Control Initiation of Cascade Networks of the Cell Lineage Split

**Ada Elgavish**, Associate Professor (Genetics, Pharmacology and Toxicology, Urology); Molecular Mechanisms of Epithelial Cell Membrane-Extracellular Matrix Interactions: Role In Cancer and Chemoprevention

**Charles N. Falany**, Professor (Pharmacology and Toxicology); Protein Chemistry and Molecular Biology of Drug Metabolizing Enzymes and Molecular Biology of Bile Acid-Conjugating Enzymes

**Clinton J. Grubbs**, Professor (Surgery, Pharmacology and Toxicology); Nutrition; Reproductive Pathoendocrinology; Development of Animal

Cancer Models; Metabolism and Binding of Chemical Carcinogens

**Donald L. Hill**, Research Professor (Pharmacology and Toxicology); Metabolism and Site of Action of Antitumor Agents, Chemopreventive Agents, Carcinogens, and Xenobiotics

**Gail V. W. Johnson**, Professor (Psychiatry and Pharmacology and Toxicology); Professor (Psychiatry and Behavioral Neurobiology); Neuropharmacology and Biochemistry of Neurodegenerative Disorders, Including Alzheimer's Disease and Huntington's Disease; Signal Transduction; Metabolism and Function of Neuronal Cytoskeletal Proteins

**Martin Johnson**, Research Assistant Professor (Pharmacology and Toxicology); Biochemical, Molecular and Clinical Pharmacology of Antineoplastic Agents; Pharmacogenetics

**Richard S. Jope**, Professor (Psychiatry and Pharmacology and Toxicology); Neuropharmacology and Neurochemistry of Neurological Disorders, especially Alzheimer's Disease, and Psychiatric Diseases, especially manic-depression; Regulation of Signaling Systems, Gene Expression, and Apoptosis/Survival

**Helen Kim**, Research Associate Professor (Pharmacology and Toxicology); Protein Biochemistry, Cell Biology, and Cytoskeletal Proteins in Normal and Disease States; Mechanisms of Estrogenic Factors in Modulating Cognition and Brain Function

**Mahmoud el Kouni**, Associate Professor (Pharmacology and Toxicology); Biochemical and Molecular Pharmacology of Nucleotide Metabolism in Mammalian Systems and Parasites

**David D. Ku**, Professor (Pharmacology and Toxicology, Cardiovascular Disease); Cardiovascular and Coronary Pharmacology; Role of Thrombin, Endothelium, and Platelets in Coronary Vasospasm and Ischemic Heart Disease

**Coral A. Lamartiniere**, Professor (Pharmacology and Toxicology); Environmental Toxicology; Molecular Endocrinology; Cause and Prevention of Mammary and Prostate Cancers

**Xiaohua Li**, Assistant Professor (Psychiatry, and Pharmacology and Toxicology); Neuropsychopharmacology and Clinical Psychopharmacology of Psychiatric Disorders; Role of Neurotrophic Factors and Regulation in Bipolar and Depressive Disorders

**Elias Meezan**, Professor (Pharmacology and Toxicology); Biochemical Pharmacology of Glycoconjugates in Health and Disease, Particularly Diabetes Mellitus

**Dennis J. Pillion**, Professor (Pharmacology and Toxicology); Endocrine

Pharmacology; Administration of Insulin in Eye Drops and Nose Drops;  
Diagnosis and Treatment of Diabetes Mellitus

**Denise R. Shaw**, Research Associate Professor (Medicine,  
Pharmacology and Toxicology); Immunohematology and Immunotherapy

**Jeffrey B. Smith**, Professor (Pharmacology and Toxicology); Ubiquitin  
proteasome system (UPS) in apoptosis; Escape apoptosis by cancer  
cells; down-regulation of protein kinaseC by UPS; Orphan receptor  
triggered by the carcinogenic metal cadmium

**Hui Wang**, Research Assistant Professor (Pharmacology and  
Toxicology); Molecular Therapeutics; Pharmacokinetics and  
Pharmacodynamics; Genetic-Based Therapy; Clinical Pharmacology and  
Clinical Trials; Cancer Prevention

**Jun Wang**, Research Instructor (Pharmacology and Toxicology); Cause  
and Prevention of Breast and Prostate Cancers; Molecular  
Endocrinology

**Ruiwen Zhang**, Associate Professor (Pharmacology and Toxicology);  
Antisense Therapy; Toxicology; Carcinogenesis; Anticancer Agents; Anti-  
AIDS Therapeutics; Cancer Prevention

## Adjunct Faculty

**John C. Besse**, Associate Professor Emeritus (Pharmacology and  
Toxicology); Modulation of Vascular Smooth-Muscle Contractile  
Responses by Steroids

**Charles Hebert**, Adjunct Assistant Professor (Pharmacology and  
Toxicology); Proliferative effects of dioxins and related compounds on  
epithelial cells

**William P. McCann**, Professor Emeritus (Pharmacology and  
Toxicology); Renal Physiology; Pharmacokinetics

**Richard May**, Adjunct Assistant Professor (Pharmacology and  
Toxicology); translational research for drug development (primarily for  
biotech and pharmaceutical companies) involving immune function  
assays, ELISAs, bone marrow progenitor cell assays, and assay  
development

**John Page**, Adjunct Associate Professor (Pharmacology and  
Toxicology); Preclinical pharmacological/toxicological evaluation of new  
or existing therapeutics, including small molecules, biologicals and gene  
vectors.

**William B. Parker**, Adjunct Associate Professor (Pharmacology and  
Toxicology); Biochemical and Molecular Mechanism of Action of



## Program Information

The objectives of the program leading to the Ph.D. degree in Pharmacology and Toxicology are to prepare students for careers as research scientists in academia, government, or industry. Training and research programs include biochemical, endocrine, neuro-, cardiovascular, behavioral, and molecular pharmacology; environmental and molecular toxicology; chemical carcinogenesis and chemoprevention; and drug discovery, design, and toxicity

Admission to graduate study in Pharmacology and Toxicology requires a bachelor's degree in an appropriate science, such as chemistry or biology. Students should have completed courses in general, organic, and physical chemistry; mathematics through calculus; and general biology. Courses in biochemistry, physiology, and toxicology are also recommended. The Pharmacology and Toxicology graduate program committee reviews all applications for admission. Acceptance for graduate study in pharmacology is based on Graduate School admission criteria, and a personal interview with the graduate program committee if possible.

Completion of the requirements of the Ph.D. program normally requires four to five years for students entering with B.S. degrees. The general course of study will include introductory courses in pharmacology and toxicology, biochemistry, and physiology, as well as advanced courses selected in accordance with the student's area of specialization and with the guidance of the advisor and graduate study committee.

## Additional Information

For detailed information, contact Dr. Coral Lamartiniere, Graduate Program Director, UAB Department of Pharmacology and Toxicology, Volker Hall, Room 124, 1670 University Boulevard, Birmingham, AL 35294-0019.

Telephone 205-934-7139

Fax 205-934-8240

E-mail [Coral@uab.edu](mailto:Coral@uab.edu)

Web [www.uab.edu/pharmtox/pharm.htm](http://www.uab.edu/pharmtox/pharm.htm)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be

repeated for credit, with stated stipulations.

## **Pharmacology (PHR)**

701. **Graduate Pharmacology I.** Introduction to graduate pharmacology. Dose-response relationships, drug absorption, disposition and metabolism, drug receptors, agonists and antagonists, enzyme receptor binding kinetics, pharmacokinetics, biostatistics. 3 hours.

702. **Graduate Pharmacology II.** Neuropharmacology. Drug modulation of neurotransmission; drugs used in diseases of the nervous system; sympathetic agonists and antagonists; cholinergic agents; CNS pharmacology. 3 hours.

703. **Graduate Pharmacology III.** Cardiovascular, renal and GI pharmacology. Drug modulation of the cardiovascular system, GI tract and renal system. Anti-inflammatory and anti-allergic agents. 5 hours.

704. **Graduate Pharmacology IV.** Endocrine pharmacology and chemotherapy of disease. Hormones; antimicrobial agents; antiparasitic drugs; cancer chemotherapy; antiviral and antifungal agents. 5 hours.

705. **Graduate Pharmacology V.** Molecular pharmacology. Current topics, including interaction between a particular drug and its target with emphasis on current literature; mechanisms of drug action.

\*720. **Lab Rotation in Pharmacology.** Introduction to laboratory methods, experimental design and execution. Sequential rotations (one per term) mentored and based on student's research. 5-8 hours.

723. **Medical Pharmacology.** Comprehensive treatment of pharmacology and therapeutics including principles of pharmacology, neuropharmacology, cardiovascular, renal and gastrointestinal pharmacology and chemotherapeutics. 6 hours.

725. **Modern Drug Design and Development.** This course covers various topics regarding modern drug research and development, including molecular targeting, lead compounds screening, genomics, biotechnology, pharmacological and toxicological evaluation, and regulatory issues.

730. **Research Assessment in Pharmacological Problems.** Original research proposal is written based on current library research and assistance of faculty member. Hypothesis formulation and experimental design. 2 hours.

750. **Advanced Principles of Pharmacology I.** Basic Principles: Dose-response relationships, drug absorption, disposition and metabolism, enzyme-receptor binding kinetics, pharmacokinetics, drug receptors, agonists and antagonists, mechanisms of drug action, interaction between a particular drug and its target. Pharmacogenetics. Biostatistics.

Neuropharmacology: Drug modulation of neurotransmission; drugs used in diseases of the nervous system; sympathetic agonists and antagonists; cholinergic agents, 4 hours.

**751. Advanced Principles of Pharmacology II.** Endocrine, CNS, cardiovascular, renal and GI pharmacology. Drug modulation of the cardiovascular system, GI tract and renal system. Chemotherapy of disease; Anti-inflammatory and anti-allergic agents, Hormones; antimicrobial agents; antiparasitic drugs; cancer chemotherapy; antiviral and antifungal agents, 4 hours

**\*790. Advanced Pharmacology Seminar.** Recent advances in pharmacology and toxicology and departmental research in progress. 1 hour.

**\*798. Doctoral Nondissertation Research.** 1-12 hours.

**\*799. Doctoral Dissertation Research.** Prerequisite: Admission to candidacy. 1-12 hours.

## **Toxicology (TOX)**

**711. Principles of Toxicology.** Foundation for understanding the basis of toxicology. Designed for doctoral students pursuing a career in toxicology; also appropriate for doctoral students studying pharmacology, veterinary medicine, pathology, forensic science, neuroscience, environmental health sciences, etc.

**712. Actions and Assessments of Toxicants.** Origin, distribution, and mechanistic actions of toxicants on the mammalian system. Designed for doctoral students pursuing a career in toxicology or a related science such as pharmacology, veterinary medicine, pathology, forensic science, neuroscience, environmental health sciences, etc. Prerequisites: A background in chemistry and biology is required. Biochemistry, pharmacology, and an introductory course in toxicology is recommended.

**713. Advanced Topics in Toxicology.** Foundation for understanding the basis of toxicology. Designed for doctoral students pursuing a career in toxicology. Exposes students to the most recent advances in contemporary toxicology.

**720. Laboratory Rotation in Toxicology.** Introduction to laboratory methods, experimental design and execution. 1-12 hours.

**750. Breast Cancer Causation and Regulation.** Designed for students in the Interdisciplinary Breast Cancer Training Program but also appropriate for any doctoral student studying cancer. Lays the foundation for understanding the nature of the disease, mechanism and action of established and novel approaches of therapeutic and chemopreventive drugs, and innovative research and clinical approaches.

795. **Advanced Toxicology Seminar.** To facilitate the critical review of recent refereed publications in the field of toxicology. This will expose students to advanced knowledge and diversified subjects. All students enrolled in the UAB campus-wide toxicology program are required to participate. 1 hour.

798. **Doctoral Nondissertation Research in Toxicology.** 1-12 hours.

Last modified 10/05/04

## UAB Graduate School

### Philosophy

Although UAB does not offer a graduate degree in philosophy, the Department of Philosophy does offer occasional graduate courses for qualified students enrolled in graduate and professional programs of other UAB departments. For detailed information contact UAB Department of Philosophy, HB 414A 900 13<sup>th</sup> Street South, Birmingham, AL 35294-1260.

Telephone 205-934-4805

Web [www.uab.edu/philosophy](http://www.uab.edu/philosophy)

## Course Descriptions

### Philosophy (PHL)

517. (Also GRD 717). **Principles of Scientific Integrity.** Survey of ethical issues and principles in the practice of science. Prerequisite: Permission of instructor. 3 hours.

590. **Directed Readings.** Directed readings in special areas or topics of philosophy; honors thesis supervision or opportunity for graduate credit in philosophy. Prerequisite: Permission of instructor. 3 hours.

770. **Philosophy of Science.** Overview of philosophy of science with attention to foundational debates in social sciences, and social constructivist views of scientific knowledge. Prerequisite: Permission of instructor. 3 hours.

790-792. **Problems Proseminar.** Philosophic problems of current interest in graduate and professional education. Specific issues in cognitive science, the arts, or ethics and public policy may be selected for analysis. Content varies depending upon instructor and student interest. Prerequisite: Permission of instructor. 3 hours.

Last modified 10/13/04

## UAB Graduate School

### Physics (Ph.D., M.S.)

Graduate program director: *Vohra*

## Faculty

**David G. Agresti**, Professor (Physics); Mössbauer Spectroscopy, Computer Data Fitting, Extraterrestrial Magnetic Materials

**Ivan A. Brezovich**, Professor (Radiation Oncology); Physics of Radiation Oncology, Hyperthermia

**Renato C. Camata**, Assistant Professor (Physics); Laser Synthesis, Processing, and Characterization of Nanostructured Materials; Aerosol Strategies in Nanoparticle Research; Hybrid Inorganic/Polymer Nanocomposites and Bioactive Coatings; Carbon Nanotube-Based Materials.

**Herbert C. Cheung**, Professor (Biochemistry and Molecular Genetics); Time-Resolved Fluorescence Spectroscopy and Rapid Kinetics of Proteins, Mechanism of Muscle Contraction

**Perry A. Gerakines**, Assistant Professor (Physics); Infrared Astronomy, Laboratory Astrophysics, Interstellar Dust and Ices, Comets, Astrobiology

**Gary J. Grimes**, Professor (Electrical and Computer Engineering); Photonic Switching and Fiber Optics, Polymer Waveguides, Integrated Optics

**Joseph G. Harrison**, Associate Professor (Physics); Energy-Band Structure, Electronic Structure of Defect Systems, Molecular Metal

**Stephen C. Harvey**, Professor (Biochemistry and Molecular Genetics); Computational Modeling of Structure, Function and Dynamics of Biological Macromolecules and Macromolecular Assemblies

**Ryoichi Kawai**, Associate Professor (Physics); Condensed Matter Physics Theory, Computational Physics, Science of Complexity

**N. Rama Krishna**, Professor (Biochemistry and Molecular Genetics); High-Field NMR Studies of Biomolecules, Biomolecular Structure and Function, Motional Dynamics of Proteins, Development of NMR Methodologies for Structure Refinement.

**Anatoliy Kudryavtsev**, Research Assistant Professor (Physics); Optical Spectroscopy Methods for Structural Studies of Objects Mostly of Biological Origin From Proteins to Ancient Fossils

**Chris M. Lawson**, Professor (Physics); Nonlinear Optics, Fiber Optics, Optical Sensor

**James C. Martin**, Associate Professor (Physics); Conformations of Biological Macromolecules, Laser Light Scattering, Fluorescence Photobleaching

**Sergey B. Mirov**, Professor (Physics); Experimental Quantum Electronics, Solid-State Lasers, Laser Spectroscopy

**Thomas M. Nordlund**, Associate Professor (Physics); Structure and Dynamics of Biological Macromolecules, Optical Spectroscopy

**David L. Shealy**, Chair, Professor (Physics); Laser Beam Shaping Optics, Optical System Design, Theoretical Optics, High Performance Computing, Internet2

**Andrei Stanishevsky**, Assistant Professor (Physics); Nanomaterials, thin films, nanostructures, biomedical and optical applications of nanomaterials and nanodevices

**Yogesh K. Vohra**, Professor & University Scholar (Physics); High Pressure Materials Research, Growth and Characterization of Synthetic Diamond and Biomaterials, Laser Spectroscopy and Synchrotron X-ray Diffraction in Materials Characterization

**Thomas J. Wdowiak**, Associate Professor (Physics); Laboratory Astrophysics, Interstellar Matter, Meteoritics, Early Solar System

**Edward L. Wills**, Research Associate Professor (Physics); Experimental Nuclear Physics, Biomedical Applications, Mössbauer Spectroscopy

**John H. Young**, Professor (Physics); Electromagnetic Theory and Biomedical Applications, General Relativity

**Mary Ellen Zvanut**, Associate Professor (Physics); Electrical and EPR Studies of Insulators and Semiconductors

## Program Information

Students in the M.S. and Ph.D. programs may specialize in any of the areas of interest to the faculty, including experimental physics and astrophysics, theoretical and computational physics, or biophysics and medical applications of physics.

## Admission

Admission into the physics graduate program is by recommendation of the graduate admission committee of the Department of Physics. The committee takes into consideration GRE General Test scores, prior

academic performance, and the letters of evaluation, usually from former instructors. For international students, a TOEFL score of 570 is required for admission.

## **Beginning the Program**

All students must take an oral placement examination on basic physics concepts before registering for any courses. Upon arrival at UAB, international students will be required to take an English as a Second Language course or Scientific Communication courses at UAB during their first year of study until a score equivalent to 570 on the TOEFL is achieved.

## **M.S. Program**

### **Plan I**

The student must successfully complete at least 30 semester hours of coursework, including at least four core courses selected from PH 610-611, 650-651, and 671-672 and 6 semester hours of Thesis Research (PH 699). The student must also write and complete a successful oral defense of a thesis under the direction of a graduate faculty member. Additional coursework should be selected with the advice of the student's graduate study committee to meet the particular needs of the student.

An interdisciplinary track for an M.S. degree Plan I is also offered. Students admitted to this track will typically hold a bachelor's degree in a science area other than physics, such as astronomy, biology, chemistry, geology, mathematics, or psychology, or an engineering degree, including optics and materials science. Thesis research will be in an interdisciplinary area, including astrophysics, astrobiology, biophysics, chemical physics, geophysics, mathematical physics, neurophysics, optics, materials science, or engineering physics. Students awarded an M.S. degree within this track will be prepared for an Assistant Research Physicist position, including qualification for coauthorship, and would typically work under the direction of a doctoral-level person. The acquired skill would be highly marketable, as individuals trained in multidisciplinary areas for basic and applied research are increasingly in demand in industry, government laboratories, and other research institutions.

Acceptance into this interdisciplinary track will be through a Physics Graduate Faculty member, who will be prepared to supervise the student's thesis research and develop a plan of study. This plan of study will include a core of courses (Classical Mechanics, PH 561-562; Electromagnetic Theory, PH 545-546; and Quantum Mechanics, PH 550-551), other physics graduate-level courses, and a minimum of 12 hours of graduate-level courses offered by other departments. The Department of Physics will establish a standing Physics Interdisciplinary Track Committee to review and concur in each student's plan of study. As is current practice, thesis oversight will be by the student's M.S. Graduate Study Committee.



## Plan II

With approval of the physics graduate program director, a nonthesis option (Plan II) is available; in this case, the graduate study committee requires an additional 6 semester hours of coursework instead of a thesis and gives the student an M.S.-degree exit examination.

## Ph.D. Program

All students are required to pass an oral and written qualifying examination covering the areas of classical mechanics, electromagnetic theory, quantum physics, and one selected topic from thermodynamics/statistical mechanics, optics, or solid-state physics. This examination is to be taken within two terms of completing six core courses, PH 710-711, 750-751, and 771-772. Under no circumstances may the examination be taken more than twice.

Following satisfactory completion of the qualifying examination and consultation with individual faculty members, the student selects a specific area for dissertation research under the supervision of an appropriate graduate faculty member. The student's Graduate Study Committee, chaired by the major advisor, will outline a program of study including at least four graduate courses and appropriate tools of research, such as computer and/or foreign language competency. After the student completes these specialization courses and tools of research, the Graduate Study Committee will administer an oral examination to test the student's knowledge in the area of research. The student must pass this oral examination in no more than two attempts. Then, with direction from the major advisor, the student should focus on formulating and writing a formal research proposal that must be presented and defended before the Graduate Study Committee; this should lead to a recommendation from the committee for admission to candidacy. Dissertation research culminates in the successful oral defense of the dissertation.

## Additional Information

For detailed information, contact Dr. Yogesh K. Vohra, UAB Department of Physics, CH 387, 1530 3rd Avenue South, Birmingham, AL 35294-1170.

Telephone 205-934-4736

E-mail [ykvohra@uab.edu](mailto:ykvohra@uab.edu)

Web [www.phy.uab.edu](http://www.phy.uab.edu)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Physics (PH)

501-503. **Modern Physics for Teachers I-III.** Concepts of physics, including lecture demonstrations and laboratory experiments. Prerequisite: Permission of instructor. 3 hours each.

504, 505. **Studies in Physics Teaching I, II.** Development of new curricula, apparatus, and techniques of presentation of concepts in physics. Prerequisite: Permission of instructor. 3 hours each.

507-509. **Physical Science of Teachers I-III.** Concepts of physical science. Laboratory includes evaluation of experiments and equipment for lecture demonstrations. Prerequisite: Permission of instructor. 3 hours each.

520, 521. **Introduction to Methods in Theoretical Physics I, II.** Vector calculus. Curvilinear coordinate systems; commonly encountered ordinary differential equations and special functions; complex variables and contour integration partial differential equations, including solutions by Green function methods. Prerequisite: Permission of instructor. 3 hours each.

525. **Applications of Contemporary Optics I.** Applied geometrical optics. Refraction and reflection, paraxial optics, thick lens, matrix theory, optical aberrations, optical systems, and optical design using computer simulations. Prerequisite: PH 222 or equivalent.

526. **Applications of Contemporary Optics II.** Applied wave optics. Fresnel equations, optical interference, optical interferometry, coherence, diffraction, lasers, and Gaussian beam propagation. Prerequisite: PH 525.

527. **Geometrical Optics.** Properties of optical systems. Lenses, mirrors, and stops; aberrations; rays and wave fronts, optical instruments; aspheric components. Prerequisite: PH 222 or equivalent. Lecture and laboratory.

528. **Physical Optics.** Interference and diffraction phenomena; emission, propagation, and absorption of radiation; polarization and dispersion; stimulated emission. Prerequisite: PH 222 or equivalent. Lecture and laboratory.

529. **Applications of Optics III.** Applied optical interactions with materials—linear and nonlinear polarization phenomena, optical properties of materials, anisotropic optics, electro-optics, and nonlinear optics. Prerequisite: PH 526.

532, 533. **Statistical Thermodynamics I, II.** Statistical basis of laws of thermodynamics; ensembles and partition functions; quantum statistics of ideal gases, including photons and electrons; applications to solids, real gases, liquids, and magnetic systems; transport theory. Prerequisites: PH 550. 3 hours each.

545, 546. **Electromagnetic Theory I, II.** Electromagnetic theory approached from standpoint of fields and using Maxwell's equations. Prerequisites: PH 222 and MA 444, or equivalent. 3 hours each.

550, 551. **Introductory Quantum Mechanics I, II.** Principles of quantum mechanics; their application to particle waves, angular momentum, tunneling, radiation, and selection rules; perturbation and variational methods. Prerequisites: PH 251 and PH 562, PH 252 recommended. 3 hours each.

553, 554. **Introductory Solid-State Physics I, II.** Properties of crystal lattices, lattice dynamics, lattice imperfections, and bonding energies; electronic properties of dielectrics, semiconductors, and metals; ferroelectric, magnetic, and optical properties of solids. Prerequisites: PH 331 and PH 551 or equivalent. 3 hours each.

561, 562. **Classical Mechanics I, II.** Kinematics and dynamics, including central forces, rotating coordinate systems, and generalized coordinates; Lagrangian and Hamiltonian. Prerequisites: PH 222 and MA 252. 3 hours each.

567. **Special Relativity.** Foundations and principles of special relativity with applications to mechanics and electrodynamics. Prerequisites: PH 546 and PH 562.

571. **Atomic and Molecular Physics.** Applications of quantum mechanics to structure and spectra of atoms and small molecules; use of symmetry in understanding and describing molecular vibrations and bonding. Prerequisite: PH 551.

575, 576. **Introduction to Biophysics I, II.** Application of physical techniques and analytical methods of selected biological problems. Prerequisite: Permission of instructor. 3 hours each.

581, 582. **Laser Physics I, II.** Physical principles of laser operation and design. Spontaneous and stimulated emission, population inversion, light amplification, laser resonators, Q-switching, mode-locking, pulse shortening techniques, spectral narrowing, and tunable lasers. Individual types of lasers will be considered. Practical applications of lasers will be treated in detail. Prerequisites: PH 222. 3 hours each.

585. **Laser Spectroscopy.** Practical applications of lasers and modern techniques and instrumentation in laser spectroscopy. Prerequisites: PH 222.

591-593. **Advanced Physics Laboratory I-III.** Laboratory investigation of topics of modern physics. Prerequisite: Permission of instructor. 1-3 hours each.

610, 611. **Classical Mechanics.** Applications of methods of LaGrange, Hamilton, Poisson, and Hamilton-Jacobi to such classical problems as central force, small oscillation, and rigid body motions. Prerequisite: PH 562. 3 hours each.

623, 624. **Modern Optics I, II.** Classical and modern theories of propagation of radiation, interference, diffraction, and dispersion; optical devices, including lasers, holograms, sources, and detectors. Prerequisites: PH 222, MA 252. 3 hours each.

635. **Statistical Mechanics.** Interpretation of macroscopic phenomena from microscopic principles; fundamental laws of statistical mechanics; applications to simple equilibrium systems, phase transitions, and transport problems. Prerequisite: PH 551.

650, 651. **Electromagnetic Theory I, II.** Boundary value and Green function methods for solving potential problems; fields in dielectric, magnetic media, and radiation fields. Prerequisite: PH 546. 3 hours each.

653, 654. **Solid-State Physics I, II.** Structure and dynamics of solids; optical, magnetic, and transport properties. Prerequisites: PH 331, 551. 3 hours each.

655. **Advanced Solid-State Laboratory.** Thin film X-ray diffraction, Raman spectroscopy in materials characterization, electron paramagnetic resonance, and thin film deposition. Prerequisite: PH 351.

671, 672. **Quantum Mechanics I, II.** Discrete and continuous spectra; central force problems; angular momentum and spin; systems of identical particles; perturbation theory; scattering theory. Prerequisites: PH 546 and 551. 3 hours each.

673. **Applications of Quantum Mechanics.** Scattering theory, density matrix, and polarization; applications to atomic and nuclear reactions. Prerequisites: PH 671, 672.

697. **Special Topics in Physics.** Topics of current interest, such as theoretical physics, computational physics, experimental techniques. May be repeated for credit. 1-12 hours.

698. **Nonthesis Research.** May be repeated for credit.

699. **Thesis Research.** May be repeated for credit. Prerequisite: Admission to candidacy. 1-12 hours.

710, 711. **Advanced Classical Mechanics I, II.** Analysis of dynamics, including rigid body motion, featuring the LaGrange formulation, introduction to the Hamiltonian, formulation, Poisson brackets, analyses in nonrelativistic applications. 3 hours each.

715, 716. **Advanced Statistical Mechanics.** Applications of statistical laws to modern topics such as quantum fluids, critical phenomena, and nonequilibrium systems. Prerequisite: PH 533 or PH 635. 3 hours each.

732, 733. **Growth and Characterization of Thin Films I, II.** Basics of vacuum science. Methods of thin film deposition. Nucleation, evolution of microstructure and surface morphology of thin films. Simulation of growth processes. Thin film characterization techniques (SEM/SIM, TEM, SPM, XPS/AES, XRD, optical and mechanical measurements). Demonstrations on thin-film deposition and basic characterization of film microstructure and properties. Prerequisites: PH553/653 and PH554/654 or permission of instructor. Lecture and demonstration. 3 semester hours each.

740. **Physical Applications of Group Theory.** Point groups, space groups, and applications in atomic, molecular, and solid-state physics.

741. **Mössbauer Spectroscopy.** Theory of nuclear gamma resonance phenomena; experimental techniques; computer fitting of Mössbauer data; application to structure chemistry and properties of nuclei.

742. **Electron Spin Resonance.** Microwave techniques, spin Hamiltonian formalism; applications of ESR to solids.

745. **Molecular Spectroscopy.** Infrared, Raman, and ultraviolet techniques applied to study of molecular properties, including rotation-vibration spectra and spectra of crystalline solids.

750, 751. **Classical Electrodynamics I, II.** Static and time-varying fields in vacuum and in matter, radiation fields, solutions and implications of Maxwell's equation utilizing advanced mathematical methods. Prerequisite: PH 546. 3 hours each.

753, 754. **Advanced Solid State I, II.** Properties of electrons and photons in crystal lattices; electromagnetic interactions with solids; lattice defects. 3 hours each.

760, 761. **Methods of Mathematical Physics I, II.** Vector and tensor analysis; differential and integral equations; Green functions; variational techniques; linear operator theory; Fourier and Laplace transforms. 3 hours each.

762, 763. **Computational Physics I, II.** Numerical techniques for solution of differential, integral, and matrix equations of physics; computer simulations of physical phenomena; optimization problems. Prerequisites: PH 545, 551, and 561.

764-767. **Directed Problems in Computational Physics.** Prerequisite: Permission of instructor. 3 hours each.

771, 772. **Quantum Mechanics I, II.** Discrete and continuous spectra; central force problems; angular momentum and spin; systems of identical particles; perturbation theory; scattering theory. Prerequisites: PH 546, 551. 3 hours each.

773. **Applications of Quantum Mechanics.** Scattering theory, density matrix, and polarization; applications to atomic and nuclear reactions. Prerequisites: PH 771, 772. Spring.

791, 792. **Seminar in Physics I, II.** Topics of current interest in physics, presented by graduate students, faculty, and visitors. Required each term of all full-time graduate students. 1 hour each.

797. **Special Topics in Physics.** Topics of current interest, such as group theory, medical physics, computational methods, biological physics, materials physics, optics, and space physics. May be repeated for credit. 1-12 hours.

\*798. **Nondissertation Research.** Prerequisite: Permission of instructor. 1-12 hours.

\*799. **Dissertation Research.** Prerequisite: Admission to candidacy. 3-12 hours.

Last modified 12/10/04

## UAB Graduate School

### Physical Therapy (DPT; D.Sc.P.T.)

Graduate program chair: *Shaw*

## Primary Faculty

**Cara C. Adams** , Associate Professor (Physical Therapy); Exercise and Postural Deviations

**Joan Bergman** , Professor Emerita (Physical Therapy); Developmental Disabilities

**Jennifer Braswell** (Physical Therapy); Pediatrics; Vestibular Dysfunction

**Jo Ann Clelland** , Professor Emerita (Physical Therapy); Pain Management

**Betty G. Denton** , Associate Professor (Physical Therapy); Curriculum Development

**Matthew Ford** , Assistant Professor (Physical Therapy); Motor Control Dysfunction

**Kennon T. Francis** , Professor Emeritus (Physical Therapy); Exercise in Health Promotion; Delayed Muscle Soreness

**Cecilia Graham** , Associate Professor (Physical Therapy); Education, Acute Care

**Robert S. Harden** , Associate Professor Emeritus (Physical Therapy); Ethical and Legal Dimensions of Physical Therapy

**Cheryl J. Knowles** , Assistant Professor (Physical Therapy); Cardiopulmonary Physical Therapy

**John McCarthy** , Assistant Professor (Physical Therapy); Exercise Physiology

**David M. Morris** , Assistant Professor (Physical Therapy); Aquatic Physical Therapy, Clinical Education

**Patrice Murphy** , Assistant Professor (Physical Therapy); Developmental Disabilities, Orthotics

**William Ogard** , Assistant Professor (Physical Therapy); Sensory Function of Anterior Cruciate Ligament, Proprioception of Knee Joint, Anatomy, Function of Lumbar Musculature

**Claire Peel** , Associate Professor (Physical Therapy); Exercise Physiology, Cardiopulmonary Therapeutics, Geriatric Rehabilitation

**Patty Perez** , Assistant Professor (Physical Therapy); Orthopedic Disorders

**Dorothy Pinkston** , Professor Emerita (Physical Therapy); History of Physical Therapy, Curriculum Development

**Rachel Unanue Rose** , Assistant Professor (Physical Therapy); Motor Control Dysfunction

**Sharon E. Shaw** , Associate Professor (Physical Therapy); Health Outcomes Assessment, Rehabilitation Management of Neurological Conditions

**Carolyn Sherer** , Assistant Professor (Physical Therapy); Orthopedic Rehabilitation, Cultural Diversity in Disability

## Program Information

Two courses of study are available in the Department of Physical Therapy. The Doctor of Physical Therapy (DPT) is the professional program, which is designed for individuals without prior qualifications in physical therapy; and the postprofessional program, the Doctor of Science in Physical Therapy (DScPT) which is designed for those who already hold degrees in physical therapy.

### Doctor of Physical Therapy

Physical therapists provide services to patient/clients who have impairments, functional limitations, disabilities, or changes in physical function and health status resulting from injury, disease, and other causes. Physical therapists also address risk and provide prevention services and promote health, wellness, and fitness. Physical therapists interact and practice in collaboration with a variety of professional. Finally physical therapists also function in consultative, educator, administrative and supervisory roles in many different types of practice, research, and education settings.

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

**Credentials Conferred** : Diploma—The Doctor of Physical Therapy degree is awarded by the University of Alabama at Birmingham.

**License** : Graduates are eligible for the physical therapist licensure examination. Note that state law regulates the practice of Physical Therapy; contact a specific state's Board of Licensure for Physical Therapy to obtain information on that state's eligibility requirements. <http://www.fsbpt.org/licensing/index.asp>

**Length of Study** : Eight semesters.

**Program Entrance Date** : Spring semester.

**Application Deadline** : All material must be sent to the Admissions Office of the Department of Physical Therapy and received no later than January 15 preceding the expected term of enrollment.

**Application Procedure** : The following materials must be submitted directly to the Department of Physical Therapy:

- UAB Graduate School application, including the Department of Physical Therapy application,

- a nonrefundable \$35.00 application fee,
- two official transcripts from each college attended,
- test scores (GRE), and GRE Writing Assessment scores, and
- three evaluation forms (references).

**Requirements of Admission:** The applicant must hold a baccalaureate degree from an accredited college or university within the United States in a field other than physical therapy. Acceptance will be based on the student's academic ability and aptitude for a career as a physical therapist. The candidate is expected to satisfy the following requirements:

- have a minimum GRE score of 1,100 (minimum 550 verbal and minimum 550 quantitative),
- complete the GRE Writing Assessment,
- have a minimum 3.0 (A=4.0) overall GPA and on the last 60 semester hours of course work,
- have a minimum academic average performance of 3.0 in the biological sciences, 3.0 in the physical sciences, 3.0 in 6 semester hours of English composition, and at least a C in each of the other prerequisite courses,
- complete a personal interview with the Department of Physical Therapy faculty, and
- if accepted, complete the UAB medical history questionnaire and physical, provide proof of required immunizations, and receive satisfactory screening by the UAB Medical Center Student Health Service.
- document current certification of Basic Life Support for Health Care Providers,
- complete the required course in Medical Terminology as specified by the Department of Physical Therapy.

Because state law regulates the practice of Physical Therapy, applicants are encouraged to review the nonacademic eligibility requirements for licensure to practice physical therapy upon completion of the program. These may be obtained from each individual state's Board of Licensure for Physical Therapy. <http://fsbpt.org>

Variations in these requirements are considered. In instances where applicants do not meet the principle requirements for admission, they may be admitted on probation with the approval of the Graduate School dean. Such students must establish themselves in good standing by achieving not less than a B average by the time they have completed 1 term of approved work taken at UAB for graduate credit.

## **Program Prerequisites–UAB Equivalents**

(Course requirements are listed in semester credit hours)

### **Arts and Humanities**

English Composition–EH 101, 102 (6)

### **Social and Behavioral Sciences**

Psychology (9)

### **Natural Sciences and Mathematics**



Precalculus with Trigonometry—MA 106 (4)

Statistics (must be taken in Math, Psychology, or Sociology)—MA 180, PY 214, or SOC 110 (3-4)

Physics\*—PH 201/211 lab, 202/212 lab or PH 221/231 lab, 222/232 lab\*\* (8)

General Chemistry for science majors with labs\*—CH 115/116 lab, 117/118 lab (8)

Biology including Human or Mammalian Physiology\*—BY 116 or 309 (16)

*\*For these prerequisite courses, credit older than ten years from the application deadline must be validated by examination or other appropriate mechanism.*

*\*\*The physics course sequence must be designed for science majors and include laboratory sessions. A minimum of 8 semester hours is required. The following topics must be studied: mechanics, heat, electricity and magnetism, wave motion and sound, and light.*

**Essential Requirements** : Fundamental tasks, behaviors, and abilities necessary to successfully complete the academic and clinical/residency requirements of the program and to satisfy licensure/certification requirements, if any, have been outlined and are available upon request from the academic program office. Students requesting disability accommodations must do so by filing a disability accommodation request in writing with the academic program office.

### **Typical Program**

(Course requirements are listed in semester credit hours)

#### **First Year**

##### **Spring**

PT 700 Human Gross Anatomy I (3)

PT 702 Functional Anatomy (4)

PT 730 Essentials of Human Physiology (2)

PT 711 PT Examination I (2)

PT 713 PT Intervention I (3)

PT 760 PT Professional Practice I (2)

PT 790 Scientific Inquiry I (1)

##### **Summer**

PT 701 Human Gross Anatomy II (2)

PT 706 Neuroscience I (4)

PT 712 PT Examination II (3)

PT 720 Pathology & Pharmacology for Movement Disorder I (3)

PT 731 Human Performance Physiology (3)

PT 770 Clinical Education I (1)

PT 791 Scientific Inquiry II (1)

##### **Fall**

PT 707 Neuroscience II (3)

PT 704 Analysis of Human Movement (4)

PT 714 PT Intervention II (2)  
PT 715 PT Intervention III (3)  
PT 721 Pathology & Pharmacology for Movement Disorder II (3)  
PT 743 PT Management of Cardiopulmonary Dysfunction (2)  
PT 771 Clinical Education II (2)  
PT 792 Scientific Inquiry III (1)

## **Second Year**

### **Spring**

PT 705 Human Movement Dysfunction (4)  
PT 740 PT Management of Musculoskeletal Dysfunction I (5)  
PT 761 PT Professional Practice II (3)  
PT 772 Clinical Education III (2)  
PT 798/799 Scholarly Activity Project (1-3)

### **Fall**

PT 741 PT Management of Musculoskeletal Dysfunction II (5)  
PT 744 PT Management of Neuromuscular Dysfunction I (4)  
PT 762 PT Professional Practice III (3)  
PT 798/799 Scholarly Activity Project (1-3)

## **Third Year**

### **Spring**

PT 746 PT Management of Neuromuscular Dysfunction II (4)  
PT 763 PT Professional Practice IV (2)  
PT 793 Scientific Inquiry IV (1)  
PT 798/799 Scholarly Activity Project (1-3)  
PT 773 Clinical Education IV (8)

### **Summer**

PT 745 Complex Clinical Management Seminar (2)  
PT 798/799 Scholarly Activity Presentation (1)  
PT 774 Clinical Education V (9)

### **Fall**

PT 775 Clinical Education VI (9)

Total Credit Hours for Program: 119-121

## **Additional Information**

For detailed information, contact the department chair, Physical Therapy Department, School of Health Related Professions, Richard M Scrushy Building, Room 383, 1705 University Boulevard (mailing address: RMSB 383, 1530 3rd Ave S), Birmingham, Alabama 35294-1212.

Telephone 205-934-3566

E-mail [sshaw@uab.edu](mailto:sshaw@uab.edu)

# DScPT – Postprofessional Program

The post professional Doctor of Science in Physical Therapy (DScPT) program offers a 61 to 66-semester hour advanced curriculum for practicing physical therapists. The curriculum is composed of core courses and a choice of concentration in musculoskeletal, neuroscience or clinical outcomes research. The program may be completed on a part-time or full-time basis. This program provides the graduate with the advanced knowledge and skills to serve as a leader within health care and educational environments through examination and revision of current practice guidelines and through the development and implementation of new programs.

**Accreditation** : The University of Alabama is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award degrees at the bachelor's, master's, specialist, and doctor's levels.

**Credentials Conferred** : Diploma – The Doctor of Science in Physical Therapy degree is awarded by the University of Alabama at Birmingham.

**Length of Study** : 2 ½ to 3 years for full-time students

**Program Entrance Date** : Primarily in the fall semester; spring admission may be considered

**Application Deadline** : April 1 for fall admission

**Application Procedure** : The following materials must be submitted directly to the Department of Physical Therapy

- UAB Graduate School application and Doctor of Science in Physical Therapy Program application
- A nonrefundable \$35.00 application fee
- Two official transcripts from each college attended
- Official GRE scores
- Three recommendation forms
- Current resume
- Copy of current U.S. physical therapy license

**Requirements of Admission** : The applicant must hold a Master's degree in Physical Therapy or a Bachelor's degree in Physical Therapy and a Master's degree in a related field. Minimum admissions requirements include:

- GRE scores: 550 verbal, 550 quantitative, and 4.5 analytical writing
- GPA: 3.00/4.00 in all previous work
- Complete a personal interview with Department of Physical Therapy faculty
- If accepted, provide proof of required immunizations and proof of current certification in BCLS for Healthcare Providers

# Typical DScPT Curriculum for a Full-Time Student\*

## Year 1 Fall

PTDS 702: Advanced Movement Science (3)  
PTDS 710: Health Promotion in Physical Therapy (3)  
PTDS 720: Introduction to PT Clinical Outcomes (3)

## Year 1 Spring

PTDS 703: Issues in Movement Science (3)  
PTDS 711: Health Promotion Planning and Administration (3)  
PTDS 721: Foundations for PT Outcomes Research I (3)

## Year 1 Summer

PTDS 704: Principles of Clinical Decision Making (3)  
PTDS 712: Program Evaluation and Health Policy (3)  
PTDS 722: Foundations for PT Outcomes Research II (3)

## Year 2 Fall

PTDS 700: Essentials in Medical Screening I (3)  
PTDS 705: Clinical Decision Making in Physical Therapy (3)  
PTDS 713: Field Experience in Health Promotion (1)  
Elective (3)\*\*

## Year 2 Spring

PTDS 701: Essentials in Medical Screening II (3)  
PTDS 798: Dissertation Proposal (3)

## Year 2 Summer

Comprehensive Exam\*\*\*  
PTDS 798/799: Proposal/dissertation (1-6)

## Year 3 Fall

PTDN/M/C 730: Advanced focus course I (3-4)  
PTDS 799: Dissertation (1-6)

## Year 3 Spring

PTDN/M/C 731: Advanced focus course II (3-4)  
PTDS 740: Practicum (3-6)  
PTDS 799: Dissertation (1-6) (continue as needed)

*\* Alternative degree plans are available for students wishing to enroll in fewer courses per semester*

*\*\*Elective courses may be taken any semester*

*\*\*\*The comprehensive exam is taken upon completion of the core coursework and research sequence*

## Course Descriptions

### Physical Therapy (PT)

700, 701. **Human Gross Anatomy I, II.** A study of the gross anatomical structure of the human body includes the limbs, back, abdominal wall and cavity. Specific emphasis includes regional study of the relationships between musculoskeletal, nervous, and vascular systems, joint structure, cardiovascular and pulmonary systems, and surveys of selected viscera. Includes lecture, dissection of the human body, and demonstrations. PT 700-3 hours; PT 701-2 hours.

702. **Functional Anatomy.** Integrated study of anatomy, kinesiology, muscle biology, and biomechanics to develop an understanding of and ability to analyze normal and pathologic human movement. Includes palpation and surface anatomy. 4 hours.

704. **Analysis of Human Movement.** Study of human movement through an examination of the movement patterns during common motor skills (eg: walking). The kinematics and kinetics related to movement will be studied across the lifespan. 3 hours

705. **Human Movement Dysfunction.** Study of human movement dysfunction including recovery processes related to injury, impairments associated with pathology and behavior and kinematic/kinetic descriptions of movement dysfunction related to cardiopulmonary, musculoskeletal, and neuromuscular pathology across the lifespan. 4 hours

706. **Neuroscience I .** A study of structures and functions of the human nervous system with emphasis on sensory/motor function. 4 hours

707 **Neuroscience II Continuation of 706.** Study of the theories of motor control and motor learning will serve as a foundation for the understanding how the CNS is organized in relation to human movement. 3 hours

711. **Physical Therapy Examination I.** Introduction to the physical therapy examination process which includes history taking, systems review, and tests and measures. Emphasis will be placed on systems review and medical screening for each of the major systems. Overview of the major types of tests and measures employed by physical therapists and the type of data generated with a focus on self-care for patient. 2 hours.

712. **Physical Therapy Examination II.** Continuation of Physical Therapy I with focus on knowledge and skills needed to test and measure strength, range of motion, and posture. 3 hours.

713. **Introduction to Physical Therapy Intervention I.** Introduction to the components and process of physical therapy intervention. Emphasis on beginning communication & documentation skills and basic procedural interventions of patient transfers, gait with assistive devices, superficial physical agents, massage, and passive range of motion.

Overview of major categories of procedural interventions utilized by physical therapists. 3 hours

**714. Physical Therapy Intervention I.** This course covers procedures and techniques for the design and implementation of fundamental therapeutic exercise. By recognizing impairments and functional limitations that are amenable to physical therapy, the students will utilize therapeutic exercise interventions for prevention and rehabilitation of movement dysfunction and disability. 2 hours

**715. Physical Therapy Intervention III.** The study and use of knowledge and skills needed to select and use both electrodiagnostic and electrotherapeutic modality interventions for various impairments and functional limitations. Emphasis will be placed on integrating electrical evaluation, electrical and deep heat therapy with previously learned examination, evaluation, and intervention skills. 3 hours

**720, 721. Pathology and Pharmacology for Movement Disorders I, II.** Basic principles of pathology and pharmacology. Medical and surgical management of disorders involving the cardiovascular/pulmonary, musculoskeletal, neuromuscular, endocrine, integumentary, genitourinary, and GI systems. For each disease discussed, the diagnosis, medical, surgical, and pharmacological management will be included, as appropriate. Course is a two term course. 3 hours.

**730. Essential of Human Physiology .** Fundamental principles and concepts of human physiology are covered regarding the pulmonary, cardiovascular, and skeletal muscle systems, as well as thermoregulation of the body. Both cellular and systemic issues are addressed with an emphasis on a mechanistic and integrative approach to understanding function. 2 hours.

**731. Human Performance Physiology.** Course provides fundamental knowledge about the adaptability of human physiological systems in meeting a range of exercise demands. Areas covered include energy transfer during rest and exercise, physiologic and performance adaptations, exercise prescription for healthy adults, and body composition. Research evidence regarding how exercise and physical activity impact health, wellness, and disease is included. 3 hours.

**740, 741. PT Management of Musculoskeletal Dysfunction I, II.** Application of biological and physical sciences in understanding musculoskeletal disorders. Diagnosis of common musculoskeletal dysfunctions; clinical decision making concerning treatment and prevention of musculoskeletal disorders. Medical and surgical diagnostic and treatment procedures with implications for rehabilitation. Focus for one course is on the lower quarter and the thoracic spine; focus of the other course is on the upper quarter. PT 740 – 5 hours, PT 741 – 5 hours

**743. PT Management of Cardiovascular/Pulmonary Dysfunction.** Physical therapy examination, evaluation, diagnosis, prognosis, and intervention for patients with primary and secondary disorders involving the cardiovascular/pulmonary system. 2 hours.

**744, 746. PT Management of Neuromuscular Dysfunction I, II.** Application, analysis, and synthesis of principles of neurophysiologic rehabilitation in physical therapy examination, evaluation, diagnosis, and intervention. PT 744 – 4 hours, PT 746 – 4 hours

**745. Complex Clinical Management Seminar.** Integration of all previous course work applied to complex cases reflective of the scope of PT practice: direct patient/client physical

therapy care; case management, clinical pathways, consultation, reimbursement issues, critical inquiry, administration and management. Develop and presents portfolio reflecting personal & professional growth and accomplishments.

**760. P T Professional Practice I.** Introduction to the profession of physical therapy, including history, APTA, and scope of practice. Introduction to legal, ethical and other regulatory mechanisms that guide the practice of physical therapy. Presentation of cultural diversity issues related to physical therapy practice 2 hours.

**761. PT Professional Practice II.** Overview of the forces contributing to the health care environment and the effects of this environment on physical therapy practice, research, and education. The role of the physical therapist in shaping health policy and legislation. Application of regulatory mechanisms, legal mandates and ethical principals and theories to current professional issues. 3 hours

**762. PT Professional Practice III.** Concepts of health promotion/health education and the role of the physical therapist in health promotion; Theoretical basis for health behaviors and application of theories to physical therapy practice; Concepts of consultation, program planning, implementation, and evaluation applied to health promotion-oriented physical therapy program. 3 hours

**763. PT Professional Practice IV.** Study of principles of physical therapy management and administration. Includes: current issues in physical therapy in relation to organizational behavior; the relationship of administrative, business, and regulatory law to the practice of physical therapy. 2 hours

**770. Clinical Education I.** Part-time clinical experience. Supervised clinical education in basic patient care skills and an introduction to practice issues. 1 hour

**771 Clinical Education II** Part-time clinical experience. Continuation of PT 770. 2 hours

**772. Clinical Education III.** Part-time clinical experience. Continuation of PT 771. 2 hours

**773, Clinical Education IV, .** 10 week, full-time supervised clinical education in a clinical setting to provide student with the opportunity to apply previously acquired knowledge & skill to client care. Emphasis is on examination and evaluation skills; intervention techniques and treatment planning (including care of problems related to musculoskeletal, neuromuscular, cardiovascular/pulmonary and integumentary systems). These students have completed all academic course work except a one-month "mini-term" consisting of a synthesis seminar and presentation of their scholarly activity project. However, this is the first full-term clinical experience for these students.

**774. Clinical Education V** Continuation of PT 773. 12 week full-time clinical education. Integration of all patient care techniques; evaluation of patient progress and appropriate progression of patients in therapeutic programs; includes experiences in supervision, consultation, research, management, and teaching. 9 hours

**775 Clinical Education VI.** Continuation of PT 774. Final, 12 week, full-time clinical education . Integration of all patient care techniques; evaluation of patient progress and appropriate progression of patients in therapeutic programs; ;includes experiences in supervision, consultation, research, management, and teaching. 9 hours

790. **Scientific Inquiry I.** This is the first course in the research series for physical therapy students. Students will be introduced to sources of bibliographic information and database searching, annotated bibliographies, critical review of scientific literature, and beginning concepts of the application of research to clinical practice. 1 hour

791. **Scientific Inquiry II.** This course combines concepts of measurement principles, experimental design, qualitative, survey outcomes research and a review of basic statistical concepts that will prepare the graduate to critically analyze and use the scientific literature to improve clinical practice. Emphases will be placed on understanding the components of a research report and the concepts associated with judging quality of research design as applied to clinical practice. 1 hour

792. **Scientific Inquiry III.** Emphasis will be placed on the assessment of research literature in Physical Therapy and the application of research findings to clinical practice. Additionally, advanced clinical research designs will be discussed. 1 hour

793. **Scientific Inquiry IV.** This is the final course in the Scientific Inquiry Series. The emphasis will be placed on peer review and professional presentation of scholarly work. 1 hour

## Physical Therapy (PTGR)

747. **Seminar in Interdisciplinary Services for Infants, Children, and Youth with Developmental Disabilities.** Synthesis of team-based approaches to intervention for infants, children, and youth with known or suspected disabilities. Focus on legislation and policy, team processes and practices, and family-centered applications. Open to upper level students in disciplines which have roles in service provision for the described population. Prerequisite: acceptance into the traineeship program, or consent of department. 1-2 hours.

## Physical Therapy (DScPT)

PTDS 700 – 701 **Essentials in Medical Screening I and II.** Provides the physical therapist with knowledge and skills for recognizing systemic disease that may appear as/or in addition to movement-related dysfunction to enable the practicing therapist to appropriately determine the need for medical referral. Basic principles underlying pharmacological management of movement related pathologies commonly encountered by the physical therapist. Includes background information on laboratory tests, imaging studies and other common diagnostic procedures.

PTDS 702 **Advanced Movement Science.** Current theory and principles of movement and movement dysfunction including: study of tissue basis of movement, biomechanics, motor control, energy demands, and analysis of movement 3 hours

PTDS 703 **Current Issues in Movement Science** Use of technology (motion analysis, biofeedback, energy expenditure) for analyzing problems of movement across a variety of pathologies commonly encountered by the physical therapist. Current areas of research in movement science will be discussed. 3 hours

PTDS 704 **Principles of Clinical Decision Making** Overview of clinical decision making in other disciplines (particularly medicine/health), the evolution of clinical decision making in physical therapy, models of clinical decision making and their application to elements of



patient/client management in physical therapy practice. Students will consider decision analysis, cost-effectiveness, and development of critical/clinical pathways. 3 hours

**PTDS 705 Clinical Decision Making In Physical Therapy** Provides physical therapists with understanding of principles of clinical decision making applies to the practice of physical therapy. Examination of statistical properties of specific tests and selection of appropriate tests used in the diagnostic process of classifying signs and symptoms to assign diagnoses used by physical therapist that reflect the impact of a condition on the individual's function. Students will apply the diagnostic process, develop prognosis and intervention plans based upon evaluation of findings. Multiple patient problems will be addressed. 3 hours.

**PTDS 710 Health Promotion in Physical Therapy** . Concepts of health promotion and the role of physical therapist in health promotion. Theoretical basis for health behaviors and application of theories to physical therapy practice. 3 hours

**PTDS 711 Health Program Planning and Administration.** Methods/techniques for health program assessments, evaluation, program planning. Communication skills/techniques unique to health program planning and implementation will be emphasized. 3 hours.

**PTDS 712 Program Evaluation and Health Policy** Study of program evaluation strategies and advocacy; includes utilization of evaluations and strategies to influence health policy as a clinician, consultant, and/or educator 3 hours

**PTDS 720 Introduction to Physical Therapy Clinical Outcomes** Concepts of biostatistics relative to evidence-based practice and foundation for outcome based clinical rehabilitation approaches. Overview of generic measures, domains of health, condition specific measures, satisfaction, treatment effect measures, severity, comorbidity, demographic and psychosocial factors. 3 hours

**PTDS 721 Foundations for Physical Therapy Outcomes Research I** Study of measurement theory characteristics, conceptualization, usefulness, sensitivity, specificity, and interpretation. Data management issues: selection, collection, display, information systems and organization of data. 3 hours

**PTDS 722 Foundations for Physical Therapy Outcomes Research II** Continuation of PT 720. In-depth study of strategies and issues specific to outcomes research in clinical physical therapy settings. Case based seminar integrating knowledge from PT 720 and PT 721 3 hours

**PTDS 740 Practicum** Individually designed, directed experience in focus area appropriate to student's background, needs, and goals under guidance of faculty preceptor 3-6 hours

**PTDS 713 Field Experience in Health Promotion** Individually planned experience in community based setting. Intergration and application of principles and theory of health behavior/health education, policy analysis and advocacy 1 hour

**PTDS 798 Clinical Research/Dissertation Proposal** Development of clinical research proposal 1-3 hours

**PTDS 799 Clinical Research/Dissertation** Prerequisite: admission to candidacy 1-6 hours

**Focus area courses:** Students may elect course work offered within the university and/or larger community which will enhance the individual's long-range career goals. All students will select a focus area. Each focus area will have a required practicum. When students have completed the didactic course work for their focus area, they will then complete a practicum which is individually based upon experience and professional goals.

**Focus area courses offered within the program:**

**PTDM 730 Advanced Musculoskeletal I** An in-depth learning experience in the examination and treatment of individuals with musculoskeletal dysfunction involving the lower quarter. Previous coursework in medical screening, movement science, and clinical decision making is specifically applied to the musculoskeletal system. 4 hours

**PTDM 731 Advanced Musculoskeletal II** A continuation of PTDM 730 with application to the upper quarter and thoracic region. 4 hours

**PTDN 730 Advanced Neuromuscular I** An in-depth learning experience focused on examination of individuals with neuromuscular dysfunction. Previous coursework in medical screening, movement science, and clinical decision making is specifically applied to the neuromuscular system 3 hours

**PTDN 731 Advanced Neuromuscular II** A continuation of PTDN 730 with emphasis on intervention strategies for neuromuscular dysfunction 3 hours

**PTDC 730 Advanced Clinical Outcomes I** In-depth study of strategies and issues specific to outcomes research in clinical physical therapy settings 3 hours

**PTDC 731 Advanced Clinical Outcomes II** Continuation of PTDC 730 content with integration on content from PT 712. Case based seminar series. 3 hours.

Last modified 12/23/04

## UAB Graduate School

### Psychology (Ph.D.)

Director of Behavioral Neuroscience Specialization: *Randich*

Director of Developmental Psychology Specialization: *Ball*

Director of Medical/Clinical Psychology Specialization (APA Approved): *Milby*

### Primary Faculty

**Franklin R. Amthor**, Associate Professor (Psychology): Neurophysiology of Vision

**Fred J. Biasini**, Assistant Professor (Psychology); Mental Retardation, Developmental Disabilities

**Karlene Ball**, Professor (Psychology); Cognitive Science; Aging

**Don Baucum**, Research Assistant Professor (Psychology); Lifespan Human Development, Learning

**Norman W. Bray**, Professor (Psychology); Mental Retardation, Cognitive Development, Neural Networks

**Edwin W. Cook III**, Associate Professor (Psychology); Clinical Psychology, Health Psychology, Anxiety Disorders

**James E. Cox**, Associate Professor (Psychology); Physiological Psychology, Obesity

**Linda Warren Duke**, Associate Professor (Psychology); Cognitive Psychology, Human Psychophysiology, Aging

**Mary Boggiano**, Assistant Professor (Psychology); Behavioral Neuroscience, Eating Disorders

**Joshua Klapow**, Assistant Professor (Psychology); Health Care Outcomes

**Carl E. McFarland, Jr.**, Professor and Chairperson (Psychology); Cognitive and Developmental Psychology

**Jesse B. Milby, Jr.**, Professor (Psychology); Clinical Psychology, Medical Psychology, Behavior Therapy, Addiction Treatment & Outcome

**George E. Passey**, Professor Emeritus (Psychology); Industrial Psychology, History of Psychology

**Craig Ramey**, University Professor (Psychology); Life-Span Developmental Psychology

**Alan Randich**, Professor (Psychology); Experimental Psychology

**David L. Roth**, Associate Professor (Psychology); Clinical Psychology, Health Psychology, Neurophysiology, Exercise Physiology

**David C. Schwebel**, Assistant Professor (Psychology); Clinical Child Psychology

**Michael E. Sloane**, Associate Professor (Psychology); Visual Perception and Psychophysics

**Edward Taub**, Professor (Psychology); Medical Psychology, Biofeedback

**Diane C. Tucker**, Professor (Psychology); Clinical Psychology, Physiological Psychology, Psycho-oncology and Genetic Testing

**Rudy E. Vuchinich**, Professor (Psychology); Alcoholism Outcome, Behavioral Economics

**Jan Wallander**, Professor (Psychology); Clinical Child Psychology

**Amanda Walley**, Associate Professor (Psychology); Development of Speech and Language

**Rosalyn E. Weller**, Associate Professor (Psychology); Neuroscience, Visual Perception, Brain Imaging

**Michael Windle**, Professor (Psychology); Life-Span Developmental Psychopathology, Substance Use

**Rex A. Wright**, Professor (Psychology); Social Psychology

### **Secondary, Clinical, and Adjunct Faculty**

**Gerald Anderson**, Clinical Associate Professor (Psychology); Clinical Psychology

**Steven Bair**, Clinical Associate Professor (Psychology); Clinical Associate Professor (Psychology); Clinical Psychology

**Alfred Bartolucci**, Professor (Biostatistics and Biomathematics); Biostatistics

**John M. Beaton**, Professor (Psychiatry); Behavioral Pharmacology

**William B. Beidleman**, Professor (Psychiatry); Clinical Psychology, Medical Psychology, Behavior Therapy, Forensic Psychology

**Alan D. Blotcky**, Clinical Associate Professor (Psychology); Clinical Psychology

**Laurence A. Bradley**, Professor (Rheumatology); Medical Psychology, Pain

**Carol E. Cornell**, Assistant Professor (Medicine/Preventive Medicine); Health Behavior

**Dwayne A. Crist**, Clinical Assistant Professor (Psychology); Clinical Psychology

**Jeffrey J. Dolce**, Assistant Professor (Medicine); Health Psychology

**Daniel M. Doleys**, Clinical Professor (Nutrition Sciences); Clinical Psychology, Behavioral Medicine, Behavior Therapy

**Molly A. Engle**, Associate Professor (Medicine/Preventive Medicine); Disease Prevention

**William E. Farrar**, Adjunct Associate Professor; Industrial and Organizational Psychology

**E. Louis Fleece, Jr.**, Professor (Psychiatry); Clinical Psychology, Behavioral Medicine

**James E. Flege**, Professor (Biocommunication); Biocommunication, Psycholinguistics

**Paul Gamlin**, Associate Professor (Physiological Optics) Eye Movements

**George Graham**, Professor (Philosophy); Behavior and Philosophy

**Paul B. Greene**, Assistant Professor (Medicine); Preventive and Behavioral Medicine

**John J. Hablitz**, Professor (Biophysics); Physiology

**Lindy E. Harrell**, Professor (Neurology); Neurology, Behavioral Neuroscience

**Bart Hodgens**, Assistant Professor (Pediatrics); Clinical Psychology, Adolescent Medicine

**Michael M. Holt**, Clinical Associate Professor (Psychology); Clinical Psychology

**Nancy Hubert**, Clinical Associate Professor (Psychology); Clinical Child Psychology

**Gregory R. Jackson**, Assistant Professor (Ophthalmology); Photoreceptor Dysfunction in Aging and Macular Degeneration

**Sheryl R. Jackson**, Assistant Professor (Psychiatry); Adult Clinical Psychology

**Beth Jacobs**, Clinical Assistant Professor (Psychology); Clinical Psychology, Child and Adolescent Psychology

**Gayle Janzen**, Clinical Assistant Professor (Psychology); Clinical Psychology

**Barbara R. Johnson**, Clinical Associate Professor (Psychology); Clinical Psychology

**Gail V. W. Johnson**, Assistant Professor (Psychiatry); Behavioral Neurobiology

**Patricia A. Jolly**, Clinical Associate Professor (Psychology); Clinical Psychology, Behavior Therapy

**Duck-Hee Kang**, Assistant Professor (Nursing Graduate Programs); Psychoneuroimmunology, Intervention in Breast Cancer

**Connie L. Kohler**, Assistant Professor (Public Health); Health Behavior

**Susan Kotler-Cope**, Clinical Assistant Professor (Psychology); Neuropsychology

**Ruth Lyman**, Clinical Assistant Professor (Psychology); Clinical Psychology

**Julie McDonald**, Clinical Assistant Professor (Psychology); Clinical Psychology

**Nancy B. Marshall**, Research Assistant Professor (Medicine); Communication Disorders

**Daniel Marson**, Associate Professor (Neurology); Neuropsychology

**Lawrence E. Mays**, Professor (Physiological Optics); Physiological Psychology, Vision, Neurophysiology

**Mark S. Mennemeier**, Assistant Professor (Medicine); Rehabilitation Medicine

**Ronald L. Meredith**, Clinical Associate Professor (Psychiatry); Clinical Psychology, Behavioral Assessment and Therapy

**Arnold Mindingall**, Clinical Associate Professor (Psychology); Clinical Psychology, Child Psychology

**Janie Murray**, Clinical Assistant Professor (Psychology); Pain Rehabilitation

**David L. Nash**, Clinical Assistant Professor (Psychology): Clinical Psychology

**Thomas T. Norton**, Professor (Physiological Optics); Physiological Psychology, Vision, Neurophysiology

**Thomas A. Novack**, Associate Professor (Rehabilitation Medicine); Clinical Psychology, Rehabilitation, Neuropsychology

**Cynthia Owsley**, Professor (Ophthalmology); Vision and Human Aging, Perceptual Development, Spatial Vision

**Renee Peacock**, Clinical Associate Professor (Psychology); Clinical Child Psychology

**G. Vernon Pegram, Jr.**, Clinical Professor (Psychiatry); Human Psychophysiology, Behavioral Medicine

**Robert Pitts**, Clinical Assistant Professor (Psychology); Child and Adolescent Psychology

**Samuel J. Popkin**, Adjunct Assistant Professor (Psychology); Geriatric Cognition, Integration of Spirituality in Psychotherapy

**Lucas Pozzo-Miller**, Assistant Professor (Neurobiology); Actions of Neurotrophins at Synapses, Neuronal Calcium Signaling and Plasticity

**James M. Raczynski**, Professor (Behavioral Medicine); Clinical Psychology, Behavioral Medicine, Human Psychophysiology

**Sharon Ramey**, Professor (Psychiatry); Developmental Psychology

**Kevin D. Reilly**, Professor (Computer Science); Neural Net

**Scott Richards**, Professor (Rehabilitation Medicine); Clinical Psychology

**Gloria M. Roque**, Clinical Assistant Professor (Psychology); Clinical Child Psychology

**Allen E. Shealy**, Clinical Professor (Psychiatry); Clinical Psychology, Alcoholism

**Joseph E. Schumacher**, Assistant Professor (Preventive Medicine); Drug Abuse

**Alan B. Stevens**, Assistant Professor (Medicine); Gerontology

**Katharine Stewart**, Research Assistant Professor (Medicine); HIV

**Robert E. Taylor**, Clinical Associate Professor (Psychiatry); Clinical Psychology

**A. Hal Thurstin**, Associate Professor (Psychiatry); Clinical Psychology, Eating Disorders, Geriatrics

**Lelland C. Tolbert**, Associate Professor (Psychiatry); Neurochemistry

**Gaye B. Vance**, Clinical Assistant Professor (Psychology); Psychology

**Laura Whitworth**, Clinical Assistant Professor (Psychology); Psychotherapy

**Dale W. Wisely**, Clinical Associate Professor (Psychology); Clinical Psychology, Child Clinical Psychology

**J. Michael Wyss**, Professor (Cell Biology); Neuroanatomy, Physiological Psychology

### **Areas of Specialization**

The Psychology Graduate Program offers three specialization options to doctoral students: Behavioral Neuroscience, Developmental Psychology, and Medical/Clinical Psychology. A terminal master's degree is not offered. The Medical/Clinical Psychology Specialization is approved by the American Psychological Association.

#### *Behavioral Neuroscience*

Study in the Behavioral Neuroscience specialization is designed to prepare students for independent research and teaching in the neurobiology of behavior. Research training is provided by faculty in the Department of Psychology and in the UAB Schools of Medicine and Optometry, who share an interest in the biological basis of behavior. The course of study includes a core curriculum in neuroscience and recognizes the interdisciplinary nature of this field. Students obtain strong backgrounds in behavioral science and in neuroscience and gain expertise in the content and techniques of selected areas of neuroscience as they apply to the study of behavior.

Faculty laboratories are equipped for research in behavior, neurophysiology, neuroanatomy, neuropharmacology, neurochemistry, and molecular biology. The research interests of the faculty include neuroanatomy and neurophysiology of the visual system; psychophysics; interactions between the central nervous system and the periphery in the control of feeding and energy balance;



neurophysiology of motor systems and movement disorders; chemical senses; neurochemical and immunological approaches to the study of acetylcholine receptors in brain and muscle; neurochemistry and neuroanatomy of disorders of movement; models of memory dysfunction; development precursors of nerve-target interactions; hypertension; structure-activity relationships of hallucinogens; psychiatric disease; and the neurochemistry and neurophysiology of pain.

### *Developmental Psychology*

The Developmental Psychology doctoral program trains scientists to conduct research to discover and apply basic principles of developmental psychology in an interdisciplinary context and to apply those principles to a variety of problems. Graduates are capable of taking positions in institutions of higher learning, medical schools, research institutions, government agencies, and other research and teaching positions. Research training is provided by the faculty of the Department of Psychology and may occur in collaboration with faculty at the Civitan International Research Center, Center for the Advancement of Youth Health, the Center for Aging, the Center for Applied Gerontology, the Comprehensive Youth Violence Center, the Department of Pediatrics, the school of Public Health, and other centers and departments.

The research programs of faculty with interests in lifespan developmental psychology include a wide variety of topics from infancy to the elderly. Much of this research is funded by federal research grants. Research subareas include: mental retardation and developmental disabilities (with special interests in prenatal development and exposures, early intervention, improving special education, adolescent psychosocial development and mental health, and how family members adapt to the problems of a handicapped child); adolescence (with special interest in longitudinal studies, interactions between health and development, alcohol and drug use, predictors of depression and suicide, family and peer relations, those with special health care or education needs); aging (with special interest in visual-perceptual problems of older adults with low vision, memory skills training with elderly populations, the psychological aspects of chronic illness in the elderly, chronically ill individuals, caregiving in families of elderly persons, human factor issues in vision and aging); and language and communication disorders (with special interest in the development of speech perception and word segmentation in young children, how word segmentation may relate to beginning reading, and developmental changes in abilities to use computer-assisted communication systems).

Developmental Psychology students must complete a master's thesis. Admission to candidacy for the doctoral degree is based on satisfactory completion of coursework and completion of an area review in the form of a Psychological Bulletin or Psychological Review article. The doctoral degree is awarded upon successful defense of the dissertation.

## *Medical/Clinical Psychology*

The Medical/Clinical Psychology specialization provides scientist-practitioner training in clinical psychology with an emphasis on investigation and service delivery in a medical setting, oriented toward the prevention and treatment of medical disorders and the enhancement of health. This program of study is cosponsored by the UAB School of Medicine. Coursework, research, and clinical clerkship training are provided by faculty psychologists in the Departments of Psychology, Rehabilitation Medicine, Psychiatry, Neurology, Pediatrics, Surgery (Divisions of Neurosurgery and Cardiovascular Surgery), and Medicine (including the Divisions of General and Preventive Medicine, Rheumatology, Arthritis, and Gastroenterology), the Center for Aging, the Sparks Center for Developmental and Learning Disorders, the Civitan International Research Center; the VA Medical Center, and the UAB School of Public Health. In addition, psychologists in several health psychology-behavioral medicine and mental health centers in the community play an active teaching, research, and clinical supervisory role in this program.

Current research programs in which faculty and students are involved include AIDS treatment-- efficacy and compliance; HIV/AIDS--risk reduction; cardiology--hypertension; cardiovascular surgery--open-heart surgery outcome; pediatric virology--congenital infections and mental development; gastroenterology--irritable bowel syndrome and rumination; anorexia-bulimia program; head injury center--rehabilitation, neurovascular surgery research; cocaine and other drug dependence--treatment, development and evaluation; very low birth-weight project; pain clinic intervention program; mental retardation--Down's syndrome parent coping project, Alzheimer's disease diagnosis and caregiver projects; and neuropsychological evaluations of epilepsy surgery; brain injury studies of behavioral and medical interventions and of imaging correlates of psychological processes; improving health status and utilization; cardiovascular risk assessment and reduction in minority populations; access to cancer screening and care in underserved populations; Women's Health Initiative Multi-Center Project; assessing and modifying women's cancer and other health risks; and smoking cessation interventions. This is a representative but not exhaustive list. Most Medical Psychology program faculty research is extramurally funded by private foundations and federal support, especially the Center for Disease Control and multiple institutes of the National Institutes of Health.

It is possible to enroll in the Master of Public Health degree program concurrently with enrollment in the Medical/Clinical Psychology Program; this requires the approval of both the Medical/Clinical Psychology specialization director and the UAB School of Public Health.

## **Application**

The deadline for receipt of a complete application for admission is **January 15 (December 15 for Medical/Clinical Psychology Program)** preceding the beginning of the program in September. Applications are solicited both from students with bachelor's degrees and from those who may have already completed some graduate study. The GRE General Test is required. The GRE Subject Test in psychology is recommended.

## Admission

Admission to the program is highly selective. Successful applicants usually present scores of at least 600 on both the verbal and quantitative portions of the GRE General Test and a minimum 1,200 overall score (verbal plus quantitative). Minimum grade point averages of 3.2 (on a 4.0 scale) overall, over the last two years and in psychology courses, are required for admission.

Because of the interdisciplinary nature of the Behavioral Neuroscience specialization, students with diverse backgrounds in psychology, biology, and physical science are encouraged to apply. All students are expected to have undergraduate training in psychology, biology, physics, chemistry, and mathematics. Students not trained in one or more of these areas may be required to make up deficits after enrollment.

Admission to the Developmental Psychology specialization requires undergraduate work in psychology, biology, and mathematics. Students without undergraduate coursework in these areas may be required to take additional coursework after enrollment.

The criteria for admission to the Medical/Clinical Psychology specialization include a minimum of 18 semester hours in psychology courses (specific courses recommended are Introduction to Psychology, Psychological Statistics, Physiological Psychology, Psychology of Learning, and Abnormal Psychology or Psychology of Personality) and a minimum of 18 semester hours in life science courses (courses in chemistry and biology/physiology). Courses in mathematics through calculus and in computer programming are recommended. Students with deficits in any of these areas may be required to take suitable additional coursework before and/or after enrollment. Relevant research or clinical service experiences are considered important indications of the applicant's motivation and commitment to psychology. The relevance of the student's goals and interests to the research-health psychology orientation of the specialty is also an admission consideration.

## Advisement

Behavioral Neuroscience students are advised by the Behavioral Neuroscience specialization director in consultation with a graduate program steering

committee and by their research preceptors until the dissertation committee is appointed, usually early in the third year of study.

Students accepted in the Developmental Psychology specialization will be assigned an advisor by the Developmental Psychology specialization director. The advisor may be changed upon request of the student and agreement of the Developmental Psychology Specialization director.

Before arriving on campus, Medical/Clinical Psychology students are assigned an advanced student mentor and a faculty advisor who chairs a Graduate Study Committee. Mentors, advisors, and graduate study committees assigned by the specialization director and Medical Psychology Coordination Committee may be changed upon the request of the student and the agreement of the Medical Psychology Specialization director.

## Curriculum

The curriculum in Behavioral Neuroscience provides a student with advanced training that is broadly based in neuroscience. All students have a plan of coursework that includes Overview of Behavioral Neuroscience (PY 753), Cognitive Neuroscience (PY 703), a two-semester statistics sequence (PY 716-717), and an ongoing seminar in current research (PY 756). Advanced academic coursework is determined by the student and mentor. Each student must enroll in a research practicum directed by a member of the graduate faculty during each term in residence. The student initially rotates among faculty and laboratories during the first year to obtain breadth in points of view and experimental techniques. Students then choose a mentor with whom they normally complete the remainder of their research training. Before admission to candidacy, each student must fulfill the pre-dissertation research requirement and pass the qualifying examination. Following acceptance of a proposal for dissertation research, the student is admitted to candidacy. The Ph.D. degree is awarded upon successful defense of the dissertation.

Each student in the Developmental Psychology specialization is encouraged to develop a systematic line of research that complements that of his or her advisor. With intense exposure to an important aspect of developmental research, the student acquires skills that can be generalized to a variety of problems. Students are required to complete a lifespan developmental psychology sequence, including an overview course (PY 708), an adolescent developmental course (PY 729), and an aging course (PY 785). An additional 12 hours in general developmental psychology is required from a range of course options (PY 711-715, PY 726-728, PY 758, PY 783). Developmental psychology students are also required to complete two terms of teaching practicum (PY 796), and a four-course sequence in statistics and research design (PY 716, 717, 719, 725). Additional requirements include at least 8 credit hours of electives in courses such as social psychology, theories of emotion, psychological tests and

measurement, introduction to neurobiology, geriatric and gerontology interdisciplinary core curriculum, and reading (theoretical foundations).

Developmental Psychology students must complete a master's thesis. Admission to candidacy for the doctoral degree is based on satisfactory completion of coursework and completion of an area review in the form of a *Psychological Bulletin* or *Psychological Review* article. The doctoral degree is awarded upon successful defense of the dissertation.

The Medical/Clinical Psychology specialization places strong emphasis on integration of biological and behavioral sciences. Research and clinical training require an undergraduate background in both psychology and life science. The program requires continued pursuit of applied skills biological and psychological skill, and knowledge basic to health psychology research and practice. The curriculum includes three broad areas:

1. Basic biological and psychological knowledge, including cognitive biological and social-emotional basis of behavior, individual differences, statistics and research methodology, professional issues, and ethics;
2. Professional skill and knowledge, including assessment, intervention, evaluation, and consultation; and
3. Medical psychology.

Students pursue research and a clinical focus on one or more of the several available health psychology areas through advanced scientific and applied coursework, clinical clerkship, and directed research activities that typically culminate in the doctoral dissertation.

Course requirements for the Medical/Clinical Psychology specialization include but are not limited to

1. Statistics and Research Design--a four-course sequence;
2. Clinical Psychological Assessment--a one-year modular course sequence;
3. Psychological Intervention--a four-course sequence;
4. General Psychology--History and Systems and three of the following courses: Learning Processes, Cognition, Motivation and Emotion, Developmental Psychology, Sensory and Perceptual Processes, and Social Psychology;
5. Health Psychology--a five-course series, three of which involve choices from alternatives such as neuropsychology, psychopharmacology, psychophysiology, neural and humoral bases of behavior, and health psychology, plus elective

seminars in fields such as rehabilitation, aging, cardiology, and neuropsychology; and

6. Psychopathology, Theories of Personality, and Professional Issues and Ethics (all required courses).

Additional courses and/or seminars may be taken as electives. The student's advisor may also require additional coursework for a chosen area of emphasis. Courses in many departments of the university are available on an elective basis. Students are required to complete a minimum of 22 semester hours of research and 22 semester hours of clinical clerkship. A master's project completed in the second year.

Students in Medical/Clinical Psychology are also required to serve a 12-month internship in clinical psychology in a medical facility. The internship must be in a program, outside of UAB, accredited by the American Psychological Association or be approved by the Medical/Clinical Psychology Coordinating Committee.

### **Financial Aid**

All students admitted to the Behavioral Neuroscience, Cognitive Science, Developmental Psychology, and Medical/Clinical Psychology specializations may expect to receive financial aid. Sources of support include fellowships and research and teaching assistantships.

### **Additional Information**

For detailed information, contact the UAB Department of Psychology, Campbell Hall, Room 415, 1300 University Blvd., Birmingham, AL 35294-1170. Dr. Alan Randich, Behavioral Neuroscience Specialization Director; Telephone 205-934-3850; Email [arandich@uab.edu](mailto:arandich@uab.edu); Dr. Michael Sloane; Telephone 205-934-3850; Email [sloane@uab.edu](mailto:sloane@uab.edu); Dr. Karlene Ball, Developmental Psychology Specialization Director; Telephone 205-934-2610; Email [devpsy@uab.edu](mailto:devpsy@uab.edu); Dr. Jesse Milby, Medical/Clinical Psychology Specialization Director; Telephone 205-934-8723; [medpsych@uab.edu](mailto:medpsych@uab.edu); Web <http://www.uab.edu/psychology/>

### **Course Descriptions**

Unless otherwise noted, all courses are for 3 semester hours of credit. Courses numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### **Psychology (PY)**

698. **Premaster's Degree Graduate Research.** 1-3 hours.

699. **Master's Thesis Research.** Prerequisite: Admission to candidacy. 1-6 hours.

701. **Professional Issues and Ethics in Psychology.** APA ethical code, manual for service providers in psychology, state and national mental health codes and trends for service providers; ethical practices in research with human subjects. APA organizational structure. 1 hour.

702. **History and Systems of Psychology.** Major schools of psychology; influential figures in psychology.

703. **Theories of Personality.** Survey of theories of personality development and functioning.

704. **Social Psychology.** Interpersonal relationships and effects of social environment on social perception and human behavior.

705. **Learning Processes.**

706. **Sensory and Perceptual Processes.** Sensory physiology; diagnostic techniques for pathophysiology of sensory systems; human psychophysics and principles of perception.

707. **Cognition.** Attention, memory, learning, and information processing; theoretical issues and evaluation of relevant research.

708. **Developmental Psychology.** Human development from prenatal period to old age. Genetic and environmental determinants of behavior; linguistic, cognitive, intellectual, personality, social, and emotional development.

709. **Theory and Research in Emotion.** Contemporary theories of evolutionary, hereditary, behavioral, semantic, and physiological aspects of emotion.

710. **Seminar in Contemporary Issues in Developmental Psychology.** Weekly forum to discuss issues related to developmental research; ethical issues; professional issues. 1 hour.

711. **Seminar in Cognitive Development.** Seminar in the development of memory, perception, learning, and thinking in children.

712. **Seminar in Social Development.** Theoretical models and empirical findings.

713. **Seminar in Language Development.** Research and theory related to normal and deviant language development.

714. **Developmental Aspects of Sensation and Perception.** Theoretical models and empirical findings; life span development of sensory capabilities.

715. **Seminar in Emotional Development.** Contemporary topics in the development of emotional responsivity, attachment, perception, and expression.

716. **Introduction to Statistics.** Probability, descriptive statistics, sampling distributions, null hypothesis testing, comparisons between means; tests on categorical data, bivariate and multiple regression.

717. **Applied Statistical Methods.** Univariate analysis of variance and factorial designs; interpretation of data from multifactor experimental designs. 4 hours.

718. **Research Design.** Traditional and nontraditional approaches; includes univariate and multifactor experimental designs, quasi-experimental designs.

719. **Multivariate Statistical Methods.** Multiple regression, multivariate analysis of variance and covariance, canonical correlation, principal components, and discriminant analysis. 4 hours.

720. **Human Neuropsychology.** Structure and function of human brain; human behavior; cognitive functions and personality functions; brain-behavior relationships following neurological impairment.

721. **Neuropsychological Assessment.** Evaluation of various types and locations of brain damage and human mental impairment; assessment applications.

722. **Advanced Human Neuropsychology.** Clinical case study and special topic presentation around patients with specific types of neurocognitive deficits. Assessment, intervention, and new research developments.

723. **Seminar in Abnormal Child Development.**

724. **Motor Control After Stroke and Other Neurological Injuries.** Analysis of motor deficits after stroke and other neurological injuries; the contribution of excess motor disability to these deficits; conceptual basis of constraint induction (CI) therapy; methods of CI therapy; new methods for assessing motor deficits with hands-on training with testing and intervention.

725. **Developmental Research Methodology.** Experimental and correlational, cross-sectional and longitudinal designs; multivariate approaches.

726. **Seminar in Advanced Developmental Psychology.** Advanced issues in developmental research and theory.



**727. Longitudinal Studies Laboratory.** Direct experience analyzing large multivariate, repeated-measures data sets from existing longitudinal studies. Methods range from how to track subjects and adjust for missing and mistimed data to ways to model complex development processes and systems.

**728. Seminar in Family Research.** Family systems theory and assessment techniques suitable for parents and children at different stages of life; combining objective and subjective data from multiple sources; recent findings about development within the family context.

**729. Seminar in Adolescent Development.** Theoretical models and empirical findings related to biological, psychological, and sociohistorical changes in adolescent development.

**730. Research Seminar in Cognitive Science.** Current research, theories, and controversies in cognitive science. Seminar topic changes each term.  
Prerequisite: Permission of instructor. 1 hour.

**731. Health Psychology & Assessment I.** Prevention, enhancement, and intervention; environmental factors, marketplace factors, and interpersonal factors.

**732. Health Psychology II.** Physiological and psychological factors influencing disease and disorders; health psychological assessment and intervention strategies applicable to individuals and groups.

**734. Current Trends in Medical Psychology.** 1 to 3 hours.

**735. Psychology of Addiction.** Causative and developmental factors and treatment approaches for all types of addictions (nicotine, alcohol, drugs, etc.).

**736. Overview of Cognitive Science.** Cognitive science is the interdisciplinary study of mind and intelligence. This course is a comprehensive overview of the historical and conceptual foundations of cognitive science. No previous courses in cognitive science are needed to participate.

**739. Seminar Contemporary Issues in Clinical Medical Psychology (1).**

**740. Psychopathology.** Theoretical and research issues in maladaptive behavior; description and classification schemes; theories of etiology and maintenance of psychopathology.

**741. Child and Adolescent Psychopathology.** Development of aberrant behavior beginning in infancy through adolescence, including GAP and DSM III; categorization schemes and relationship to developmental outcome. 2 hours.

745. **Neurobiology of Learning.** Introduction of data, phenomena, and theory related to associative learning of behaviors. Discussion of issues related to the neurobiology of nonassociative learning, stimulus encoding, and memory.

750. **Psychopharmacology.**

751. **Human Psychopharmacology.** Neurophysiological underpinnings and clinical applications of psychopharmacology.

752. **Neural and Humoral Bases of Behavior.** Interaction of central nervous system and peripheral mechanisms, endocrine and autonomic nervous systems; relationship to human disorders. Topics vary.

753. **Overview of Behavioral Neuroscience.** Neural systems which control behavior will be studied, incorporating knowledge gained from neurobiological and psychological research. Topics will include synaptic communication, regulating behaviors, learning, memory, sensation and perception, movement, emotions, and psychopathology. Prerequisite: Permission of instructor.

755. **Human Psychophysiology.** Basic and applied research topics.

756. **Research Seminar in Behavioral Neuroscience.** Discussion of current literature and presentation of ongoing research by students in the program. 1 hour.

757. **Topics in Behavioral Neuroscience.** Research and methodology in behavioral neuroscience. Topics vary.

758. **Developmental Psychobiology.** Prenatal and postnatal influences on behavioral and physiologic development; psychobiology of mother-infant interactions during early development; research with human populations, primates, other species.

759. **Neural Information Processing Systems for Sensory Coding.**

760. **Interviewing and Behavioral Observation.** Theory and practice of interviewing and behavioral assessment with adult and child populations. 2 hours.

761. **Behavioral Assessment.** Psychometric and observational procedures, relying largely on behavioral theory, to observe, analyze, and assess human clinical behaviors; development of intervention activities. 2 hours.

762. **Psychological Tests and Measurements.** Test construction, norming, standardization, and sampling procedures. 2 hours.

764. **Psychological Assessment: Cognitive Child & Adult.** Cognitive assessment of children and adults focusing on Wechsler scales, Stanford-Binet, and additional cognitive, academic, memory, and learning tests. 3 hours.

765. **Psychological Assessment: Personality Assessment I.** Objective personality assessment, primarily focusing on Minnesota Multiphasic Personality Inventory. 2 hours.

766. **Psychological Assessment: Personality Assessment II.** Traditional projective techniques, utilizing Rorschach test following Exner's system. 2 hours.

767. **Psychological Assessment: Health Psychology.** Use of multiple health-related questionnaires, tests; indices in assessing health behavior, quality of life; traditional psychological tests in health context. 2 hours.

768. **Advanced Personality Assessment.** Integration of cognitive and personality evaluation techniques in applied clinical practice setting.

769. **Cognitive Behavior Psychotherapy.** A review of theory-driven manualized cognitive-behavioral therapy interventions with emphasis upon what has been found to work best with what types of patients.

770. **Survey of Psychotherapeutic Methods.** Procedures for changing maladaptive behavior. Research and methodological issues, factors common to most therapy, and major therapeutic techniques.

771. **Interpersonal Psychotherapy.** Psychodynamic, humanistic, existential theories of psychotherapeutic intervention.

772. **Behavior Therapy.** Cognitive and more traditional behavioral approaches in intervention in mental health and medical environment.

773. **Behavior Therapy Seminar.** Behavioral theory; new and experimental technology for alteration in human behaviors. 1 hour.

774. **Family Therapy.** Traditional systems theory, intervention strategies, and family dynamics; case examples and group participation.

775. **Advanced Seminar in Psychotherapeutic Methods.** Intervention modalities; research strategies for outcome evaluation. 2 hours.

776. **Child and Adolescent Psychotherapy.** Application of child psychopathology knowledge and intervention with child and adolescent population; theoretical and applied issues of verbal and nonverbal psychotherapy. 2 hours.

777. **Psychotherapy Practice.** Integration and application of theories in a clinical setting. 1 hour.

780. **Rehabilitation Psychology.** Rehabilitation of chronic physical disorders; neurological disorders such as cerebrovascular disease, head trauma, and spinal cord injury.

781. **Forensic Psychology.** Interface between psychology and law; civil and criminal procedure; expert witness; insanity, competency, commitment, and malpractice. Experience in criminal justice settings. 2 hours.

782. **Anxiety and Anxiety-Based Disorders.** Behavioral syndromes within traditional mental health area and in variety of medical populations. Includes phobias and anxiety-based medical and nonmedical disorders.

783. **Developmental Disabilities.** Mental retardation, learning disabilities, and other developmental disorders. Research on nature of disabilities and major intervention techniques.

784. **Organizational Psychology.** Behavioral responses to, or correlates of, organizational structures and processes.

785. **Psychology of Aging.** Age differences in perception, memory, intelligence, personality, adjustment, and psychopathology.

786. **Seminar in Aging.** Contemporary topics in aging, including basic science, clinical, and psychosocial issues. 1 hour.

787. **The Dynamics of Pain.** Comprehensive study of physiology, pharmacology, and anatomy of acute and chronic pain. Emphasis on how medical treatments relieve pain. Topics include: V stress-induced analgesia, transcutaneous electrical stimulation, acupuncture, inflammation, and psychological approaches to the treatment of pain.

788. **Pediatric Psychology.**

789. **Social/Ethnic Issues in Therapy.**

790. **Internship in Clinical Psychology.** 9 hours.

791. **Special Topics in Psychology.** 1-3 hours.

793. **Cognitive Neuroscience.** Prerequisite: Permission of instructor.

796. **Practicum in the Teaching of Psychology.** 1-3 hours.

797. **Clinical Practicum in Medical Psychology.** 1-3 hours.

798. **Predoctoral Degree Graduate Research.** 1-3 hours.

799. **Doctoral Dissertation Research.** Prerequisite: Admission to candidacy. 1-6 hours.

### **Cognitive Science (CGS)**

700. **Foundations of Cognitive Science.** An introduction to the interdisciplinary study of mind and intelligence, embracing philosophy, psychology, computer science, neuroscience, and linguistics; past and future of cognitive science; key concepts and methods.

702-708. **Special Topics.** Mind/brain; brain mapping and functional imaging; formal languages and neural nets; language development and cross-cultural language studies; select current topics in cognitive science.

710. **Proseminar Journal Club in Cognitive Science.** Pass/Fail. 1 hour.

712-720. **Research Rotation.** Cognitive science research as practiced by participating cognitive science faculty. Pass/Fail. 1-3 hours each.

The following departments or programs offer courses available to and recommended for cognitive science graduate students. Further information may be obtained by contacting the Committee on Graduate Study in Cognitive Science.

Anthropology (ANTH)  
Biocommunication (BIC)  
Biomedical Engineering (BME)  
Computer and Information Sciences (CS)  
English (Linguistics) (EH)  
Neuroscience (NEUR)  
Philosophy (PHL)  
Psychology (PY)  
Physiology and Biophysics (PHY)  
Vision Science (VIS)

Last modified 09/20/04

## UAB Graduate School

### Public Administration (M.P.A.)

Graduate program director: *Haque*

## Faculty

**Janet M. Bronstein**, Associate Professor (Health Care Organization and Policy); Health Services Utilization, Health Policy, Community-Based Organizations; Co-coordinator of M.P.A.-M.P.H. degree program, School of Public Health

**Akhlaque Haque**, Assistant Professor (Government); Public Administration Theory, Geographic Information Systems, Economic development policy, Information technology and governance, and Health Policy

**Michael Howell-Moroney**, Assistant Professor (Government); Planning, Microeconomics, Research Methods and Advanced Statistics

**James D. Slack**, Professor, Department Chair, (Government); Human Resources Management, Disabilities Policy, Workplace Ramifications to Anti-discrimination to HIV/AIDS, Workplace Diversity Policy, Anti-discrimination Policy, Local Government

**Donna Handley**, Assistant Professor (Government); Public and nonprofit budgeting, state and local government management, intergovernmental relations, and economic and community development.

## Adjunct Faculty

**Betty J. Bock**, MPA Project Coordinator, UAB Center for Urban Affairs (Community Development and Planning)

**Christopher Reaves**, Ph.D., Project Manager, UAB Center for Urban Affairs

**Ellyn Grady**, MPA Senior Vice President, Agency Impact, United Way of Central AL (Nonprofit Management)

**Vincent Intoccia**, Federal EEOC Judge (Public & Administrative Law)

**Patrick Nicovich**, MPA Jefferson Rehabilitation & Health Center (Financial Management)

**Joe Packa**, MPA CEO, Alabama Red Cross (Special Topics: Marketing and Finance)

## MPA Program Mission

As an essential component of an urban research university, the Master of Public Administration (MPA) program at the University of Alabama at Birmingham provides a department-based multi-disciplinary faculty dedicated to the advancement of the public service through teaching, research, and service. The Master of Public Administration Program prepares individuals for positions of leadership in the public and nonprofit sectors. It is a professional graduate degree for both pre-career students and in-service administrators. The program is designed to develop the insights and skills needed to plan and formulate policy, and to organize, manage, and implement programs and operations. Graduates tend to cluster in three general areas managers, analysts, and policy specialists.

The MPA curriculum is designed to ensure that students: (1) understand the political, economic, social and legal context of the public service; (2) understand and appreciate the transcending values of ethics/morality and diversity in the public service; (3) achieve substantial competence in (i) policy-making processes; (ii) administrative theory and behavior, (iii) human resource management; (iv) budgeting; (v) urban development and community planning; (vi) research design and (vii) statistical analysis. To accomplish these objectives, students complete an eight-course core curriculum that provides a foundation for more specialized coursework as well as long-term development and advancement in public service management and leadership positions. The MPA program is accredited by the National Association of Schools of Public Affairs and Administration (NASPAA).

## Degree Requirements

Students in the MPA program must complete a total of 52 semester hours or the equivalent, with an overall grade average of at least B. Six of those hours are earned in an internship placement, although that requirement may be waived for students who have full-time paid work experience in public or nonprofit agencies. Previous graduate work at UAB or another institution may be credited toward the degree if it is directly applicable. Students may select the thesis option or the non-thesis option. For students who are interested in both public administration and the delivery of public health services, a coordinated [MPA/MPH program](#) is offered; for students who are interested in both public administration and the law, a coordinated [MPA/J.D program](#) is offered. The program also offers a dual degree in MPA-MPH and MPA-J.D. For non-traditional students interested in managing non-profit organizations the program offers a Graduate Certificate in Nonprofit Management.

## Admission Requirements

Because of its multi-disciplinary nature, persons from all undergraduate majors are considered for admission to the program. Applicants are

expected to have achieved an undergraduate grade point average of 3.0 or better. Applicants are also expected to have achieved an average score of 500 or better on each of the two sections (verbal and quantitative) of the Graduate Record Examination (GRE). Three letters of reference are also required to enter the program. Persons failing to meet these admission standards may be considered for admission on probation. Application for admission should be made to the UAB Graduate School (UAB, Birmingham, Alabama 35294-1150; telephone 205-934-8227). Admissions will be made each semester.

## Financial Aid

The Department of Government has four graduate assistantships, which can be awarded during any semester as vacancies occur. The MPA program also has a grant from the U.S. Department of Housing and Urban Development (HUD) to provide up to four two-year fellowships based on financial need. In addition, every year at least one MPA student is awarded the Ron Casey Fellowship based on his/her academic performance. Also, the MPA Alumni Association provides scholarship to the outstanding student of the year. Other financial resources are available through the Office of Student Financial Aid.

## Curriculum

**Core Courses** All students are required to take the following eight courses:

MPA 600	Environments of Public Service
MPA 601	The Public Policymaking Process
MPA 602	Administrative Theory and Behavior
MPA 603	Public and Nonprofit Budgeting
MPA 604	Human Resources Management
MPA 605	Contemporary Urban Issues
MPA 606	Research Design*
MPA 607	Statistical Analysis*

\*These courses must be taken at the beginning of the course work in a sequence (MPA 606 is offered in the fall and MPA 607 in the spring term).

In addition to the core courses, students must complete four courses in one of the following specializations, plus three electives. Total of 15 courses would be required to complete the program.



## Specializations

Students should select a specialization based upon their career goals and interests. The specializations that are available are **Non-Profit Management, Community Planning & Development and Public Management & Policy**. There are four specialization requirement courses for each track

### ***Nonprofit Management***

The majority of students who choose this specialization are mid-career and wish to improve their organizational management skills in the nonprofit sector including healthcare management areas.

#### **Specialization requirements (four courses)**

MPA 672	Nonprofit Management
MPA 689	Program Evaluation
MPA 678	Strategic Planning
MPA 676	Financial Management in the Public and Nonprofit Sectors

#### **Plus three electives from the following suggested courses:**

MPA 668	Intergovernmental Relations
MPA 674	Geographic Information Systems
MPA 677	Managing Information in the Public Sector
MPA 675	Ethics and Morality in the Public Sector
MPA 688	Applied Statistical Analysis
MPA 695	Special Topics in Public Administration

### ***Community Planning and Development***

Students interested in city management or planning should select this specialization. Relevant positions include policy development and implementation, budget development, public works management, and economic and community development.

#### **Specialization requirements (four courses)**

MPA 681	Local Government Planning
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MPA 691	Economic Development
MPA 674	Geographic Information System
MPA 673	Community Planning and Organization

**Plus three electives from the following suggested courses:**

MPA 683	Public Economics
MPA 674	Geographic Information Systems
MPA 689	Program Evaluation
MPA 690	Seminar in Public Service Issues: E-Government
MPA 668	Intergovernmental Relations
MPA 695	Special Topics in Public Administration

***Public Management and Policy***

Those who plan to work as management, budget, or research policy analysts should choose this specialization. Other relevant professions include planning and development, human resource and productivity enhancement, and program evaluation.

**Specialization requirements (four courses)**

MPA 662	State and Local Government Administration
MPA 675	Ethics and Morality in Public Service
MPA 683	Public Economics
MPA 677	Managing Information in the Public Sector

**Plus three electives from the following suggested courses:**

MPA 667	Administrative Law
MPA 671	Special Topics in Public Finance
MPA 690	Seminar in Public Service Issues: E-Government
MPA 668	Intergovernmental Relations
MPA 674	Geographic Information

MPA 695      Systems  
                  Special Topics in Public  
                  Administration

**Generalist MPA Degree.** An alternative to selecting one of the above specializations exists. Students may pursue a generalist MPA degree. This degree should be chosen if the student desires a broadly based degree and some familiarity with subjects in each of the specializations. Students who desire a public administration education transferable to many different public or nonprofit settings may want to take this course of study. To complete this degree, students must take the core curriculum and at least two required courses each from three specializations and one elective.

**Coordinated MPA/MPH Program.** The MPA/MPH is designed to train individuals for administrative positions in public health and related health organizations. The Master of Public Administration degree prepares students for careers as administrators in public and nonprofit agencies, and the Master of Public Health provides a background in public health principles and programs. Students must apply to, and enroll in, both programs, meeting each program's entry requirements.

## **MPA/MPH PROGRAM REQUIREMENTS**

Students are required to complete a total of 55 semester hours for the coordinated degree (includes 6 hours of internship). Core requirements of 18 hrs from the MPA program and 19 hrs from the MPH program is required. Students can specialize in the Health Care Policy or Health Care Management track. The full-time students should be able to complete all degree requirements within three years. For more information go to [MPA/MPH](#) program.

## **Coordinated MPA/JD Program**

The M.P.A. program at UAB and the Cumberland School of Law at Samford University offer a coordinated MPA/JD program. The offering of this dual degree reflects recognition of the complex interrelationship between the legal system, public policy analysis, and public management. It will be particularly applicable to those pursuing careers in government and/or public interest law. For more information go to [MPA/J.D program](#)

Students must apply and be admitted to the M.P.A. and JD programs separately. The requirements for each degree must be met. Close communication with both programs is required. Depending on prior experience, a field placement may be required. A thesis is optional.

## **Graduation Research Paper**

During the last semester of study, students must register for MPA 697, Graduation Research (1hr), and successfully complete a graduation

research paper. Such a paper will require the student to synthesize material learned over the course of the program. Should the student need to rewrite any part of the paper, he/she may be required to enroll again in MPA 697 for the subsequent term. Guidelines for writing the GRP can be found in the following link [GRP Guidelines](#)

## Course Descriptions

### Public Administration (MPA)

Unless otherwise noted, all courses are for 3 semester hours of credit.

**600. Environments of Public Service.** Introduction to the environmental forces that shape the nature and direction of the public service. Examination may include philosophical, historical, intellectual, constitutional, social and cultural, and ethical and moral environmental forces. 3 hours.

**601. The Public Policymaking Process.** Public Policy as a decision-making process. Examines environmental and organizational factors, the choice of alternatives, and the implementation and evaluation of public policy, with applied references to specific functional areas, e.g., housing, pollution, energy, and transportation. 3 hours.

**602. Administrative Theory and Behavior.** Theories of organization, management, and administration. Examines both institutional and behavioral elements of organizations as they apply to public, private, and nonprofit agencies. Covers individual behavior, role and leadership theories, decision-making, and communication theories, along with a treatment of bureaucratic practices and behavior. 3 hours.

**603. Public and Nonprofit Budgeting.** Examines the institutions, principles and techniques of governmental budgeting, including the practices and fundamental concepts of public budgeting, budgeting process, financial management and public finance. Budget development and analysis using techniques such as cost-benefit and variance analysis, spreadsheet, and other microcomputer tools. 3 hours.

**604. Human Resources Management.** Examines the major concepts, theories, procedures and themes needed for effective management of human resources in the public and nonprofit sectors. Emphasis is on the urban and sub-national settings. Topics may include merit and civil service systems, organized public labor, recruitment, classification, performance appraisal, disciplinary and grievance procedures, training and staff development, diversity and anti-discrimination policy and strategies, ethics/morality and personnel law. 3 hours.

**605. Contemporary Urban Issues.** Examines American urban settings in historical and contemporary contexts. The course includes a broad examination of social forces and policies that affect urban places. 3 hours.

606. **Research Design.** Quasi-experimental and experimental research design, including exposition of several qualitative and basic quantitative methods. 3 hours.

607. **Statistical Analysis.** Using a pragmatic and applied approach, this introduces more advanced statistical techniques including simple and multiple regression and techniques to analyze categorical data . 3 hours.

662. **State and Local Government Administration.** This course is designed to introduce students to the study of state and local government administration. Introduces keys concepts related to state and local government political structures and institutions; regional, state and county economic performance and state/local government finance and U.S. economic geography. 3 hrs.

667. **Public and Administrative Law.** Explanation of law in society and the legal setting of public administration. Examination of substantive areas of the study of law including regulatory process, administrative adjudication, the administrative procedures acts, administrative due process, judicial review, liability, and citizen's rights. 3 hours.

668. **Intergovernmental Relations.** The various relations among governments in the U.S. system. Focuses on understanding the interactions, attitudes, and behavior of elected officials and bureaucrats of two or more units of government functioning in their public capacities. 3 hours.

671. **Special Topics in Public Finance.** Seminar focused on specific topics in finance including economics, revenue projection, capital budgeting, project evaluation, and debt management for public and nonprofit agencies. 3 hours.

672. **Nonprofit Management.** The day-to-day challenges faced by managers of nonprofit agencies, including the challenge of fund raising, balancing competing values as related to efficiency, effectiveness, and equity. 3 hours.

673. **Community Planning and Organization.** Covers the principles of citizen empowerment in the planning process, performing needs assessments, and organizing citizens for action. 3 hours.

674. **Geographic Information Systems.** Examines the use of Geographic Information Systems (GIS) using GIS software. It integrates theory and socioeconomic applications of GIS in the public and non-profit sector. 3 hours.

675. **Ethics and Morality in Public Service.** Ethical and moral foundations to public service behavior. 3 hours.

676. **Financial Management in the Public Sector.** The financial management systems used in the public sector, with emphasis on state and local government. Topics include revenue sources, revenue

projection, capital budgeting and project evaluation, debt management, non-budgetary expenditure controls, and fund accounting. The relationship of these topics to operational budgeting is also delineated. 3 hours.

**677. Managing Information in the Public and Nonprofit Sectors.**

Theory and applications of information management in the public and nonprofit sectors. Focus is on social, organizational, political and constitutional impacts of information today. Emphasizes applications such as database management, communications networks, expert systems, and geographic information systems. 3 hours.

**678. Strategic Planning.** Presents the strategic planning process as it is utilized in contemporary settings. Focuses on how the strategic planning process is applied in the public, private, and nonprofit sectors and the extent to which there is substantial variation. 3 hours.

**681. Local Government Planning.** Overview of theories, methodologies, and political aspects of municipal planning. 3 hours.

**683. Public Economics.** Application of microeconomic theory to the public sector problems and policy analysis. 3 hours.

**688. Applied Statistical Analysis.** Application of statistical techniques to problems in public affairs. This course provides a rigorous treatment of ordinary least squares regression and its extensions. Advanced nonlinear models for qualitative choice are also introduced. 3 hours.

**689. Program Evaluation.** Analytic tools for evaluating public and nonprofit programs and services. Prerequisite MPA 687. 3 hours.

**690. Seminar in Public Service Issues.** Special topics focusing on current pressing issues in government and governance, and the non-profit sectors. 3 hours.

**691. Economic Development.** Develops an understanding of the impact of market and non-economic forces on local and regional economic development. 3 hours.

**692. Independent Study in Public Administration.** One-on-one learning experience between student and an instructor with permission of the program director. 3 hours.

**693. Internship in Public Administration.** Supervised field placement in public or nonprofit agency for directed work experience arranged by the program director. 3 hours.

**695. Special Topics in Public Administration.** Special topics seminar based on the research and substantive interests of the MPA faculty and students. 3 hours.

697. **Graduation Research.** The thesis or Graduation Research Paper (GRP) is the capstone project for the MPA degree. Every student is required either a thesis or GRP at the end of their course work. GRP Guidelines.1 hour.

699. **Thesis Research.** Credit for research and writing of thesis. 1-6 hours.

## **MPA ALUMNI ASSOCIATION**

An active alumni association welcomes graduates of the program into membership. The association makes both advisory and financial contributions to the program and seeks to elevate the level of professionalism in public administration through a variety of projects and services. For more information go to MPA Alumni

## **INTERNSHIPS AND PLACEMENT**

Students may apply for an internship placement at any time following completion of MPA 600. Several paying opportunities exist, although the majority of internships are non-paying. Typical placements are in city and county government, planning departments, public health agencies, social service agencies, state government agencies, and various nonprofit organizations. The Department has placed several students in the prestigious Presidential Management Internship Program, which provides an excellent opportunity for eventual employment in the federal government.

Students are encouraged to use the services of the UAB Student Development Office in the University Center for career planning and placement. The faculty in the program also assists students in job placement.

## **Additional Information**

For additional information refer to the web site of the UAB M.P.A. program: [www.uab.edu/govt/mpa](http://www.uab.edu/govt/mpa). Also detailed information can be found in the M.P.A. graduate manual available at the program office. Questions concerning enrollment in the M.P.A. program should be directed to Dr. Akhlaque U. Haque, Director, MPA Program, Department of Government and Public Service, U 238, 1530 3rd Avenue South, Birmingham, Alabama 35294-3350.

Telephone (205) 934-9680

Last modified 10/13/04



## UAB Graduate School

### Sociology (M.A.), Medical (Ph.D.)

Graduate program director: *Clair*

## Primary Faculty

**Patricia Baker**, Assistant Professor (Sociology, Center for Aging); Gerontology

**Jeffrey M. Clair**, Associate Professor (Sociology); Medical Sociology, Social Psychology, Policy

**William C. Cockerham**, Professor (Sociology); Medical Sociology, Theory, Mental Health, International Aspects of Health

**Patricia Drentea**, Associate Professor (Sociology); Family, Gender, Aging, Methods

**Kevin M. Fitzpatrick**, Professor (Sociology); Urban Sociology, Mental Health, Youth-Adolescence, Statistics

**Jeffrey E. Hall**, Assistant Professor (Sociology); Medical Sociology, Injury Epidemiology, Gender Roles, Human Sexuality.

**Sean-Shong Hwang**, Professor (Sociology); Statistics and Methodology, Demography, Human Ecology and Urban Sociology

**Mark E. LaGory**, Professor (Sociology); Theory, Urban and Human Ecology, Mental Health of Special Populations, Homelessness

**Robin Lanzi**, Assistant Professor, (Sociology, Civitan International Research Center); Child Development, Social Psychology

**Ferris J. Ritchey**, Professor (Sociology); Medical Sociology, Statistics, Health Care and Illness Among the Homeless

**Kenneth L. Wilson**, Associate Professor (Sociology); Inequality, Adult Development, Social Psychology

**Michele Wilson**, Associate Professor (Sociology); Deviant Behavior, Sex Roles, Social Problems, Social Control of Women

**William C. Yoels**, Professor (Sociology); Social Psychology of Health and Illness, Sociology of Rehabilitation, Life Cycle Issues, Theory

## Secondary Faculty

**Richard M. Allman**, Professor (Medicine; Center for Aging);  
Gerontology, Doctor-Patient Communication

## Affiliated Faculty

**Janet Bronstein**, Associate Professor (Public Health)

**Stuart Capper**, Professor (Public Health)

**Hughes Evans**, Associate Professor (Medicine)

**Lynn Gerald**, Assistant Professor (Health Related Professions)

**Harold Kincaid**, Professor (Arts and Humanities)

**Michael Morrissey**, Professor (Public Health)

**John Sloan**, Associate Professor (Social and Behavioral Sciences)

**Brent Smith**, Professor (Social and Behavioral Sciences)

**Alan Stamm**, Professor (Medicine)

**Christopher Taylor**, Associate Professor (Social and Behavioral Sciences)

## Sociology M.A. Program

### Requirements for the M.A. Degree

To be admitted in good standing, candidates must meet all Graduate School admission requirements. Applicants lacking 18 semester hours in social science courses will be evaluated individually for academic deficiencies. Supplemental coursework may be recommended by the graduate faculty.

Students admitted to the Sociology graduate program choose one of three areas of specialization: urban inequality, health and aging, or social psychology.

The program provides both Plan I (thesis) and Plan II (nonthesis) options. The M.A. degree is conferred upon the fulfillment of the requirements outlined below. All students must fulfill the first two requirements. The third requirement differs for Plan I and Plan II students.

1. All four of the following core courses are required for all students:

SOC 701          Data Management and Analysis

SOC 703	Advanced Statistics
SOC 705	Methodology of Social Research
SOC 707	Macrosociological Theory

2. Students must complete at least two courses from one of the four following areas of specialization:

### **Urban Inequality**

SOC 716	Social Stratification
SOC 740	Deviant Behavior
SOC 755	Race and Ethnic Relations
SOC 756	Gender Inequality
SOC 757	International Inequality
SOC 774	The Sociology of Policy Analysis
SOC 775	Urban Ecology
SOC 778	Demography
SOC 779	Experiencing Urban Life

### **Health and Aging**

SOC 721	Social Psychology of Health & Illness
SOC/GER 759	Social Gerontology
SOC/GER 769	Sociology of the Life Cycle
SOC/GER 777	Demography of Health and Aging
SOC 780	Medical Sociology
SOC 787	Sociology of Mental Health
SOC 781	Sociology of Health
SOC 788	Social Medicine
SOC/GER 796	Research Seminar in Health and Aging

### **Social Psychology**

SOC 711	Qualitative Methods
SOC 720	Microsociological Theory
SOC 721	Social Psychology of Health & Illness
SOC/GER 769	Sociology of the Life Cycle
SOC 779	Experiencing Urban Life

Under special circumstances, with written approval from the student's advisor and the sociology graduate program director, an independent study course may be substituted for specialty courses.

3. Students must complete the following additional requirements, depending on whether they are pursuing Plan I or Plan II:

### **Plan 1 (Thesis) Option**

At least two additional substantive courses (these may be in areas outside of sociology, subject to approval by the Sociology graduate program director);

- 6 semester hours of thesis research (SOC 699);
- an acceptable research-based thesis; and
- a final oral examination based on the thesis.

### **Plan II (Nonthesis) Option**

At least five additional substantive courses (two of these courses may be in an area outside of sociology, subject to the approval of the Sociology graduate program director);

- a comprehensive written examination in the student's area of specialization.

## **Medical Sociology Ph.D. Program**

This program is designed to provide students with the coursework and research experiences to become leading researchers and practitioners in medical sociology. Doctoral training in medical sociology exposes students to the central issues of the field through a variety of methodological techniques encompassing both qualitative and quantitative approaches. Graduate students study the social and cultural bases of health beliefs and behaviors, organizational structures of health care delivery, and patient-practitioner relationships, to name just a few examples. Students acquire expertise in theory formulation and data analysis.

There are abundant research opportunities for graduate students to work with faculty on projects in medical settings across the campus. The department pursues opportunities for graduate student exchange arrangements with medical sociology programs in European and Japanese universities.

## **Admission**

Admission to the Ph.D. program in medical sociology requires a minimum overall score of 1150 on the GRE (verbal and quantitative); minimum GPAs of 3.0 (A = 4.0), or a 3.2 GPA for the last 60 semester hours in a B.A. or B.S. program and 3.5 GPA in all previous graduate

coursework. Students should have completed at least 18 hours in social science courses, including social theory, statistics, and research methods. Students entering the program with a master's degree will be granted waivers for a maximum of 24 semester hours of substantive graduate work, with the permission of the graduate program director and the professors who teach parallel courses. Exceptional students who fail to meet any of the above requirements will be evaluated on a case-by-case basis.

Because of the interdisciplinary nature of the Medical Sociology Ph.D. program, students with diverse backgrounds in social science and health-related fields are encouraged to apply. Students lacking adequate backgrounds in theory, research methods, or statistics may be required to make up deficits after enrollment.

Students pursuing the doctoral degree must follow Plan I (thesis plan) of the existing master's degree program by producing a research-based thesis, but two types of documents will be acceptable. The first alternative is a longer, traditional thesis organized in the form of a short book monograph. This option is especially appropriate for qualitatively based research. The second alternative is a manuscript in the standard form of a journal article with appended materials.

## Advising

The Graduate Director will provide continuous advisement on academic progress during the student's graduate study, including course selection and research/clinical experiences consistent with the student's developing interests and abilities.

Research supervision is provided by faculty whom students select to chair the master's thesis and Ph.D. dissertation committees. Typically, the student will select persons with whom a close, supportive relationship develops.

The placement of Ph.D. students in research sites is an important part of the Medical Sociology Program. Such sites may involve assisting faculty on research grants or working in a clinical setting under the supervision of a faculty member. Such experiences will provide students with invaluable real-life exposure to medical sociology "in action." As such, they are important accompaniments to the in-class coursework of the Ph.D. program.

## Curriculum

The components of the Ph.D. program are as follows:

### 1. Required Coursework

#### Medical Sociology Core (9 hr)

Required:

SOC 780          Medical Sociology

2 of 5 Required Electives:

SOC 721          Social Psychology of Health and  
Illness

SOC 735	International Medical Sociology
SOC 781	Sociology of Health
SOC 787	Sociology of Mental Health
SOC 788	Social Medicine

### **Theory Core (6 hr)**

Required:

SOC 707      Macro Sociological Theory

1 of 2 Required:

SOC 720      Micro Sociological Theory

SOC 722      Contemporary Sociological  
Theory

### **Statistics and Research Core (12 hr)**

SOC 701      Data Management

SOC 703      Advanced Statistics

SOC 705      Quantitative Methods

SOC 711      Qualitative Methods

### **Doctoral Qualifying Paper (3 hr)**

SOC 725      Integrating Sociological Ideas

### **Research Hours**

Master's Thesis Research Hours (6 hr)

Doctoral dissertation Research Hours (24 hr)

**Sociology/Health Electives/Transer Credits** (30 hr--21 hours in house, up to 9 hours outside department)

### **Proseminars (3 hr)**

Proseminar, SOC 702 - 1 hr Fall Research

Proseminar, SOC 702 - 1 hr Spring Teaching

Proseminar, SOC 702 - 1 hr Summer Proposals

## **2. Graduate Proseminar Functions**

The graduate proseminar series (SOC 702) is generally attended by all entering graduate students for their initial three terms in the graduate program. This series should not only help students become situated within the graduate program, but it should also give students an opportunity to become better acquainted with much of the faculty and graduate student body. Students should also gain experience in such areas of the sociological profession as creating a curriculum vitae and developing one's own research interests through the facilitation of faculty members and fellow students. Here, students may also develop their own personal

biographical statement of interests to be provided to the next graduate student cohort for assimilation and student mentor selection functions. The Department of Sociology is generally fairly flexible in planning and executing the proseminar series, but these classes for the most part familiarize the new students with departmental aspects (faculty, graduate student body) as well as various facets of the profession of sociology as a whole.

### **3. The Master's Thesis**

Students pursuing the doctoral degree must follow Plan I (Thesis Plan) of the existing master's degree program by producing a research-based thesis, but two types of documents will be acceptable. The first alternative is a traditional thesis organized in the form of an extensive book monograph. This option is especially appropriate for qualitatively based research.

The second alternative is a manuscript in the standard form of a journal article with appended materials. Specifically, this journal article thesis will consist of: 1) a forward which places the research in context, specifying the hour and to which the article is to be submitted, delineating the rationale for co-authorship (if appropriate), and making acknowledgments; 2) a journal article manuscript with a text no longer than the page limitations of a journal selected by the committee, plus footnotes, references, tables, and figures; 3) an appendix with an annotated bibliography of relevant literature; 4) an appendix that details in full, the methodological procedures; 5) an appendix of measurement instrumentation (e.g., survey instruments, in-depth interview schedules, observational logs, etc.); 6) an appendix of additional tables and/or samples of observational notes, and 7) an appendix of other research documentation such as survey cover letters, human subject review approval forms, and letters of support and approval from facilities at which the research was conducted.

The master's thesis process involves; 1) formation of the thesis committee; 2) oral defense of a written thesis research proposal; 3) oral defense of the completed thesis; 4) submission of the completed manuscript to the graduate School, and 5) submission of the journal article for publication. The thesis committee consist of a minimum of three full-time faculty members, including one from outside the Department of sociology. This committee will be responsible for guiding the research process, evaluating the final draft of the thesis, presiding over the oral defenses of the thesis proposal and the completed manuscript, and approving the journal article for submission for publication. In addition to meeting general M.A. degree requirements, before being admitted to candidacy for the M.A. degree, a student in the Ph.D. program in medical sociology must have completed the master's level core courses in theory (SOC 507 and 520) and two core methods courses (SOC 501 and SOC 503, or SOC 505 and SOC 511), completed two of the three courses in the medical sociology core, and made a successful oral defense of the thesis proposal.

For those students entering with a master's degree, the student's doctoral advisory committee will review the student's transcript, evaluate course transfers, and devise a course plan. This committee also will handle the student's admission to candidacy and the comprehensive examination requirement of submitting a journal article for review. The student with the master's degree will not be required to make oral defenses of his/her thesis work from another institution.

## 4. The Doctoral Dissertation

The dissertation process is as follows: 1) formation of the dissertation committee; 2) oral defense of a written dissertation research proposal; 3) oral defense of the completed dissertation, and 4) submission of the completed manuscript to the Graduate School. In consultation with faculty, and near the completion of all substantive coursework, a student forms a dissertation committee consisting of at least five members, with two from outside the Department of Sociology. This committee will be responsible for guiding the research process, evaluating the final draft of the dissertation, and presiding over the oral defenses of the dissertation proposal and the completed manuscript. A student is admitted to candidacy after successful oral defense of the dissertation proposal and no earlier than the term in which the required substantive coursework is completed.

## 5. Doctoral Qualifying Paper

The doctoral qualifying paper is a requirement for admission to candidacy for the Ph.D. degree. The paper involves comparing and contrasting the major theoretical perspectives and methodologies of sociology, and applying these perspectives to a subject area of medical sociology. Its objective is the integration of knowledge in theory, methods, and medical sociology in preparation for completion of a dissertation proposal. Thus, the paper measures the integration of knowledge, while accelerating a student's progress through the Ph.D. program.

### Overview of Paper Procedures

*Timing of the Paper.* This qualifier requires students to write and orally defend a minimum 30-page take-home manuscript. For students who enter the program with a Bachelor's degree, the paper is to be completed in the Fall term following the successful defense of the Master's thesis. For an on-schedule student who enters the program with a B.A. degree, this would be in the Fall term of the third year. For students who enter the program with a Master's degree, the paper is prepared in the Fall term of the student's second year in the program.

*Paper Administration.* With the permission of the Director of Graduate Studies, a student must register for SOC 725, Integrating Sociological Ideas, for the semester the paper is to be prepared and defended. The graduate Education Committee after consultation with the student will appoint a three member faculty committee to supervise the student's defense of the integration paper in a given term. All faculty will take their turns on these committees. A student's committee will have representation of faculty who teach courses in theory, statistics/methods, and medical sociology. The papers are submitted to the committee at the end of the tenth week of the term. The committee grades the papers and assigns grades of Honors, Pass, Conditional Pass, or Fail. A conditional pass may require further revisions due by the end of the following term. For those students who receive a grade of Honors, Pass or Conditional Pass, oral presentations of papers are made in the last two weeks of the term to the qualifying committee. Students who receive a grade of Fail must retake the course in the following year. A second failure results in termination from the doctoral program.

### Format of the Paper

The attached exam has two major parts. Part 1 is on general knowledge, while part 2 is the application of this knowledge to a substantive area. The paper should be at least 30 double-



spaced pages, 1" margins, 12 point font, including references, tables and diagrams. Students are provided with a reading list related to part 1 of the paper. For part 2 the student is to conduct a search of current literature in a subject area of medical sociology.

## **Format of the Oral Defense**

In the last two weeks of the term, oral presentations/defenses of papers will be scheduled by the qualifying committee. Each student will provide a 30-minute presentation followed by a 30-minute questions and answer period. These presentations may be spread over a number of sessions and days.

### **Part 1: Integrating General Sociological Knowledge**

Within sociology, there are many theoretical perspectives and paradigms. In addition, numerous methodological approaches are utilized individually or in combination by sociologists. A ready list is attached for review of the perspectives and methodologies the faculty find important.

For at least two theoretical perspectives you are to:

- A. Provide a concise overview of the perspective describing its basic assumptions about social life and behavior. Although this mandate is broad enough to allow for your intellectual innovation, a detailed presentation of relevant issues is encouraged.
- B. You also should compare and contrast these chosen theoretical perspectives, highlighting the pros (i.e., especially useful aspects) and cons (i.e., limitations) of each, and methodologies typically used by the perspective.

### **Part 2: Application of Knowledge to a Subject Area of Medical Sociology and to a Specific Research Question**

Medical sociologists research a variety of subject areas. As examples, here are some broad areas, which are not mutually exclusive: the distribution and etiology of disease; cultural and social responses to illness; social epidemiology and social demography of health; social inequality in the distribution of disease and access to health care; the social production of stress-related physical and mental illness; sociocultural aspects of medical care; health behavior and health life styles; mortality; the organization of medical practice; division of labor among medical practitioners; sociology of healing occupations (both formal and alternative practitioners); practitioner-patient relationships; health practitioner education; sociology of the hospital and other medical palliative-care facilities; community health organization; social change and health care; health policy and politics; health movements; mental health services; cross-cultural perspectives on health care; health, the family, and other social support networks; health and aging.

Part two of your paper requires that you select a subject area approved by the Graduate Education Committee during your initial consultation. Once you have selected a subject area, using illustrations from the current literature

- A. Illustrated how one of the theoretical perspectives in Part 1 might be applied to the subject area.

B. Give examples of relevant variables and provide sample hypotheses motivated by the perspective.

C. Devise a specific research question that is broad enough to constitute the topic of a dissertation proposal. For at least one theoretical perspective from Part 1 of this paper, illustrate its utility by proposing a research design for your research problem. Stipulate the subject population, units of observation, units of analysis, sampling design, and an overview of measurement instruments.

D. In the process of answering 2-A through 2-C, compare and contrast the cohsen perspectives in terms of their usefulness for analyzing the subjet area.

E. Speculate on how this paper can be extended to forma dissertation proposal.

## Financial Aid

All students admitted to the Ph.D. program will be considered for financial aid. Sources include graduate fellowships and assistantships.

## Additional Information

For detailed information, contact Jeffrey M. Clair, Sociology Graduate Program Director, UAB Department of Sociology, U 237D, 1530 3rd Avenue South, Birmingham, Alabama 35294-3350.

Telephone 205-934-3307 or 934-8680

E-mail [jclair@uab.edu](mailto:jclair@uab.edu),

Web [www.sbs.uab.edu/socio.htm](http://www.sbs.uab.edu/socio.htm)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit.

### Sociology (SOC)

701. **Data Management and Analysis.** Codebook design; management of data files; orientation to microcomputer software; bivariate statistical analysis. Prerequisite: SOC 310 or permission of instructor.

702. **Proseminar on the Profession.** Introduction to the profession of sociology. Required for all incoming students. 1 hour.

703. **Advanced Statistics.** Multivariate statistical analysis. Prerequisite: SOC 701 or equivalent or permission of instructor.

704. **Advanced Quantitative Analysis.** Structural equation modeling. Prerequisite: SOC 701 and SOC 703 or permission of instructor.

705. **Methodology of Social Research.** Prerequisite: SOC 703 or equivalent.
707. **Macrosociological Theory.** Basic theoretical perspectives, functionalism, conflict theory, structural and biosocial theorizing. Prerequisite: SOC 407 or equivalent.
708. **Integrating Qualitative and Quantitative Method.** Triangulated research strategies.
710. **Multivariate Statistical Methods.** Structural equation modeling in general and LISREL in particular. Builds practical skills and a broad awareness of the rationale for statistical methodologies. Prerequisite: SOC 703 or multiple regression equivalent.
711. **Qualitative Methods.** Field research design, observational research; in-depth interviewing strategies, gaining access to research sites.
712. **Theory Construction.** Logic of constructing theories; issues in the philosophy of science.
714. **Survey Research Methods.** Survey design, sampling, instrumentation, data collection and analysis, and report writing.
716. **Social Stratification.** Theories of inequality; race and ethnic inequality, gender inequality, and international inequality.
720. **Microsociological Theory.** Society from individual's perspective; interactionist theory, social exchange, sociology of emotions.
721. **The Social Psychology of Health and Illness.** Socially constructed definitions of health and illness, viewed historically and cross-culturally. Variations across gender, class, and ethnic lines in perceptions of health and illness.
722. **Contemporary Sociological Theory.** Reviews most recent sociological theories accounting for social conditions in the 21st century, including Beck, Bourdieu, Foucault, Giddens, and the postmodernists.
725. **Integrating Sociological Ideas.** Through extensive reading and writing, integration of knowledge acquired in theory and methods courses; facilitation of the dissertation proposal. Prerequisite: completion of the M.A. degree, SOC 701, 703, 705, 707, 711, 780, and SOC 720 or 722.
730. **Comparative Family Systems.** Organization and functions; urbanization and family influences on personality.
734. **International Medical Sociology.** Cross-cultural, comparative analysis of health and health care delivery systems in both industrialized and developing countries.
735. **Special Topics in International Medical Sociology.** Analysis of selected topics in the field of international health and medical sociology.
740. **Deviant Behavior.** Contemporary social psychological theories of deviant behavior; recent empirical findings.

755. **Race and Ethnic Relations.** Income inequality, school and residential segregation, intermarriage, and interracial relationships.

756. **Gender Inequality.** Theories of inequality, applicability to gender stratification; macro and micro research.

757. **International Inequality.** Globalization and economic, political, and ecological bases of inequalities between “developed” and “developing” countries. Racial, ethnic, and gender variations in inequality.

759. **Social Gerontology.** Structural and behavioral implications of older adulthood. Relationship of older adults to political, economic, educational, medical, religious, and other structures in society.

760. **Sociology of Death and Dying.** Sociological, social psychological and existential perspectives on death and dying; recent trends in definition, distribution, and practices surrounding death and dying.

769. **Sociology of the Life Cycle.** Theories of life; social construction of age categories, aging and family life, work, careers, and aging; men, women, and life cycle.

770. **Techniques of Population Analysis.** Composition of population; constructing life tables; population estimation and projection; migration.

771. **Sociology of Disability.** Chronic conditions and injuries leading to disability among elderly persons; societal attitudes toward disability; measuring disability and improving quality of life for older disabled people.

772. **Medical Demography.** Quantitative assessment of health status of populations in clinical, epidemiological, and sociological studies; interrelationships of health with population structure and dynamics. Modeling preventive health strategies.

774. **The Sociology of Policy Analysis.** Theories of policy formation and implementation, social impact analysis, implementation analysis; role of sociology in policy process.

775. **Urban Ecology.** Population distributions and spatial patterns in cities, effects on behavior.

777. **Demography of Health and Aging.** Focus on demographic processes, such as mortality, morbidity, migration, and fertility; how each influences number and proportion of elderly; how such processes shape age-sex structure; other demographic characteristics of older people.

778. **Demography.** Effect of population processes such as birth, death, migration, and marriage on growth, decline, composition, and distribution of populations.

779. **Experiencing Urban Life.** Experiences of persons in cities; major theories of urban life, meanings of community, social organization of daily city life, urban lifestyles, power in cities.

780. **Medical Sociology.** Theory and research in medical sociology; systematic overview of relevant literature.

781. **Sociology of Health.** Subjective experience of illness; predictions of health behavior; social networks and health.

783. **Health Care Delivery Systems.** Sociological methods and concepts in health care institutions; health care policy.

784. **Health Professions.** Interrelationships among health professions, including public health and ancillary industries; historical development and role boundary maintenance of health professions, lay and folk healers, and health marketers.

785. **Family and Health.** How family structure and family process affect health outcomes.

786. **Health and Service Delivery for Disadvantaged Populations.** Prevalence, causes, and consequences of health and mental health problems for special populations, such as homeless, poor, migrants, and African Americans; the stratification of service delivery systems.

787. **Sociology of Mental Health.** Impact of life events and social supports on depression and other mental disorders; racial minorities, women, elderly, homeless.

788. **Social Medicine.** Socioenvironmental factors in etiology of disease; social movements and health policy; medical ethics and broad ethical issues; place of social science in medical care.

GER 790. **Seminar in Gerontological Substantive Areas.** Individually designed research agendas for students wishing to conduct semi-independent research or guided reading in social gerontology. Prerequisite: Permission of instructor. 1-3 hours.

790-793. **Seminar in Sociological Substantive Areas.** Prerequisites: Permission of advisor and graduate education director. 3 hours each.

796. **Research Seminar in Health and Aging.** Conducting social research, gaining access to research settings, getting started, writing grant applications, presenting papers at professional meetings, and thesis and dissertation proposal writing. Lectures and student presentation of research.

798. **Nonthesis Research.** Integration of theory and research methods: synthesis of data into well-written report derived from research activities. Prerequisite: Completion of major requirements. 1-6 hours.

799. **Thesis Research.** Prerequisite: Admission to candidacy. 1-6 hours.

798. **Nondissertation Research.** 1-6 hours.

799. **Dissertation Research.** Prerequisite: Admission to Ph.D. candidacy. 1-6 hours.

Last modified 12/10/04

## UAB Graduate School

### Toxicology

Graduate program director: *Lamartiniere*

### Faculty

**Robert Angus**, Ph.D., Professor (Biology); Endocrine disrupters in aquatic models.

**Shannon Bailey**, Ph.D. Assistant Professor (Department of Environmental Health Sciences); Chronic ethanol consumption and hepatic energy metabolism,

**Stephen Barnes**, Ph.D., Professor (Pharmacology and Toxicology); Nutritional chemoprevention; drug metabolism and disposition; amino acid conjugation

**Graeme B. Bolger**, M.D., Associate Professor, (Medicine - Hematology/Oncology); Molecular pharmacology of cAMP signaling pathways; molecular genetics of prostate cancer.

**Donald Buchsbaum**, Ph.D., Professor (Radiation Oncology and Pharmacology and Toxicology); Experimental therapeutics with radiolabeled monoclonal antibodies and immunotoxins; radiation biology.

**Robert B. Diasio**, M.D., Professor and Chairman, (Pharmacology and Toxicology); Biochemical and clinical pharmacology and toxicology of antineoplastic agents; pharmacogenomics

**Joanne Douglas**, Ph.D. Assistant Professor (Pathology); Breast cancer metastasis.

**Ada Elgavish**, Ph.D., Associate Professor (Genomics and Pathobiology); Prostate cancer and diseases of the bladder.

**Charles N. Falany**, Ph.D., Professor (Pharmacology and Toxicology); Biochemical and molecular toxicology; sulfotransferases; chemical carcinogenesis.

**Clinton J. Grubbs**, Ph.D., Professor (Nutrition Sciences); Carcinogenicity of environmental pollutants and food additives; metabolism and binding of chemical carcinogens.

**Santosh Katiyar**, Ph.D., Assistant Professor (Dermatology); Cancer causation and chemoprevention.

**Helen Kim**, Ph.D., Research Associate Professor (Pharmacology and Toxicology); Proteomics approaches to identification of drug and toxin

targets.

**Jeffrey Kudlow**, M.D., Director (Endocrinology), Professor (Pharmacology and Toxicology); Molecular Endocrinology; regulation of gene expression by glucose and the role of regulation in cell differentiation and function.

**Coral A. Lamartiniere**, Ph.D., Professor (Pharmacology and Toxicology); Molecular endocrinology; environmental and biochemical toxicology; cause and chemoprevention of mammary and prostate cancer; endocrine disruptors.

**Erica Liebelt**, M.D. Associate Professor (Emergency Medicine); Pediatric and clinical toxicology.

**Rui-Ming Liu**, Ph.D., Assistant Professor (Environmental Health Sciences); Regulation of g-glutamyltranspeptidase gene expression during tumor genesis caused by liver carcinogens

**Richard D. May**, Ph.D., Adjunct Assistant Professor (Pharmacology and Toxicology); Vaccine and drug development; in vitro immune function assays; immunotoxicology.

**James B. McClintock**, Ph.D., Professor (Biology); Chemical ecology, reproduction, nutrition, and physiology of marine invertebrates.

**Donald Muccio**, Ph.D., Professor (Chemistry); Use of conformationally constrained retinoids for cancer prevention and therapy.

**Joanne E. Murphy-Ullrich**, Ph.D., Professor (Pathology); Complex extracellular milieu that regulates cell differentiation, adhesion, and motility; matrix proteins and growth factors

**John G. Page**, Ph.D., Adjunct Professor (Pharmacology and Toxicology); Preclinical pharmacology and toxicology.

**Selvarangan Ponnazhagan**, Ph.D., Associate Professor (Pathology); Adeno-associated virus gene therapy for cancer.

**Edward Postlethwait**, Ph.D. Professor and Chairman (Environmental Health Services); Mechanisms of environmental oxidant-induced lung injury.

**Douglas Ruden**, Ph.D., Associate Professor (Environmental Health Sciences); Signal transduction.

**J. Michael Ruppert**, M.D., Assistant Professor (Medicine); Genetic alterations on tumors; mechanisms of transformation by oncogenes.

**Rosa Serra**, Ph.D. Assistant Professor (Cell Biology); Cell and developmental biology, tumor biology, focus on the role and mechanism

of action of members of the TGF- $\beta$  superfamily.

**Jeffrey Smith**, Ph.D., Professor (Pharmacology and Toxicology); Molecular pharmacology and toxicology of heavy metals; orphan receptors.

**Laura Timares**, Ph.D., Assistant Professor (Dermatology); Engineering dendritic cells for immunotherapy.

**Stephen A. Watts**, Ph.D., Professor (Biology); Physiology and biochemistry of growth and stress in aquatic organisms.

**Dan Welch**, Ph.D. Professor (Pathology); Cancer metastasis, oncogenes, suppressor genes.

**Kurt Zinn**, Ph.D., Professor (Medicine); Molecular Imaging in Animal Models

**Ruiwen Zhang**, M.D., Ph.D., Assistant Professor (Pharmacology and Toxicology); Carcinogenesis; anticancer agents; antisense oligonucleotides.

## Training Program Information

The Graduate Training Program in Toxicology is designed to educate students and provide research experience leading to the Ph.D. in the interdisciplinary field of toxicology. The core courses include biological chemistry and cellular physiology, pathophysiology and pharmacology of disease, molecular medicine and functional genomics, pharmacology, and toxicology. A student in good standing after completing the core curriculum will identify a mentor and complete electives and dissertation research in a participating degree-granting program. Students are expected to conduct original research addressing specific toxicology problems or projects in pharmacology and toxicology, molecular and cellular pathology, nutrition sciences, epidemiology, environmental health sciences, and biology.

UAB has the vision of providing students with diverse and expert toxicological training. Our faculty provide outstanding research opportunities in molecular and cellular toxicology, biochemical and endocrine toxicology, cancer causation and prevention, clinical toxicology, developmental toxicology, environmental toxicology, epidemiology and risk assessment, forensic toxicology, molecular and cellular toxicology, neurotoxicology, and nutritional chemoprevention and toxicology.

Education and research training in UAB's Graduate Training Program in Toxicology is designed to prepare individuals for careers in academia, industry, and government.

Applications for predoctoral studies are considered from students who



have received or expect to receive a B.S. or M.S. degree in biology, chemistry, or a related discipline. A minimum GPA of 3.0 on a 4.0 scale and a combined score of 1100 on the verbal and quantitative portions of the GRE are preferred. Interviews and visits are encouraged. Accepted students usually receive stipend and tuition assistance.

## Additional Information

For detailed information, contact Dr. Coral A. Lamartiniere, UAB Department of Pharmacology and Toxicology, VH 124, 1530 3rd Avenue South, Birmingham, Alabama 35294-0019.

Telephone 205-934-7139

Fax 205-934-8240

E-mail: [Coral@uab.edu](mailto:Coral@uab.edu)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Courses numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Toxicology (TOX)

711. **Principles of Toxicology.** Target organ toxicology. Developmental endocrine, reproductive, regulatory toxicology. Fall.

712. **Actions and Assessments of Toxicants.** Comprehensive information on the origin, distribution, and mechanistic actions of toxicants on the mammalian system. Spring.

713. **Advanced Topics in Toxicology.** Spring

720. **Toxicology Laboratory Rotation.** 1-9 hours.

750. **Breast Cancer Causation and Regulation.** Epidemiology, mechanism of therapeutic and chemopreventive drugs, and innovative research and clinical approaches. Spring.

795. **Advanced Toxicology Seminar.** Critical review of recent referred publications in the field of toxicology. 1 hour.

798. **Doctoral Nondissertation Research.** 1-12 hours.

799. **Doctoral Dissertation Research.** Prerequisite: Admission to candidacy. 1-12 hours.

IBS 700. **Biological Chemistry and Cellular Physiology.** (8 credits).  
Fall.

IBS 701. **Pathophysiology and Pharmacology of Disease.** (8 credits).  
Spring.

IBS 702. **Molecular Medicine and Functional Genomics.** (8 credits).  
Summer.

\*Cellular and Molecular Biology I-IV can substitute for the IBS series

Last modified 10/05/04

## UAB Graduate School

### Vision Science (M.S., Ph.D.)

Graduate program director: *Keyser*

## Faculty

**Franklin R. Amthor**, Associate Professor (Psychology); Retinal Physiology, Neural Information Processing

**Jimmy D. Bartlett**, Professor (Optometry); Low Vision, Ocular Disease

**William J. Benjamin**, Professor (Optometry); Ocular and Tear Fluid Physiology

**Dale Benos**, Professor/Chair (Physiology & Biophysics); Molecular physiology of ion channels

**Mark Bevensee**, Assistant Professor (Physiology & Biophysics); Cellular & molecular physiology of acid base transport and pH regulation

**Claudio Busetini**, Assistant Professor (Physiological Optics); Eye movements

**David A. Corliss**, Associate Professor (Physiological Optics); Eye Movements, Binocular Vision

**Christine A. Curcio**, Professor (Ophthalmology); Anatomy of Human Retina, Aging

**Ramon F. Dacheux**, Professor (Ophthalmology); Morphological and Physiological Organization of Mammalian Retina

**Kent M. Daum**, Associate Professor (Optometry); Eye Movements; Ocular Mobility

**Lawrence J. Delucas**, Professor (Optometry); Protein Structure

**Allan C. Dobbins**, Assistant Professor (Biomedical Engineering); Space and Form in Vision

**Michael J. Friedlander**, Professor (Neurobiology); Molecular Physiology of Synaptic Learning in the Cortex

**Patti S. Fuhr**, Clinical Assistant Professor (Department of Veterans Affairs); Vision Rehabilitation

**Roderick J. Fullard**, Associate Professor (Physiological Optics); Corneal and Tear Biochemistry, Dry Eye

**Paul D. R. Gamlin**, Professor (Physiological Optics); Eye Movements, Pupillary Light Reflex

**Timothy J. Gawne**, Assistant Professor (Physiological Optics); Central Visual Processing

**Christopher A. Girkin**, Assistant Professor (Ophthalmology); Optic Nerve and Retinal Imaging

**Clyde R. Guidry**, Assistant Professor (Ophthalmology); Retinal Wound Healing and Fibroplasia

**Gregory Jackson**, Assistant Professor (Ophthalmology); Visual dysfunction and aging

**Kent T. Keyser**, Professor (Physiological Optics); Neurotransmitters and Receptors

**Robert N. Kleinstein**, Professor (Optometry); Myopia, Refractive Errors

**Timothy W. Kraft**, Assistant Professor (Ophthalmology); Retinal Photoreceptors and Color Vision

**Dennis F. Kucik**, Professor (Pathology); Integrins

**Robin A. J. Lester**, Professor (Neurobiology); Central Nicotinic Channel Kinetics and Synaptic Function

**Michael S. Loop**, Associate Professor (Physiological Optics); Human and Animal Psychophysics, Color Vision

**Stuart C. Mangel**, Associate Professor (Neurobiology); Synaptic Mechanisms

**Richard B. Marchase**, Professor (Cell Biology); Glucose Metabolism and Calcium Regulation

**Richard Mayne**, Professor (Cell Biology); Structure and Pathophysiology of Skeletal Muscle, Cartilage, Eye

**Lori McMahon**, Assistant Professor (Physiology & Biophysics); Neuronal inhibition and synaptic plasticity in hippocampus

**Sthanam V.L. Narayana**, Associate Professor (Optometry); Crystallography, Protein Structure

**Thomas T. Norton**, Professor (Physiological Optics); Regulation of Ocular Development, Emmetropization, and Myopia

**Cynthia Owsley**, Professor (Ophthalmology); Visual Psychophysics, Aging

**Clyde W. Oyster**, Professor Emeritus (Physiological Optics); Neurophysiology, Neuroanatomy, Neural Interactions in Retina

**Dennis J. Pillion**, Professor (Pharmacology); Ocular Drug Delivery

**Steven J. Pittler**, Professor (Physiological Optics); Photoreceptor Function in Health and Disease

**Douglas M. Ruden**, Associate Professor (Public Health); Genetics of Rhabdomere Development in the Fruitfly *Drosophila*

**Lisa Schweibert**, Associate Professor (Physiology & Biophysics) Role of epithelium in airway inflammation and molecular analysis of immune function in normal versus cystic fibrosis airway epithelia

**A. Christopher Snyder**, Professor (Optometry); Corneal Physiological Response to Contact Lens Wear

**Om P. Srivastava**, Professor (Physiological Optics); Cataractogenesis

**Trygve O. Tollefsbol**, Assistant Professor (Biology); Photoreceptor Function in Health and Disease

**Donald B. Twieg**, Associate Professor (Biomedical Engineering); MRI Technique Development for Functional Brain Imaging

**Thomas R. Unnasch**, Professor (Geographic Medicine); Molecular Study of Onchocerciasis

**Shu-Zhen Wang**, Associate Professor (Ophthalmology); Molecular Mechanisms of Early Neural Development

**Rosalyn E. Weller**, Associate Professor (Psychology); Neuroanatomy of the Visual System

**David R. Whitehart**, Professor (Physiological Optics); Corneal Biochemistry, Pharmacology

## Program Information

Vision science is a multidisciplinary field encompassing events from the physical stimulus of light—through optical, biochemical, biophysical, and neuronal processes—to visual perception. The primary objective of the graduate program in vision science is to train individuals who will develop innovative approaches to teaching and research in vision science. To meet this objective, the M.S. and Ph.D. degrees require a curriculum covering major topics in vision science along with an original research project.

In addition to the course offerings in vision science, the program offers considerable flexibility in meeting the individual student's needs and career goals. The program encourages students to participate in the wide range of graduate courses offered by other departments of the university. Indeed, the program is interdepartmental in scope, with mentors in eleven different departments ranging from Cell Biology to Psychology.

The graduate program in vision science also offers a 7-year, O.D.-Ph.D. degree program, which combines training in clinical optometry with research in vision science. This is a unique opportunity for students to be trained as clinician-scientists whose knowledge of the eye and central visual pathways will lead to improved diagnosis, treatment, and prevention of blindness and visual impairment.

Although laboratory and research training are emphasized in both the Ph.D. and O.D.-Ph.D. programs, students also have opportunities to gain teaching experience. An appropriate

background for study in vision science includes study at the baccalaureate or master's level in a biological, neurological, physical, or health-related science.

The program has an excellent record of preparing students for rewarding careers in teaching, research, or health care.

## **Admission and Financial Aid**

Applications for admission to the graduate program in vision science are reviewed by the Graduate Admissions Committee. The committee looks at the applicants' scores in the Graduate Record Examination (GRE). A combined score of at least 1000 in the verbal and quantitative sections of the GRE exam is required for the M.S. degree, and at least 1200 for the Ph.D. degree. Students currently enrolled in the Ph.D. program have an average GRE score of 1300. Admission also requires undergraduate grades of at least a B average over the previous 60 semester hours of credit, and three letters of recommendation. Applicants should have a strong background in the biological, physical, or health sciences. Students with suitable foreign qualifications are welcome to apply, but must demonstrate a command of written and spoken English, in addition to a score of at least 570 on the TOEFL examination. Over the past fifteen years, 40% of the graduates of the program have been women. We continue to encourage qualified women and underrepresented minorities to apply.

## **M.S. Degree**

Some students may wish to pursue graduate training at the master's level. Two calendar years are needed to complete the M.S. degree in vision science. Each candidate must complete a minimum of 30 hours of credit: 24 credit hours in vision science and 6 credit hours in related graduate courses.

In addition, the candidate must successfully complete a research thesis by the conclusion of the final year.

Selected students in the UAB optometry professional program are encouraged to combine the O.D. degree with the M.S. degree in Vision Science. Financial assistance is available for qualified students. Potential candidates should have completed undergraduate degree in a biological, physical, or health science field.

## **Ph.D. Degree**

The Ph.D. degree is based upon completion of graduate course work, a qualifying examination, research, and a dissertation and defense. There is considerable flexibility in the coursework for the Ph.D. in vision science.

Each student is required to take the first-year core curriculum (VIS 743 thru 748). Students then take three additional courses, selected by the student in consultation with the mentor, and a course in statistics. The program is flexible so that, for example, students who have interests in visual neuroscience may take courses in the neuroscience sequence: VIS 729, Introduction to Neurobiology; Cellular and Molecular Neurobiology; Integrative Neuroscience; and Developmental Neuroscience. Similarly, students interested in the cellular and molecular

biology of the visual system may take the Cellular and Molecular Biology (CMB) Program core sequence, or they may select from the upper-level vision courses.

Other courses at a similar level can be substituted so that students can take maximum advantage of offerings in other programs. Individuals with clinical backgrounds will have an opportunity for clinical development. Students are also offered an opportunity to gain teaching experience.

The O.D.-Ph.D. program prepares students for careers that combine clinical optometry and clinical and/or basic research in vision science. This program involves a combination of basic science, research, and clinical training. The program is geared toward students who have outstanding scholastic qualifications and are highly motivated to pursue careers as clinician-scientists.

Because students in this program will receive substantial benefits, admission is highly competitive. Information about admission requirements and application procedures can be obtained by writing to the graduate program director.

## Additional Information

For detailed information, contact the graduate program manager, Ramona Hart, UAB Department of Physiological Optics, WORB 618, 1530 3rd Ave S., Birmingham, AL 35294-4390 (office location: Worrell Building, Room 626, 924 18th Street South).

Telephone 205-934-6743

E-mail [rhart@uab.edu](mailto:rhart@uab.edu)

Web [www.visionscience.uab.edu](http://www.visionscience.uab.edu)

## Course Descriptions

Unless otherwise noted, all courses are for 3 semester hours of credit. Course numbers preceded with an asterisk indicate courses that can be repeated for credit, with stated stipulations.

### Vision Science (VIS)

#### Core Curriculum

743. **Optics and Imaging.** Optical properties of the eye. Transparency, aberrations, modulation transfer functions of the eye. Use of coherent optics (lasers) in vision research, MRI in vision research. 2 hours.

744. **Ocular Anatomy, Physiology & Biochemistry I.** Anatomy of the eye. Biochemistry and physiology of ocular tissues, including tears, cornea, aqueous humor, lens, vitreous and sclera. 2 hours.

745. **Ocular Anatomy, Physiology & Biochemistry II.** Continued examination of ocular anatomy, biochemistry and physiology of the eye. 2 hours.

746. **Retina and Subcortical Systems.** Retinal circuitry and receptive fields, including color coding, adaptation, circadian rhythms, parallel pathways, and development.

747. **Central Visual Mechanisms I.** Structure and function of geniculostriate parallel pathways, subcortical projections, and the oculomotor system.

748. **Central Visual Mechanisms II.** Analysis of the visual scene by cortical neurons, including temporal coding, motion detection, shape analysis, leading to visual perception.

### **Elective Curriculum**

700. **Vision Literature Review.** Review of vision related literature and preparation for giving presentations.

701. **Visual Sensitivity and Resolution.** Photochemical processes, transduction, absolute and increment thresholds, light and dark adaptation, spatial interactions, spatial resolution and visual acuity, temporal interactions, and temporal resolution.

702. **Color Vision.** Perception of wavelength as color; colorimetry, color vision theories, trichromatic-opponent colors theory, neurophysiology of color vision.

710. **Ocular Biochemistry.** Biochemical components and metabolites in visual system: carbohydrates, proteins, lipids, and nucleic acids; emphasis on scientific inquiry, methodology, and significance of ocular biochemical research. 2 hours.

724. **Applied Statistics in Basic and Clinical Science.**

729. **Introduction to Neurobiology/Marine Biology.** 4 hours.

741. **Special Topics in Visual Neurobiology.** 1 hour.

742. **Special Topics in Corneal Research.** 1 hour.

750. **Special Topics in Retinal Research.** 1 hour.

751. **Retinal Morphology & Physiology.** 3 hours.

790. **Individual Studies and Advanced Topics.** 1-12 hours.

698. **Master's Nonthesis Research.** 1-12 hours.

699. **Master's Thesis Research.** Prerequisite: Admission to candidacy. 1-12 hours.

798. **Doctoral Nondissertation Research.** 1-12 hours.

799. **Doctoral Dissertation Research.** Prerequisite: Admission to candidacy. 1-12 hours.



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# 2004-2006

## GRADUATE CATALOG ONLINE

## General Information

### UAB

Accredited by the Commission on Colleges of the Southern Association of Colleges and Schools ([SACSCOC](#)), UAB is also a member of Oak Ridge Associated Universities ([ORAU](#)).

### Birmingham

The cultural and entertainment center of the state, Birmingham offers beautiful residential neighborhoods and parks, a thriving business climate, and a relatively low cost of living.

### The Graduate School

As of Fall 2001, the Graduate School administers doctoral programs in 32 areas and master's level programs in 45 areas.

### Application and Admission

The Graduate School welcomes applications from all qualified individuals who wish to pursue graduate study at UAB.

### General Academic Requirements

Registration, withdrawal, and financial information, as well as academic and nonacademic conduct, are covered.

### Requirements for the Master's Degree

Specific requirements apply to the master's degrees administered by the Graduate School.

### Requirements for the Doctoral Degree

Specific requirements apply to the doctoral degrees (PhD, EDD) that the Graduate School administers.

### Facilities and Services

Student access to libraries, housing, and medical insurance are among the university's priorities.

### Financial Information

Knowledge of fees, financial aid, and payment deadlines is necessary for graduate students.

### Graduate Degree Programs

This list of degrees administered by the Graduate School gives an idea of UAB's widely varied programs of study.

### Abbreviations

[Catalog: Front](#)
[Catalog: General](#)
[Catalog: Programs](#)
[Graduate Faculty](#)


**Course Codes**

**Graduate Faculty**

Only regular graduate faculty are listed, not adjunct or ad hoc members.

**UAB NEWS ACADEMICS HEALTH CARE RESEARCH INSIDE UAB**

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## **UAB**

The University of Alabama at Birmingham (UAB) is a 35-year-old comprehensive, urban university and medical center that encompasses 82 city blocks and has a student enrollment of 16,000. UAB is home to a large graduate school, a world-renowned health care complex and more than 70 research centers focusing on such diverse issues as AIDS, business development, and biodefense and emerging infections.

The university is composed of 14 schools, as well as hospitals and clinics housing internationally renowned patient care programs. UAB includes the Schools of Arts and Humanities, Business, Dentistry, Education, Engineering, Health Related Professions, Medicine, Natural Sciences and Mathematics, Nursing, Optometry, Public Health, Social and Behavioral Sciences, and the Graduate School.

More than 4,300 graduate students are enrolled in UAB's 35 doctoral programs and 45 master's programs. Many of these programs unite different disciplines and cross departmental and school lines, illustrating the strong interdisciplinary character of the university.

UAB is one of the top research universities in the country. Research funding has doubled every decade at UAB. Today, UAB receives more than \$460 million in grants and contracts. In funding from the National Institutes of Health (NIH), UAB ranks 20 overall with five schools in the Top 20: Health Related Professions (No.1), Optometry (No. 4), Public Health (No. 10), Nursing (No. 17) and Medicine (No. 16).

## **Accreditation**

The University of Alabama at Birmingham is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award degrees at the bachelor's, master's, specialist, and doctoral levels. Individual schools and programs are also accredited by regional and national professional organizations.

## **Student Life**

Campus life at UAB is characterized by the bustle and diversity of the university's urban setting. UAB graduate students take advantage of a wide variety of cultural and recreational opportunities on and off campus, and numerous student organizations and associations invite participation.

UAB's Hill University Center serves as a hub for campus life, providing under one roof a full-service cafeteria, a large bookstore, an auditorium, meeting rooms, lounges, and other recreational areas. The UAB Arena seats more than 8,000 for concerts, sports events, graduation exercises, and other special events.

The Alys Robinson Stephens Performing Arts Center houses a 1,400-seat concert hall and the 400-seat Morris K. Sirote Theater. Both of these facilities have outstanding acoustics, technical capability, and comfort, and each hosts a wide variety of student and professional performances. The Alys Stephens Center also has a 175-seat recital hall, an experimental ("black box") theater, an arts computing facility, practice rooms, faculty offices, and other

instructional space. The center is home to the Alabama Symphony Orchestra and hosts a wide variety of cultural events throughout the year.

Ten musical performing groups (Blazer Band, Chamber Singers, Concert Choir, Gospel Choir, Jazz Ensemble, Marching Blazers, Computer Music Ensemble, Opera Workshop, Percussion Ensemble, and Wind Ensemble) provide enrichment and performing opportunities. A major campus theater offers several productions each year (free to students); there are several small performing groups on campus, as well as a UAB-affiliated community theater. Dance groups offer opportunities in ballet and jazz. Artwork is continuously exhibited in the Visual Arts Gallery and several other galleries on campus.

Student publications include a campus-wide newspaper, *The Kaleidoscope*, published weekly; a literary magazine, *Aura*; and an online nonfiction magazine, *Phoenix*.

University programs include a lecture series, an acclaimed film series (showing films several times a month, including popular, foreign, and classic films), a progressive and diverse concert series, and an assortment of special events, seminars, dances, and other activities. Many of these programs and activities are free to students with valid ID cards.

UAB's intercollegiate sports program includes baseball, football, rifle, softball, synchronized swimming, track, and volleyball, as well as men's and women's teams for basketball, golf, soccer, and tennis. Many of our teams have won conference championships.

Under construction now is a 150,000-square-foot campus recreation center that will house aquatics, court sports, indoor track, weight and fitness areas, climbing wall and outdoor recreation, game room, and juice bar. Two softball fields, two football fields with goals for soccer; a baseball field and a number of tennis courts are nearby. An active intramural sports program attracts the participation of many graduate students.

## UAB Study Abroad

Explore a world of opportunities in the Study Abroad Program. The experience of living and learning in another country will enrich your background and broaden your career horizons. The UAB program offers courses in a variety of majors in Europe, Israel, Central America, and the Caribbean. These courses are designed to meet the needs of both traditional and nontraditional students (working students, parents, etc.). In addition, UAB has exchange agreements with educational institutions in more than 30 countries. Financial aid can be applied toward courses in the Study Abroad Program. Students must meet certain requirements to participate and earn academic credit.

Contact the UAB Study Abroad Program Director, (205) 975-6611, for further information concerning various programs, the resource library, references for peer consultation and academic advising, and financial aid applicability and contacts or check out the web site at [www.studyabroad.app.uab.edu/](http://www.studyabroad.app.uab.edu/).

## International Scholars and Students

The mission of International Scholar and Student Services (ISSS) is to provide quality services, programs, and activities that enhance cultural awareness, international educational and research opportunities, and global perspectives for students, faculty, and staff.

ISSS advises foreign students and assists visiting international faculty and students in matters of immigration, federal and state taxation, and orientation to the Birmingham community. ISSS also serves as a collaborative resource center that facilitates, promotes, and strengthens international understanding.

The ISSS manages and operates the Smolian International House (I-House), located at 1600 10th Avenue South. The I-House offers a variety of services and activities for international students and scholars as well as for American students.

The ISSS also manages and operates the Samuel Ullman Museum (SUM), located at 2150 15th Avenue South. The museum is a tribute to Samuel Ullman, an early visionary of Birmingham best known for his poem "Youth."

For additional information, visit the International Scholar and Student Services web site [www.uab.edu/issv](http://www.uab.edu/issv).

## Oak Ridge Associated Universities

Since 1971, students and faculty of the University of Alabama at Birmingham have benefited from its membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 85 colleges and universities and a contractor for the U.S. Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

Through the Oak Ridge Institute for Science and Education (the DOE facility that ORAU operates), undergraduates, graduates, postgraduates, and faculty enjoy access to a multitude of opportunities for study and research. A comprehensive listing of these programs and other opportunities, their disciplines, and details on locations and benefits can be found in the *ORISE Catalog of Education and Training Programs*, which is available at [www.orau.org/](http://www.orau.org/).

## Dauphin Island Sea Lab

As a member of Alabama's Marine Environmental Sciences Consortium, UAB offers students and faculty access to the courses and facilities of the Dauphin Island Sea Lab, located in Mobile Bay on Alabama's Gulf Coast. For programs and contacts, visit their web site ([www.disl.org](http://www.disl.org)).

## Birmingham

Birmingham is a dynamic, progressive urban center of great natural beauty. Almost a million people live in the metropolitan area, which includes parts of five counties in north-central Alabama. Because of its rapid growth in the late 19th and early 20th centuries, Birmingham has an international flavor and ethnic diversity that are unusual in the South. This diversity has been enhanced in the last three decades by the phenomenal growth of UAB.

Health care and education have replaced other types of industry as Birmingham's economic base, and UAB is now the city's leading employer. Birmingham's economy is fully diversified, with rapid growth in service, financial, insurance and real estate, wholesale trade, construction, and research fields. Construction is thriving in Birmingham, with rapid suburban growth and massive revitalization and renovation of historic structures downtown. Despite the city's rapid growth, the American Chamber of Commerce rates the cost of living in Birmingham lower than in most metropolitan areas.

In addition to UAB and the University of Alabama School of Medicine, educational opportunities in the area include six other universities and colleges, seven community/junior colleges, five degree-granting technical schools, three law schools, and other specialized schools. The Birmingham area has over 1,300 houses of worship, representing virtually all denominations. School systems cover 5 county and 13 major city public school systems and over 50 private and denominational schools. Medical services are provided by 11 full-service hospitals.

Located in the Sun Belt, Birmingham enjoys an average year-round temperature of 62°F, experiences approximately 117 days with rainfall each year and, in an average year, gets 2.1 inches of snowfall. The first freeze is usually in November, with the last frost in March.

Birmingham offers its residents and visitors many opportunities for both excitement and relaxation. Ongoing events take place at more than 40 movie screens, 5 community theaters, and numerous concert venues, including Oak Mountain Amphitheatre and Birmingham Jefferson Civic Center. In addition, a host of nightclubs and restaurants feature live entertainment.

The Birmingham Museum of Art, with a permanent collection of over 1,700 works, is the largest of the area's museums. The Birmingham Botanical Gardens and facilities at Oak Mountain State Park serve as avenues into the wonders of natural history. For those with specialized interests, the city offers the McWane Center and IMAX Dome Theatre, Barber Vintage Motorsports Museum, the Alabama Sports Hall of Fame, the Jazz Hall of Fame, the Southern Museum of Flight, and many others. An interactive walk-through history at the Birmingham Civil Rights Institute, located in the heart of the Birmingham Civil Rights District, which centers on the historic 16th Street Baptist Church.

Special events include the Birmingham International Festival of the Arts, which salutes art and craft from a different country each year; City Stages, a world-class musical festival held in the heart of downtown each June; and Do Dah Day, a whimsical parade of pets that marches through the numerous parks on Highland Avenue.

For people and families who are attracted to the outdoors, Alabama offers 24 state parks. Oak Mountain State Park, located in the Birmingham area, is the largest (9,940 acres). Dozens of smaller city parks offer further opportunities for hiking, biking, swimming,

rappelling, and other sports as well as quiet places for outdoor reading, studying, and picnicking. Visionland, Alabama's Theme Park, thrills visitors with roller coasters, water rides, and other amusements. The Robert Trent Jones Golf Trail takes in the Oxmoor Valley Golf Club; this and other world-class courses make golf a popular pastime for residents and tourists alike. Less than one day's drive away, the mountains of middle Tennessee and the renowned "sugar beaches" of the Gulf of Mexico showcase the natural beauty of the southeastern United States.

Much of information in this section was drawn from the Birmingham Area Chamber of Commerce ([www.birminghamchamber.com](http://www.birminghamchamber.com)).



## The Graduate School

Currently, the Graduate School administers doctoral programs in 35 areas and master's level programs in 45 areas, with additional programs planned for future implementation. A particular strength of the school is its many programs that unite different disciplines and cross departmental and school lines.

## Graduate Council

The Graduate Council has developed policies and procedures to ensure that high standards for graduate study are maintained at UAB. These policies and procedures, available at the Graduate School's web site, are the joint responsibility of the Graduate Council and the dean of the Graduate School.

The Graduate Council, through consultation with the dean, is responsible for developing academic requirements and describing these requirements through appropriate policies. The dean, through consultation with the Graduate Council, is responsible for developing procedures that effectively enforce academic requirements and implement policies.

The Graduate Council, through its Advisory Committee, annually reviews academic requirements, policies, procedures, and Graduate School activities and recommends appropriate changes. Changes in academic requirements and related policies require a majority vote of the Graduate Council.

## Graduate Student Association

UAB graduate students are represented by the Graduate Student Association (GSA), which works closely with the Graduate School and other offices of the university administration in formulating policy and meeting student needs. All graduate students are automatically members of the GSA, and the GSA Senate is composed of student representatives from the various graduate programs. The GSA provides partial funding for graduate student travel to academic meetings and for thesis and dissertation preparation. The organization cosponsors a variety of services and activities, including the Honors Convocation, Graduate Student Research Day, Graduate Student Orientation, and the GSA Emergency Loan Fund. Detailed information about the GSA can be found at the GSA web site ([www.uab.edu/gsa](http://www.uab.edu/gsa)).

## Industry Roundtable

The UAB Industry Roundtable, sponsored by the UAB Graduate School, is a student-initiated and student-run informal discussion group open to all graduate students and dedicated to fostering a greater awareness of career opportunities outside academia.

Its goals are to provide a forum for networking with industry representatives; establish an interface between academia and industry; introduce students to the process of making industry contacts; encourage students to comment, ask questions, and seek advice from nonacademics; stimulate students to begin career development early in their educational experience; and provide information to students about alternative career opportunities. The web site ([www.uab.edu/roundtable](http://www.uab.edu/roundtable)) has more information.

## Graduate Student Research Day

Graduate Student Research Day is an annual competition in which graduate students present their original research in an open forum. Deadlines for Research Day are announced in the fall semester and are available at the Graduate Student Research Day web site, ([www.uab.edu/graduate/researchday](http://www.uab.edu/graduate/researchday)). Awards are presented at a luncheon ceremony each spring semester.

## Application and Admission

The Graduate School welcomes applications from all qualified individuals who wish to pursue graduate study at UAB.

## Categories of Graduate Student

Two broad categories of graduate students are recognized: degree-seeking graduate students and non-degree-seeking graduate students.

### Degree-Seeking Students

Degree-seeking graduate students are those accepted into a specific graduate program to work toward a specific advanced degree. In addition to the completed application form, the application procedure includes the submission of official transcripts, standardized test scores, and letters of recommendation. Each application is reviewed by the graduate program faculty, who make an admissions recommendation to the Graduate School dean or a representative of the graduate dean.

### Non-Degree-Seeking Students

The non-degree category serves students who do not wish to pursue a graduate degree at UAB, as well as those who wish to begin graduate study before being admitted to a degree program. Not all graduate courses are open to non-degree-seeking graduate students. Although there is no limitation on the amount of credit that may be earned as a non-degree-seeking student, should a student later wish to pursue an advanced degree at UAB, the credit earned while in non-degree-seeking status is not automatically acceptable toward the degree. **In no case can more than 12 semester hours earned as a non-degree graduate student be applied toward a degree.**

Because of U.S. immigration requirements, international applicants (i.e., those who are neither U.S. citizens nor permanent residents) cannot normally be considered for the non-degree category unless already residing in the United States. Immigration laws should be consulted to determine eligibility of students.

### Complete Application Package

The completed application package includes (1) the completed application form; (2) a check for the appropriate processing fee (stated on the form); (3) two copies of official transcripts<sup>1</sup>[1] from all colleges or universities attended (the applicant must arrange for these to be sent directly to the Graduate School Office); (4) official copies of the applicant's scores on the Graduate Record Examination (GRE) General Test<sup>2</sup>[2], (5) three evaluations, preferably on the Graduate School Evaluation Form<sup>3</sup>[3]; (6) (for international applicants from non-English-speaking countries only) official copies of the applicant's scores on the Test of

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English as a Foreign Language (TOEFL) and the Test of Written English (TWE; see individual program sections for minimum score requirements).

Application packages, in general, will not be considered until the package is complete. To allow time for the application review process, all documents must be received in the Graduate School office at least six weeks before the beginning of the term in which the applicant wishes to begin the graduate program. Some graduate programs admit only at certain times of the year and have specific application deadlines. These deadlines are indicated in the online program descriptions.

## **Admission Standards**

Admission is competitive and is based on an estimate of the ability of the applicant to complete the degree program successfully and on the appropriateness of the program to the applicant's career goals. The Graduate School and its programs accept the most qualified students who apply. Most programs can accommodate only a limited number of students; therefore, some qualified applicants may be denied admission.

### **Master's Degree Programs**

Although each graduate program sets its own minimum standards for admission, the Graduate School has established guidelines for admission to master's degree programs. These guidelines are (1) a B average (computed overall, or alternatively computed over the last 60 semester hours of earned credit) in undergraduate work, (2) evidence of a bachelor's degree from a regionally accredited university or college in the United States, (3) a score of at least 500 on each section of the Graduate Record Examination General Test (some programs require or accept other national tests), and (4) previous academic work appropriate to the academic area to which application is being made.

### **Doctoral Degree Programs**

Although each graduate program sets its own minimum standards for admission, the Graduate School has established guidelines for admission to doctoral degree programs. These guidelines are (1) a B average (computed overall, or alternatively computed over the last 60 semester hours of earned credit) in undergraduate or subsequent graduate work, (2) evidence of a bachelor's degree from a regionally accredited university or college in the United States, (3) a score of at least 550 on each section of the Graduate Record Examination General Test (some programs require or accept other national tests), and (4) previous academic work appropriate to the academic area to which application is being made. Note that some programs also require a master's degree before admission to the doctoral program. Because of guidelines set by external accreditation authorities, the requirements for application and admission to certain graduate programs may differ from the above, particularly in the standard test required. These variations are detailed in the online program descriptions.

### **Admission on Probation**

Students not meeting all program admission criteria may be admitted on probation upon recommendation by the graduate program director and approval by the Graduate School dean.

## Re-admission

The records of a student who has not enrolled for one year will be removed from the UAB computerized registration system. Such students must apply for re-admission before they may register again. Degree-seeking students who (1) have been absent one year but have registered for and passed at least one course at UAB within the last five years and (2) have not attended any other university or college in the interim and (3) wish to return to the graduate program to which they were earlier admitted may complete the Application for Re-admission to a Graduate Degree Program and pay the required processing fee. These re-admitted students must meet the degree requirements operative at the time of re-admission. Students who wish to return to the non-degree category after an absence of one or more years must submit a new non-degree application form, together with the required processing fee.

## Admission of Students Previously Dismissed

When any individual applies to a graduate program, a major part of the admissions decision involves an estimate, based on the applicant's academic history, of whether the applicant can perform satisfactorily at the graduate level. To be re-admitted, applicants who have previously been dismissed from the Graduate School must present convincing evidence to the faculty and the Graduate School dean that a substantial improvement has occurred so that it is probable that the applicant can now perform at the required level in graduate work.

After a student has been dismissed from the UAB Graduate School, no new application for admission (either as a degree-seeking student or as a non-degree student) will be considered until at least two semesters have passed.

## Faculty

To maintain university accountability, UAB faculty and staff who wish to take occasional graduate courses must register for these courses after admission to the Graduate School on the non-degree-seeking basis. Admission of a UAB faculty member as a degree-seeking graduate student requires the concurrence of the applicant's department chair and dean(s), as well as the approvals required for other applicants to the same program.

4[1] Official transcripts are those issued by the registrar or responsible head of the institution at which the work was attempted or completed and sent by mail directly to the Graduate School by that official. In those rare instances in which international applicants are unable to provide official transcripts, certain certified documents may be acceptable.

5[2] GRE scores must be sent directly from the testing agency to the Graduate School. (Some UAB graduate programs require, or are willing to accept, other recognized national tests. Specific program requirements are outlined in the online program descriptions.) Although ETS retains scores up to five years, some programs will not accept scores more than two years old.

6[3] Evaluation forms are not required for the business programs.

## General Academic Requirements

Unless otherwise stated, the policies in this section apply to both degree-seeking and non-degree-seeking graduate students.

## Graduate Credit

For purposes of academic accounting, credits expressed in "semester hours" are assigned to each course. The guideline for lecture courses is that one semester hour of credit is awarded for 13-15 contact hours. Laboratory credit is assigned on the basis of one semester hour of credit for approximately 30 hours of work in the laboratory.

## Requirements for Undergraduate Students

UAB undergraduate students may be allowed to enroll in a graduate course with the approval of their advisor, the instructor, their undergraduate program director, and the graduate program director. The Undergraduate Student Request for Enrollment in Graduate Level Coursework form can be obtained from the Graduate School, Room 511 Hill University Center, or online. Credits earned by undergraduate students may be applied to either an undergraduate degree or a graduate degree, but not both. If the student is subsequently admitted to the Graduate School, use of this credit toward a graduate degree requires the approval of the graduate program director and the Graduate School dean.

## Course Numbering System

The scholastic level of UAB courses is indicated by the century number. Courses numbered 500 and above are graduate and postbaccalaureate courses. Courses numbered 500-599 are available to upper-level undergraduate and beginning graduate students. Courses numbered 600 and above are for graduate students. Those numbered 600-699 are intended primarily for students at the master's level, with 698 reserved for nonthesis research and 699 reserved for thesis research. Courses numbered 700-799 are primarily for students at the doctoral level, except in the School of Education where the numbers from 700-740 are reserved for courses leading to the degree of Educational Specialist (Ed.S.). The number 798 is reserved for nondissertation research and 799 for dissertation research. Seminars, practica, individual studies and projects, internships, and residencies will generally carry numbers in the upper range of these centuries.

## Time Limitations

Doctoral students are generally expected to complete all degree requirements with 7 years of matriculation. One extension of this time limit can be requested when mitigating circumstances preclude completion of requirements within 7 years. The recommendation for an extension should include a plan and timeline for completion. Such requests require the approval of the student's dissertation committee and graduate program director and must be presented in writing to the dean of the Graduate School for consideration and approval. Courses taken more than 7 years before graduation may not be applied toward a degree without the approval of the graduate program director and graduate dean.

# Course Enrollment

## Registration

Students must register for all work to be taken for graduate credit. To be classified as “full time,” a graduate student must register for at least 9 semester hours of work each semester. The university publishes the UAB Class Schedule three times per year, approximately 2 weeks before the beginning of registration for the approaching semester. The class schedule lists the courses and other work to be offered and gives full details on prerequisites, registration dates, and procedures, including required signatures.

## Adding or Changing Courses

Adding or changing courses after registration is possible each semester until the date specified in the UAB Class Schedule. Procedures are also specified in that publication. A processing fee is charged for registration changes.

## Withdrawal from Courses

Graduate students are expected to complete courses for which they have registered, unless unusual circumstances require withdrawal. The procedures for withdrawal are specified in the UAB Class Schedule. Mere cessation of class attendance does not constitute withdrawal, either academically or for tuition charges. Withdrawal from a graduate class requires permission of the instructor and the graduate program director. A grade of *W* will be entered on the transcript. Withdrawal is not possible after the last day of classes. A processing fee is charged for registration changes.

## Credit by Examination

Students may not earn "credit by examination" at the graduate level.

## Audits

Graduate students may audit courses available for graduate credit with the permission of the instructor and payment of appropriate fees; this approval must be secured before registration. Courses taken for audit credit are not counted toward the hours required for full-time status. Provided the instructor's requirements are met, the course will appear on the transcript with the notation *AU*.

# Course Completion

## Grading System

The grade of *A* is used to indicate superior performance, *B* for adequate performance, and *C* for performance only minimally adequate for a graduate student. Any graduate student completing a course at the 500 level or above with a performance below the *C* level will receive a grade of *F*, because the Graduate School does not use the grade of *D*.



## Grades in Pass/Not Pass Courses

With the approval of the graduate program director, a course may be designated as a “pass/not pass course.” The grade of *P* (passing) signifies satisfactory work. The grade of *NP* (not passing) indicates unsatisfactory work, without a penalty being assessed with respect to the grade point average (GPA).

## Temporary Grade Notations

Temporary notations used by the Graduate School are *N* for “no grade reported,” and *I* for “incomplete” coursework.

If there is a special circumstance in which an instructor does not submit a grade at the end of a semester, a temporary grade of *N* will be recorded. If no permanent grade has been reported by the end of the following semester, an *F* will automatically be entered in the student’s academic record.

The temporary notation of *I* may be reported at the discretion of the instructor to indicate that the student has performed satisfactorily in the course but, due to unforeseen circumstances, has been unable to finish all course requirements. An *I* is never given to enable a student to raise a deficient grade. This notation should not be used unless there is reasonable certainty that the requirements will be completed during the following semester, because at the end of that semester the *I* automatically changes to an *F*. In highly unusual circumstances, the student may request an extension of the time to complete the requirements. This request must be submitted in writing in advance of the time when the grade automatically changes to an *F* because the approval of the instructor, graduate program director, and Graduate School dean are all required.

## Cumulative Credits and Grade Point Average (GPA)

### Semester Hours Earned

The student’s “semester hours earned” are increased by (1) earning a grade of *C* or better in a course for which the student was registered on a regular (“letter grade”) basis or (2) obtaining a *P* grade in a course taken on a pass/not pass basis.

### Semester Hours Attempted

The student’s “semester hours attempted” are increased by receiving a grade of *A*, *B*, *C*, or *F* in a course for which the student was registered on a regular basis.

### Quality Points

Four quality points are awarded for each semester hour in which an *A* is earned, three quality points are awarded for each semester hour in which a *B* is earned, and two quality points are awarded for each semester hour in which a *C* is earned. No quality points are added for other grades.

## **GPA**

The GPA is determined by dividing the total quality points awarded by the semester hours attempted.

## **Repeated Courses**

Graduate students may be allowed to repeat courses for graduate credit with the permission of the graduate advisor and graduate program director. All courses taken and all grades earned are permanently recorded on the student's transcript. The first time a student repeats a course, he or she receives the grade earned. If a course is taken three or more times, all grades after the first are averaged. The Graduate School Records Office must be notified of the repeat at the time of registration. (The calculation using the repeat grade is not automatic.) Note: Many graduate programs also base retention decisions on programmatic guidelines and not on GPA.

## **Academic Performance**

### **Good Academic Standing**

For a student to maintain good academic standing in the Graduate School, a GPA of at least 3.0 (*B* average) and overall satisfactory performance on pass/not pass courses are required. Satisfactory performance on pass/not pass courses is defined as earning at least as many hours of *P* grades as hours of *NP* grades.

### **Academic Probation and Dismissal**

Students who are admitted on probation must demonstrate their ability to perform at the level required for graduation by establishing good academic standing at the end of the semester when their graduate semester hours attempted equals or first exceeds 12. Students who do not accomplish this level of performance will be dismissed from the UAB Graduate School.

A degree-seeking or non-degree-seeking graduate student who has been in good academic standing but who, at the end of any semester, fails to meet the criteria to continue in good academic standing will be placed on probation. Such a student must re-establish good academic standing within the next two semesters of graduate study undertaken. Students who do not accomplish this level of performance will be dismissed from the UAB Graduate School.

The rules stated above govern university probation and dismissal, administered by the Graduate School. Individual graduate programs may establish and administer program probation and dismissal governed by more stringent requirements. In general, a student's retention in a specific graduate program is contingent on the faculty's belief that the student is likely to complete the program successfully. If the faculty ceases to hold this belief, the student may be dismissed from the program.

## **UAB Student Record Policy**

Federal law guarantees students certain rights with respect to their educational records. It is the student's responsibility to become familiar with the university's stated policies on these rights. See [UAB Student Records Policy](#).

## Conduct and Appeal

### Academic Conduct

The University of Alabama at Birmingham expects all members of its academic community to function according to the highest ethical and professional standards. Students, faculty, and administration of the institution must be involved to insure this quality of academic conduct.

Academic misconduct undermines the purpose of education. Such behavior is a serious violation of the trust that must exist among faculty and students for a university to nurture intellectual growth and development. Academic misconduct can generally be defined as all acts of dishonesty in an academic or related matter. Academic dishonesty includes, but is not limited to, the following categories of behavior:

**ABETTING:** helping another student commit an act of academic dishonesty. Allowing others to copy your quiz answers, or use your work as their own are examples of abetting.

**CHEATING:** use or attempted use of unauthorized materials, information, study aids, the answers of others, or computer-related information.

**PLAGIARISM:** claiming as your own the ideas, words, data, computer programs, creative compositions, artwork, etc., done by someone else. Examples include improper citation of referenced works, use of commercially available scholarly papers, failure to cite sources, copying other's ideas.

**FABRICATION:** presenting as genuine falsified data, citations, or quotations.

**MISREPRESENTATION:** falsification, alteration or misstatement of the contents of documents, academic work or other materials related to academic matters, including representing work substantially done for one class as work done for another without receiving prior approval from the instructor. Misrepresentation also includes misrepresenting schedules, prerequisites, transcripts, or other academic records.

A student who commits an act of academic misconduct will be given the grade of *F* in the course in which the misconduct occurred. The program in which the student is housed may expel the student from the university on the first offense. Students should consult the policies of their graduate program to determine if expulsion can occur with a first offense. If, as determined by the records of the Graduate School, the act of academic misconduct is a second offense, the student will be expelled from the university. The transcript of a student expelled for committing academic misconduct will bear the statement "Expelled for Academic Misconduct."

When an instructor sees cause to charge a student with academic misconduct, the instructor will communicate the charge to the department chair/program director appropriate to the course, who will notify the student of the charge and provide the student with an opportunity to respond. If, at that time, the student cannot refute the charge effectively, the department

chair/program director will expeditiously notify the student and the director of the student's program in writing, of the administrative action to be taken. The notice shall also inform the student of the right to appeal and the steps involved in that process. Copies of the letter with appropriate documentation will be sent to the graduate dean, who will maintain records of all proceedings. If the department chair/program director is the instructor who charges the student with academic misconduct, then another faculty member from the department or program, appointed by the graduate dean will review the charge and take appropriate actions.

If the charge is not resolved to the student's or faculty member's satisfaction within a school, either party may request an appeal by the Graduate School Appeals Board. The decision of the Graduate Appeals Board is final.

Academic misconduct that involves possible criminal action will be referred to other appropriate offices within the institution. Students and faculty should also consult the university's policy on scientific misconduct for discussion of standards and policies that apply to research and research courses.

## **Nonacademic Conduct**

The university is a community of scholars and learners; therefore, all participants are expected to maintain conduct that (1) facilitates the institution's pursuit of its educational objectives, (2) exhibits a regard for the rights of other members of the academic community, and (3) provides safety for property and persons. Through appropriate "due process" procedures, disciplinary action will be taken in response to conduct that violates these principles. A more detailed description of nonacademic misconduct can be found in the student handbook, *Direction*. It is the student's responsibility to be fully aware of the policies and procedures described in *Direction*. The vice president for student affairs has the responsibility for coordinating policies and procedures regarding students' nonacademic misconduct.

## **Graduate School Deadlines**

All Graduate School deadlines, as indicated on the calendar or in explanation of policies and procedures, unless otherwise stated, are final by 5:00 p.m. on the date specified, by which time all transactions must be completed and documents received in the Graduate School. Transactions and documents requiring the action or approval of graduate advisors, committee members, instructors, department chairmen, academic deans, or others prior to receipt by the Graduate School should be initiated by the appropriate person (student, instructor, graduate advisor, or other) sufficiently in advance of the Graduate School deadline for the required actions to be taken and approvals made or declined before the deadline.

## Requirements for the Master's Degree

### Faculty Advisor

Immediately after a degree-seeking student enters the UAB Graduate School, a member of the faculty of the graduate program to which the student has been admitted should be assigned to serve as the student's advisor. The assignment may be a temporary arrangement. The student and the advisor should confer about courses and any special work to be taken on the basis of the student's previous experience and the requirements of the graduate program.

### Graduate Study Committee

As soon as possible, a specific plan of study should be developed. Traditionally, graduate study is highly flexible and individualized, and a graduate study committee is appointed, chaired by the student's advisor, to guide the student toward the degree. (Some graduate programs do not always use a graduate study committee, particularly where flexibility in the course of study is limited by accreditation and other external constraints.) The committee should consist of at least three Graduate School faculty members, one of whom should be from outside the student's graduate specialization and each of whom should be able to bring some relevant insight and expertise to guide the student.

Recommendations for graduate study committee membership are submitted by the advisor and the student to the graduate program director. The graduate program director submits these recommendations to the Graduate School dean, who is an *ex officio* member of all graduate study committees, for approval.

### Plan I or Plan II

The Graduate School recognizes two principal paths, known as Plan I and Plan II, that lead to the master's degree. One or the other of these plans may be appropriate in particular circumstances, and in some programs a choice is available. The graduate study committee conducts the final thesis examination for Plan I candidates and determines the scope, content, and form of the final master's comprehensive examination for thesis-substitute and Plan II candidates.

Plan I requires the completion, in good academic standing, of at least 24 semester hours of appropriate graduate work and 6 semester hours of thesis research, with the presentation of an acceptable thesis embodying the results of original research work.

Plan II may not require research and does not require a formal thesis, but a minimum of 30 semester hours of appropriate graduate work must be completed in good academic standing. Although thesis research is not required as part of a Plan II course of study, the student is often expected to gain insight into the techniques of posing and solving problems and to use these insights to prepare a written report.

Where both Plan I and Plan II are available within one graduate program, an early and meaningful choice should be made by the student, in close consultation with the advisor. A

change in choice of plans requires the approval of the program director and the Graduate School dean.

## Transfer of Credit

Previously earned graduate credit that has not been applied toward another degree (either at UAB or elsewhere) is eligible for transfer into the student's current degree program. (Ordinarily, no more than 12 semester hours of transfer credit can be applied to a degree program.) All transfers must be initiated by the student and require the approval of the graduate program director and the Graduate School dean. Transfer of Credit Forms are available in the Graduate School, Room 511 Hill University Center, and online. An application for transfer of credit will not be considered until the student has completed at least 9 semester hours of graduate credit in the current UAB program and is in good academic standing. Once transfer credit has been accepted, it will be included in the calculation of the GPA in the student's current UAB program.

Graduate credit earned with a grade of *B* or above by a graduate student in another accredited graduate school may be considered for transfer. In programs offered jointly by UAB and other universities, all graduate credits earned in the program at a cooperating university are eligible for transfer to UAB. If a student earns credit in one UAB graduate program and is later admitted to another program, unused credits from the previous program are eligible for consideration for transfer into the current program.

## Additional Program Requirements

In consultation with the faculty, the director of each graduate program will specify any additional requirements, such as a reading knowledge of a foreign language or a working knowledge of statistics, that are considered essential to mastery of the academic discipline. Such requirements become conditions for the completion of the degree. The program may also adopt a system of examinations that the student must pass at various points in the program.

## Candidacy for Degree

Admission to candidacy is a formal step recommended by the student's graduate study committee and approved by the graduate program director and the Graduate School dean, acknowledging that the student has been performing well and is likely to complete the degree. For Plan I students, admission should occur when the student has obtained an adequate background (although not all coursework need be complete) and has provided the committee with an acceptable proposal for thesis research. Students must be in good academic standing to be eligible for admission to candidacy, and admission must take place no later than one semester before the expected graduation. Students must be admitted to candidacy before they can register for thesis research hours (i.e., courses numbered 699).

## Application for Degree

Each candidate for a master's degree must signify the intention to complete the requirements by a particular graduation date by submitting a completed Application for Degree Form. Because this form is used to check completion of requirements, order the diploma, and enter

the student in the commencement program, the form must be received in the Graduate School Records Office no later than 3 weeks into the semester of expected graduation. See deadline dates (later in this booklet). Students must be registered for at least 3 semester hours of graduate work in the semester they plan to graduate.

## Thesis

The thesis required under Plan I should present the results of the candidate's original research and the interpretation of those results. The document should also demonstrate the candidate's acquaintance with the literature of the field and with the proper selection and execution of research methodology. The physical form of the thesis must comply with the regulations stated in the booklet *Theses and Dissertations: A Guide to Preparation*, which is published by the Graduate School and is available online.

Within 10 days after the public defense, students should meet with Graduate School staff to review style and format requirements. The Graduate School has the responsibility for ensuring that the final version of the thesis meets the standards required of a permanent, published document. Thus, after the student successfully passes the final examination (and at least 20 days before the expected graduation), the candidate must submit to the Graduate School one error-free, unbound copy of the thesis that meets the minimum acceptance requirements of the Graduate School. This copy will be examined carefully, and the Graduate School reserves the right to require changes to bring the document up to the standards of the chosen style guide and those stated in *Theses and Dissertations: A Guide to Preparation*. After making these final changes, the candidate must submit to the Graduate School two typed (or otherwise reproduced) copies of the thesis on white, 25% cotton, acid-free, watermarked paper. These copies must be received no later than 10 days after the return of the unbound thesis copy to the student. The Graduate School will have the two bound copies of the final version of the thesis placed in the appropriate UAB library.

Students should attend the free seminar titled "Staying Afloat While Preparing a Thesis or Dissertation," which is offered each semester by the Graduate School Professional Development Program. Additional assistance is available for students registered in GRD 704 (offered every semester by the Professional Development Program).

## Final Examination

Under Plan I, the final examination should take the form of a presentation and defense of the thesis, followed by an examination of the candidate's comprehensive knowledge of the field. Plan I examinations must be scheduled through the Graduate School. The meeting must be appropriately announced in the UAB Reporter, must be open to all interested parties, and must take place at least 30 days before the expected date of graduation. Plan I candidates must be registered for at least 3 semester hours of graduate work in the semester during which degree requirements are completed.

When Plan II is followed, the final examination should take the form of a comprehensive survey of the candidate's activities in the graduate program. (A Plan II final examination is not used in some graduate programs.)

## Recommendation for Degree

The candidate will be recommended for the master's degree to the Graduate School dean by the graduate study committee or by the student's advisor and the graduate program director. This recommendation must be received no later than 20 days before the end of the semester in which the candidate is expected to complete all degree requirements. The recommendation will be based on evaluation of all work performed, the final examination, and the thesis if Plan I was followed. The recommendation will automatically be nullified if (1) the remaining courses needed for the degree are not passed, (2) the candidate fails to maintain good academic standing, (3) the candidate fails to remove all temporary grades from the transcript, or (4) the Plan I candidate fails to complete the thesis.

## Award of Degree

Upon approval by the Graduate School dean and payment of any outstanding financial obligations to the university, the student will be awarded the degree. Master's students are generally expected to complete all degree requirements with 7 years of matriculation.

## Summary of Steps Toward the Master's Degree

- Admission to master's degree program
- Selection of faculty advisor
- Maintenance of good standing
- Appointment of graduate study committee
- IRB approvals obtained
- Admission to candidacy—at least one semester before graduation is expected
- Application for degree—no later than 3 weeks into the semester graduation is expected
- Production of preliminary version of thesis (Plan I only)
- Final examination (includes defense of thesis for Plan I only)
- One copy of defended committee-approved version of thesis to Graduate School office (Plan I only)—no later than 20 days before expected graduation
- Two copies of final version of thesis on white, 25% cotton, acid-free, watermarked paper to Graduate School office (Plan I only)—no later than 10 days after the return of the unbound thesis
- Conferring of degree



**NOTICE:** Students who fail to submit a completed thesis within one semester following the final examination will be charged a degree completion fee each semester.

## Requirements for the Doctoral Degree

### General Statement

The doctoral degree is granted in recognition of (1) scholarly proficiency and (2) distinctive achievement in a specific field of an academic discipline. The first component is demonstrated by successful completion of advanced coursework (of both a didactic and an unstructured nature) and by adequate performance on the comprehensive examination. Traditionally, the student demonstrates the second component by independently performing original research. In certain doctoral programs, a major project undertaking may be acceptable even though it may not be of a traditional research nature. However, in all instances a dissertation is required, presenting the results of the student's independent study.

### Faculty Advisor

Immediately after a degree-seeking student enters the UAB Graduate School, a member of the faculty of the graduate program to which the student has been admitted should be assigned to serve as the student's advisor. This assignment may be a temporary arrangement. The student and the advisor should confer about the initial courses and any special work to be taken on the basis of the student's previous experience and the requirements of the graduate program.

### Graduate Study Committee

As soon as possible, a graduate study committee should be formed to guide the student in a program of courses, seminars, and independent study designed to meet the student's needs and to satisfy program and Graduate School requirements. This committee should consist of at least five graduate faculty members, two of whom should be from outside the student's graduate specialization and each of whom should be able to bring some relevant insight and expertise to guide the student. Recommendations for graduate study committee members are submitted by the advisor and the student to the program director, who subsequently submits these recommendations to the Graduate School dean. Graduate study committee appointments are made by the Graduate School dean, who is an *ex officio* member of all graduate study committees.

### Transfer of Credit

Previously earned graduate credit that has not been applied toward another degree (either at UAB or elsewhere) is eligible for transfer into the student's current degree program. (Ordinarily, no more than 12 semester hours of transfer credit can be applied to a degree program.) All transfers must be initiated by the student and require the approval of the graduate program director and the Graduate School dean. Transfer of Credit Forms are available in the Graduate School, Room 511 Hill University Center, and online. An application for transfer of credit will not be considered until the student has completed at least 9 semester hours of graduate credit in the current UAB program and is in good academic standing. Once transfer credit has been accepted, it will be included in the calculation of the GPA in the student's current UAB program.

Graduate credit earned with a grade of *B* or above by a graduate student in another accredited graduate school may be considered for transfer. In programs offered jointly by UAB and other universities, all graduate credits earned in the program at a cooperating university are eligible for transfer to UAB. If a student earns credit in one UAB graduate program and is later admitted to another program, unused credits from the previous program are eligible for consideration for transfer into the current program.

## Registration Requirements

Because the doctoral degree is earned on the basis of satisfactory completion of the comprehensive examination and the dissertation, the Graduate School does not specify any minimum number of courses or semester hours that must be completed for awarding of the degree. Courses taken at other institutions and in other degree programs may be used to satisfy program requirements upon approval of the graduate study committee and the graduate program director. Doctoral students are expected to be registered for credit hours each semester.

## Residence Requirement

The usual minimal period in which the doctoral degree can be earned is 3 academic years of full-time study, or longer if the student has periods of part-time enrollment. The nature of doctoral study requires the closest contact between the student and the faculty of the graduate program, and the individual investigation or other special work leading to the dissertation must be done directly under the guidance and supervision of a regular member of the UAB graduate faculty. Therefore, doctoral students must be involved full time in doctoral study for at least one academic year (two semesters).

## Foreign Language or Other Special Tools of Research

In consultation with the faculty, the director of each graduate program will specify any additional requirements, such as a reading knowledge of a foreign language or a working knowledge of statistics, that are considered essential to mastery of the academic discipline. Such requirements become conditions for the completion of the degree.

## Comprehensive Examination

The scholarly proficiency of a doctoral student in the chosen field of study must be evaluated by comprehensive examination. The conduct of these examinations is the responsibility of the graduate program in which the student is enrolled and may consist of either individual examinations in several appropriate areas or a single combined examination. When both written and oral examinations are given, the written should precede the oral so that there is an opportunity for the student to clarify any misunderstanding of the written questions.

Students must be registered for at least 3 semester hours of graduate work during the semester in which the comprehensive examination is taken.

## Admission to Candidacy

When the student has passed the comprehensive examination, satisfied any program requirements for foreign language proficiency or special tools of research, and presented to the graduate study committee an acceptable proposal for research or special study, the committee will recommend to the Graduate School dean that the student be admitted to candidacy. A student must be in good academic standing to be admitted to candidacy. Admission to candidacy must take place at least two semesters before the expected completion of the doctoral program. Students must be admitted to candidacy before they can register for dissertation research hours (i.e., 799).

Admission to candidacy is an important step forward in the student's pursuit of the doctorate. By this step, the graduate committee indicates its confidence that the student is capable of completing the proposed research project and the doctoral program.

## Application for Degree

Each candidate for a doctoral degree must signify the intention to complete the requirements by a particular graduation date by submitting a completed Application for Degree Form. Because this form is used to check requirements, order the diploma, and enter the student on the commencement program, it must be received in the Graduate School Records Office no later than 3 weeks into the expected semester of graduation.

## Dissertation

The results of the candidate's individual inquiry must be presented in a written dissertation comprising a genuine contribution to knowledge in the particular academic field. The document should also demonstrate the candidate's acquaintance with the literature of the field and the proper selection and execution of research methodology. The physical form of the dissertation must comply with the regulations stated in the booklet *Theses and Dissertations: A Guide to Preparation*, which is published by the Graduate School and available online.

Within 10 days after the public defense, students should meet with Graduate School staff to review style and format requirements. The Graduate School has the responsibility for ensuring that the final version of the dissertation meets the standards required of a permanent published document. Thus, after the student successfully passes the final examination (and at least 20 days before the expected graduation), the candidate must submit to the Graduate School one error-free, unbound copy of the dissertation. This copy will be examined carefully, and the Graduate School reserves the right to require changes to bring the document up to the standards of the chosen style guide and those stated in *Theses and Dissertations: A Guide to Preparation*. After making these final changes, the candidate must submit to the Graduate School two typed (or otherwise reproduced) copies of the dissertation on white, 25% cotton, acid-free, watermarked paper. These copies must be received no later than 10 days after the return of the finalized unbound dissertation copy to the student.

The microfilm and copyright contract form and the Survey of Earned Doctorates form must also be submitted. All of these materials must be received no later than 10 days after the return of the finalized unbound dissertation copy to the student. The Graduate School will

have the two bound copies of the final version of the dissertation placed in the appropriate UAB library.

Students should attend the free seminar titled “Staying Afloat While Preparing a Thesis or Dissertation,” which is offered each semester by the Graduate School Professional Development Program. Additional assistance is available for students registered in GRD 704 (offered every semester by the Graduate School Professional Development Program).

## Final Examination

The final examination should take the form of a presentation and defense of the dissertation, followed by an examination of the candidate’s comprehensive knowledge of the field. This examination must be scheduled through the Graduate School to allow attendance of the dean. The meeting must be open to all interested parties, publicized on the UAB campus, published in the UAB Reporter, and must take place at least 30 days before the expected date of graduation. Candidates must be registered for at least 3 semester hours of graduate work during the semester in which the final examination is taken.

## Recommendation for Degree

The candidate will be recommended for the doctoral degree to the Graduate School dean by the graduate study committee and the graduate program director. This recommendation must be received no later than 20 days before the end of the semester in which the candidate is expected to complete all degree requirements. Candidates must be in a good academic standing to graduate, with no temporary grades for courses required for the degree on their transcripts.

## Award of Degree

Upon approval by the Graduate School dean and payment of any outstanding financial obligations to the university, the student will be awarded the degree. Doctoral students are generally expected to complete all degree requirements with 7 years of matriculation.

## Summary of Steps Toward the Doctoral Degree

- Admission to doctoral degree program
- Selection of faculty advisor
- Maintenance of good standing
- Appointment of graduate study committee
- Passing of comprehensive examination
- IRB approvals obtained

- Admission to candidacy—no later than two semesters before expected graduation
- Application for degree—no later than 3 weeks into the expected semester of graduation
- Production of preliminary version of dissertation
- Final examination—no later than 30 days before expected graduation
- One copy of defended committee-approved version of thesis to Graduate School Office—no later than 20 days before expected graduation
- Two copies of final version of dissertation on white, 25% cotton, acid-free, watermarked paper to Graduate School
- Conferring of degree

NOTICE: Students who fail to submit a completed dissertation within one semester following the final examination will be charged a degree completion fee each semester.

## Facilities and Services

### Lister Hill Library of the Health Sciences

The Lister Hill Library of the Health Sciences, established in 1945, is the largest biomedical library in Alabama and one of the leading such libraries in the South. It serves as a resource library in the National Network of Libraries of Medicine for the Southeast/Atlantic Region. Its collections span 7 centuries of knowledge, from 13,000 volumes of rare historical books to approximately 1,500 print and 1,700 electronic journal subscriptions. Books, bound journals, microforms, and other media total approximately 348,000 volumes relating to medicine, dentistry, nursing, optometry, allied health sciences, public health, and the basic biomedical sciences.

The library offers accommodations for reading, studying, and viewing audiovisuals. Other services offered include information services, interlibrary loans, photocopying, orientations, online computer searches by librarians, and on-campus document delivery by fax or on foot. IBM and Macintosh computers are located in the library's microcomputer laboratory for word processing, spreadsheets, and graphics. The library operates The Learning Center, an area with state-of-the-art interactive workstations for the creation and use of computer-assisted instructional programs; an electronic classroom for teaching; database searching; Internet classes; electronically wired study carrels for use by individuals; and other electronic access methods.

The staff offers frequent classes on information retrieval and management, access to the Internet, and searching techniques for numerous online and CD-ROM databases.

### Reynolds Historical Library

The Reynolds Historical Library was a gift of Dr. Lawrence Reynolds, a distinguished radiologist and editor. The collection includes ivory anatomical manikins, original manuscripts, and rare medical and scientific books.

### Alabama Museum of the Health Sciences

The museum contains memorabilia from Alabama physicians, dentists, nurses, and optometrists, which present a history of the health sciences in Alabama since the time Alabama became a state.

### Lister Hill Library at the West Pavilion

The Lister Hill Library maintains a small collection in the University Hospital West Pavilion to serve the clinical staff of the hospital. It includes 400 textbooks and 89 current subscriptions of the most frequently used journals. Photocopiers are available.

For more information about any of Lister Hill Library's services and facilities, please call 205-934-5460 (Administration) or 205-934-2230 (Information), or visit their web site ([www.uab.edu/lister](http://www.uab.edu/lister)).

### Mervyn H. Sterne Library

The Mervyn H. Sterne Library houses a collection of more than 1,433,000 items selected to support current teaching and research at UAB. In addition to books and more than 2,000 periodicals, the collection consists of microforms and other print and nonprint materials. Access to the collection and other information resources is provided through an online public access catalog system. Users may access the system from the library or remotely. Study areas and photocopying machines are located throughout the library, which is located at 917 13th Street South. Named in 1973 in memory of the late Birmingham philanthropist and civic leader Mervyn H. Sterne, the facility has seating space for about 1,100 students. More than 100 lockable study carrels are available for use by faculty and graduate students involved in writing projects.

Reference services are provided by subject specialist librarians and at information desks staffed to assist patrons in identifying and locating materials. Reference service also includes computerized database searching. Through the use of OCLC, the national bibliographic utility, the staff can locate, and in many cases borrow, materials from libraries across the country. The User Services Department, through its automated circulation system, tracks materials continuously and can determine the location or status of a book on request. The reserve desk circulates high-use materials identified by classroom instructors.

## **Education Technology Services**

Educational Technology Services (ETS) is the media center of the Mervyn H. Sterne Library. Located in the Education Building, ETS houses and circulates some 36,000 nonprint items, including video and audio tapes, 16-mm films, recordings, filmstrips, and slide presentations, as well as equipment for using them, viewing rooms, and a listening room. Individual carrels are also available for groups or individuals to listen to or view nonprint media.

ETS also houses the Student Computing Center (SCC), which includes some 40 microcomputers, including Macintosh and IBM computers. Access to the SCC is available to anyone with a valid UAB ID card. Staff are available in the SCC to offer hardware assistance and limited software assistance.

## **Libraries at Other Universities**

Through an interinstitutional borrowing agreement, UAB students and faculty may use library facilities at a number of other colleges and universities in the area. Access to the catalogs of university libraries in the state of Alabama is available through the Mervyn Sterne Library web site.

For more information about any of Mervyn H. Sterne Library's services and facilities, please call 205-934-6360 (Administration) or 205-934-6364 (Information), or visit the Sterne Library web site ([www.mhsl.uab.edu](http://www.mhsl.uab.edu)).

## **Student Housing and Residential Life**

There are approximately 1,700 spaces available for students in UAB campus residence halls. Student Housing is centrally located on campus and is within walking distance of all classroom buildings, libraries, and the Medical Center.



Student Housing is limited to students who are admitted to UAB and who are in good standing. "Good Standing" means not on academic or disciplinary suspension. As an additional eligibility requirement, a student must be enrolled for eight credit hours as an undergraduate or five credit hours as a graduate student each semester. The summer term is treated under a separate contract. The student will be required to satisfy these eligibility standards throughout the term of their Student Housing Contract and to inform the UAB Department of Student Housing and Residential Life of any changes in his/her status.

UAB housing communities are designed to give you a sense of security 24 hours a day. A supervisor and five officers from the UAB Police's special Student Housing Police Precinct routinely patrol the residence halls and parking areas on both foot and bicycle. Officers interact with students and conduct programs and activities to help residents prevent crime. After dark, a designated UAB escort can accompany you to any on-campus destination by foot or in a marked vehicle.

Except for married students, only roommates of the same gender are permitted. To live in student housing, professional students, interns, residents, and postdoctoral fellows must be verified by their departments. Postdoctoral fellows must have a UAB classification of 20. Married students may live in suites in Camp or Denman halls if they meet certain eligibility requirements. UAB will require a copy of the marriage license to verify the relationship.

Current rental rates are available from the Department of Student Housing and Residential Life. Rates include utilities and cable television in all residence halls. Only water and cable television are furnished in the Garden Apartments. Telephone service is available through UAB Communications.

Additional information concerning residential life and an application for housing may be obtained online through the UAB web site [www.students.uab.edu/services/](http://www.students.uab.edu/services/) or you may have a paper application sent to you. Contact UAB Student Housing and Residential Life.

## Student Health and Insurance Programs

### Student Health Service

A Student Health Service, currently supported by student fees at the semester rate of \$75 (subject to change) per individual, is mandatory for all graduate students registered for 9 or more hours per semester. (See Health Forms and Insurance Information, below.)

Participation is required for all international students and for all students in the Schools of Medicine, Dentistry, Nursing, Optometry, Health Related Professions, and Public Health. Participation is optional for all other graduate students. To participate in the Student Health Service, students must have an acceptable hospitalization insurance program (see Hospital and Major Medical Insurance Programs, below).

Students in the Schools of Medicine, Dentistry, Nursing, Optometry, Health Related Professions, and Public Health who are taking fewer than 6 hours per semester may participate in the Student Health Service and the hospital and major medical insurance programs described below. The Student Health Service is available to all graduate students with a completed Health History and Physical Form and proof of hospital insurance.

Because preventive medicine is emphasized by the Student Health Service, information on medical matters of interest to students is offered. The service maintains a professional relationship with the student, and strictest confidentiality is maintained. Students in need of counseling services should contact the Counseling and Wellness Center (205-934-5816).

## **Hospital and Major Medical Insurance Programs**

Hospitalization and major medical insurance coverage is available at attractive rates to students enrolled in the Student Health Service. Spouses and children of eligible graduate students may also obtain coverage under this policy at a proportionate increase in premium.

Students who are already covered by hospitalization insurance that offers coverage equivalent to that in the UAB student hospitalization policy may sign a waiver to this effect and not be required to take the UAB policy. Failure to sign and file a waiver with the Student Health Service will result in automatic coverage with Student Health Service insurance, and the student will be billed.

## **Health Forms, and Insurance Information.**

For all students who will be participating in the Student Health Service, the following health forms must be completed: (1) application for student insurance or waiver of insurance plan (this waiver is printed in red ink); and (2) health history in which the student fills out pages 1, 2, and 4 and your physician fills out page 3. The completed form must be sent to Student Health Service.

The Certificate of Immunization Form must be completed by all students and returned to the Graduate School office.

For additional information on UAB's Student Health Service and group hospital insurance plan, students should contact UAB Student Health Service, Suite 301, Community Health Service Building, 933 South 19th Street, Birmingham, Alabama 35294-2041 (telephone 205-975-7750, [www.uab.edu/studenthealth](http://www.uab.edu/studenthealth)).

## **Student Dental Health Program**

The UAB Student Dental Health Program is supported by annual fees of \$325 (subject to change) per student.

Students enrolled full time in the undergraduate or graduate programs of the School of Dentistry, School of Medicine, School of Nursing, or School of Optometry are eligible. Also eligible are students enrolled in the Nurse Anesthesia Program, residents, interns, and fellows. This program is optional for students in the above-mentioned graduate programs and for residents, interns, and fellows; it is mandatory for students in the above-mentioned undergraduate programs.

Under this plan, students have the option of obtaining basic dental services either from their family dentists or from participating School of Dentistry faculty members. Services included in the program are periodic dental examinations, periodic radiographs, periodic prophylaxes and fluoride applications, restorations (excluding gold), root canal treatment (endodontics), nonelective extractions, postoperative care, and dental health counseling. Other services may be provided at the discretion of the Student Dental Health Office (205-934-1281).

Services not provided by the program are orthodontics, prosthodontics, crowns and bridges, surgical treatment of periodontal disease, complicated oral surgery, extraction of third molars, and treatment of a cosmetic nature.

Pre-existing conditions are not covered by this program. Participating students will be given an initial screening, at which time an assessment of the student's dental health will be made and an appropriate recommendation given.

## Student Development

Student Development comprises TRIO Academic Services, Career Services, Disability Support Services, Veterans Services, Testing Office, Counseling and Wellness Services, and Women's Services. All of these services are described online at [www.students.uab.edu](http://www.students.uab.edu)

If you are a first-generation college student, have a disability, or meet federal income requirements, you might be eligible for free support services and incentives created to help you achieve your goal of graduating in four years. UAB's TRIO Academic Services (TAS) is a Student Support Services program that is a part of a network of TRIO programs fully funded by the U.S. Department of Education. The mission of TAS is to provide academic and personal support to help participants be successful as they pursue their educational goals at UAB. Contact 205-934-2729 or [TrioAcademicServ@uab.edu](mailto:TrioAcademicServ@uab.edu) for detailed information.

In Career Services, graduate students will find the Student Placement Office (part-time jobs), the Senior Placement Office (jobs after graduation), the Career Planning Office, and the Career Resource Library. These offices assist students with researching various career opportunities, writing résumés and cover letters, developing credentials files, and researching employers. Personnel in these offices conduct numerous free seminars each semester on a wide range of topics from study skills to job search techniques. The web site is located at [www.careercenter.uab.edu](http://www.careercenter.uab.edu)

UAB is committed to making its academic programs and services accessible to students with disabilities. Qualified students with disabilities are protected from discrimination based on their disability, as guaranteed by the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973. Contact the UAB Disability Support Services office at [dss@uab.edu](mailto:dss@uab.edu), (205) 934-4205 (Voice), or (205) 934-4248 (TDD) for details.

The Office of Veterans Services works closely with the U.S. Department of Veterans Affairs to offer various entitlement programs to students who have served in the military on active duty, are members of the selected Reserves/National Guard, or are dependents of a veteran who has a service-related disability or who died while in the military. Contact [veteransaffairs@uab.edu](mailto:veteransaffairs@uab.edu) or 205-934-8804 for more information.

UAB Testing Center administers graduate examinations, correspondence exams, and professional certification/licensure exams (eg. ACT, APTTP, CLEP, DSST, GRE, MAT, MCAT, PRAXIS, SAT, TSE). Contact 205-934-3704 or [testing@uab.edu](mailto:testing@uab.edu) for more information.

It is the goal of Counseling and Wellness Services to encourage students as they resolve problem areas and to help them cope with difficulties they are presently experiencing. Counselors are interested in supporting students as they find solutions. It is the role of the

counselor is to listen, attempt to understand personal perspectives, and to be helpful to the fullest extent of his or her professional training. It is the client's responsibility to help the counselor learn about his or her life situation, thoughts, and feelings, and to have the courage to try to master identified problem areas. For more information about the Counseling and Wellness Center, call 205-934-5816.

The Women's Center offers personal (non-academic) counseling services to currently enrolled UAB students. These services are confidential, are provided by a Licensed Professional Counselor, and are free of charge to all UAB students. Issues dealt with by the Women's Center Counselor include (but are not restricted to) eating disorders, relationship problems, sexual assault and abuse, sexual harassment, and stress management. Personal counseling is the primary component of the Women's Center's services. For more information about the Women's Center, call 205-934-6946.

The Counseling and Wellness Services and Women's Center are located in the Holley-Mears Building, 924 19th Street South.

## Financial Information

### UAB Payment Policies

Most universities require payment of tuition and fees at registration. UAB gives you this option but also offers alternatives.

### Internal Payment Options

Payments can be made directly to UAB by cash, check, or credit cards (Visa, MasterCard, and Discover). Payment by mail should be directed to UAB Student Accounting Services; P.O. Box 1946; Birmingham, Alabama 35201-1946. Payments may be made in person in the Hill University Center, 1400 University Boulevard, in Room 322; in the student payment drop box located on the first floor of Hill University Center; or by credit card through ACCESS at 205-975-9600 or toll-free at 1-888-988-2567.

### External Payment Option

UAB has arranged for our students to be eligible to use the financial planning experience and designated payment options offered through Academic Management Services (AMS). Each student can make prearranged plans with AMS to meet the published due dates for fall and spring semesters. The plans are based on 8 or 10 monthly advance payment schedules and provide an excellent way for students to establish a monthly budget for educational costs. For more information concerning the available plans, call an AMS education payment counselor at 800-635-0120 or browse their web site ([www.amsweb.com](http://www.amsweb.com)).

### Statement of Fees

A statement of fees is provided to each student at registration. Charges shown on that statement are based on the student's status and courses as of the date of registration. School, classification, or course changes made after registration may result in additional charges. Credit for financial aid, external payment plans, UAB Educational Assistance benefits, or payments to be billed to a third-party vendor may not be reflected on the Statement of Fees printed at registration. However, even if you do not receive a statement, you are still responsible for payment by the deadlines. For information or clarification concerning the amount due, please call Student Accounting Services at 205-934-3570 or 1-888-255-8734.

### Delinquency Policy

If any student has an unpaid financial obligation to UAB, all grades will be withheld and no transcripts will be issued for that student. Such a student will not be permitted to register at UAB again and all services will be withheld until the obligation is paid in full, at which time withheld grades will be reinstated. A debt to UAB is, of course, legally enforceable. To be fair to the overwhelming majority of students who honor their commitment, UAB's policy is to pursue unpaid student debts vigorously by all legal means. (See the current class schedule for published delinquent fees.)—[www.students.uab.edu](http://www.students.uab.edu)

## Tuition Adjustment Policies

If you withdraw from a course (using the appropriate procedures) prior to the close of business on the published date for Last Day to Drop Without Paying Tuition and Fees, you will owe no tuition for that course. However, if you are still registered for a course at the close of business on the Last Day to Drop Without Paying Tuition and Fees, you must pay full tuition and fees for that course, even if you withdraw later. No refunds can be made unless a licensed physician certifies that a condition, which arose after the last day to withdraw, was of sufficient duration and severity to make it impossible for you to continue in the course. Students suspended for disciplinary reasons are not eligible for refunds or cancellation of charges due.

### Withdrawals and Refunds

Students who wish to withdraw from courses for which they are registered must use the official procedures specified in the UAB Class Schedule, published quarterly.

Mere failure to attend class does not constitute a drop or withdrawal. If the withdrawal form is received after the "Last Day to Withdraw Without Paying Full Tuition and Fees" (specified for each term in the UAB Class Schedule), full tuition and fees will be due for the courses from which the student withdraws.

## Academic Common Market

The Academic Common Market is an interstate agreement among selected southern states for sharing academic programs at both the baccalaureate and graduate levels. Participating states are able to make arrangements for their residents who qualify for admission to enroll in specific programs in other states on an in-state tuition basis. Participating states are Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

If you are not an Alabama resident and you wish to enroll at UAB as an Academic Common Market student, you must be accepted for admission into a UAB program to which your state has obtained access for its residents through the Academic Common Market coordinator in your home state.

Certification of eligibility must be received by the Graduate School before the first day of class in the initial semester of registration to obtain in-state tuition status for the entire program; otherwise, in-state tuition status will be awarded beginning with the semester following receipt of this certification.

To obtain the name and address of a state coordinator, contact the Graduate School, Room 511, Hill University Center, 1400 University Boulevard, Birmingham, Alabama 35294-1150 (telephone 205-934-8227) or visit the Academic Common Market web site ([www.cep.unt.edu/ACM.html](http://www.cep.unt.edu/ACM.html)).

## Financial Aid

## Assistantships and Fellowships

The Graduate School realizes that pursuit of an advanced degree may involve financial strain. In many programs, graduate student awards are available in limited number in the form of assistantships (service required) or fellowships (no service required.)

Applications for assistantships or fellowships should be submitted to the director of the graduate program in which the student is, or plans to be, enrolled. Applications for minority fellowships are available in the Graduate School Office. The Graduate School also assists students in preparation of applications for extramural fellowships.

## Veterans

Any veteran who plans to enter UAB and who wishes to apply for financial assistance through the Department of Veterans Affairs should file an application with the UAB Office of Veterans Affairs. From six to eight weeks are required to secure proper processing of an application by the Department of Veterans Affairs.

For information, contact the UAB Department of Veterans Affairs, Room 516H, Hill University Center, 1400 University Boulevard, Birmingham, Alabama 35294-1150, telephone 205-934-8115, [www.students.uab.edu](http://www.students.uab.edu)

## Estimated Semester Fees<sup>7[1]</sup>, 2004-2005

### General Fees Paid by All "Resident"<sup>8[2]</sup> Graduate Students

Per semester hour

Graduate School Fees .....	\$ 162.00
School of Public Health .....	\$169.00
School of Nursing Fee .....	\$197.00
School of Health Related Professions .....	\$213.00
Student Service Fee <sup>9[3]</sup> .....	\$ 37.00

(plus \$8 per semester hour)

Building Fee, Academic Health

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Center Students ..... \$ 32.00

Building Fee, All Other

Students..... \$ 32.00

(plus \$3 per semester hour)

**General Fees Paid by All "Nonresident"<sup>5</sup>  
Graduate Students**

Per semester hour

Graduate School Fees..... \$ 405.00

School of Public Health ..... \$423.00

School of Nursing Fee ..... \$493.00

School of Health Related Professions ..... \$533.00

Student Service Fee<sup>6</sup> ..... \$ 37.00

(plus \$8 per semester hour)

Building Fee, Academic Health

Center Students ..... \$ 32.00

Building Fee, All Other

Students..... \$ 32.00

(plus \$3 per semester hour)

**Special Fees, Paid Where Applicable<sup>10</sup>[4]**

Nondegree Application Fee ..... \$ 30.00

Domestic Application Fee ..... \$ 35.00

MAC, M.B.A. .... \$ 50.00

M.S.H.A. .... \$ 60.00

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Public Health.....	\$ 50.00
International Application Fee .....	\$ 60.00
MAC, M.B.A. ....	\$ 75.00
M.S.H.A. ....	\$ 85.00
Public Health.....	\$ 75.00
Readmission Application Fee .....	\$ 30.00
Student Health Service Fee (per semester plus initial processing fee).....	\$ 75.00
Late Payment Fee <sup>4</sup> .....	\$ 50.00
Late Registration Fee <sup>4</sup> .....	\$ 25.00
Change of Course Fee <sup>4</sup> .....	\$ 15.00
Withdrawal Fee <sup>4</sup> (for total withdrawal during first 2 weeks of each semester)	\$ 30.00
Reinstatement Fee <sup>4</sup> .....	\$ 150.00
Laboratory Fees .....	\$35.00–\$75.00
Learning Resources (per credit hour) .....	\$2.00–\$11.00
Online Fee (Internet Courses).....	\$75.00 - \$325.00
Recreational Center Fee (12 credit hours or more)	\$72.00
(Fewer than 12 credit hours) .....	\$ 48.00
Returned Check Fee.....	\$ 27.00
Transcript Fee by mail (except intercampus).....	\$ 5.00
Degree Completion Fee <sup>11[5]</sup> .....	\$ 250.00

(per quarter)

## Diploma Fees

Application for Degree ..... \$ 50.00

Reorder Diploma.....

(if graduate requirements are not met after  
diploma has been ordered)

Duplicate Diploma Fee ..... \$ 25.00

Duplicate Diploma ..... \$ 15.00

Thesis/Dissertation Binding Fee ..... \$ 25.00

(per copy)

Dissertation Microfilming Fee ..... \$ 60.00

Optional Copyright Fee ..... \$ 45.00

<sup>12</sup>[1] This fee schedule is subject to change by the Board of Trustees at the beginning of any semester.

<sup>13</sup>[2] See Nonresident Tuition Policy for definition of residency.

<sup>14</sup>[3] Regular UAB employees are exempt from Student Service Fee.

<sup>15</sup>[4] For applicability of these fees, see the current UAB Class Schedule.

<sup>16</sup>[5] This fee is assessed when a student fails to complete the thesis or dissertation by the deadline for the semester following the semester of the final defense.

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## Graduate Degree Programs

### Graduate Degree Programs

## Program and Course Information

These program descriptions give details of degree requirements beyond the general statement in previous sections. Specific courses and faculty are also listed. The online ([www.uab.edu/graduate/catalog](http://www.uab.edu/graduate/catalog)) program descriptions are updated between printings of the catalog and are the definitive descriptions.

Where more than one number is shown for a course, the work extends beyond one term. Courses are for 3 semester hours credit unless otherwise noted. Courses marked with an asterisk may be repeated with stipulations.

The faculty rosters appearing in the online program descriptions contain alphabetical listings of graduate faculty members participating in each program; each name is followed by rank, title, and areas of special or research interest and activities. The general faculty listing that appears in the online catalog provides overall, university-wide information on graduate faculty members.

### Concurrent and Combined Degree Programs

UAB offers students several opportunities to pursue two advanced degrees concurrently. The majority of these programs permit students to pursue both a research degree (such as the Ph.D. or M.S.) and a professional degree (such as the M.D., D.M.D., O.D., or M.P.H.) simultaneously. The Graduate School is eager to cooperate with all qualified students who wish to extend their professional capabilities into the area of independent scholarship, originality, and research that characterize graduate study.

A student already participating in one degree program but wishing to be enrolled in two programs concurrently should submit with application materials a written statement of support and approval from the director of the program of his or her original enrollment. Students not already enrolled at UAB should make their concurrent degree interest known on the application form.

## Online Catalog

The list below contains graduate programs that are administered by the UAB Graduate School. Other advanced degrees, such as the MSN and DRPH are administered by other schools on campus, and interested students should consult the appropriate catalogs for further information.

### Administration & Business

Accounting (M.Ac.)

Administration–Health Services (Ph.D.)

Business Administration (M.B.A.)

Health Administration (M.S.H.A.)

Health Informatics (M.S.H.I.)

Public Administration (M.P.A.)

**Allied Health Sciences**

Clinical Laboratory Sciences (M.S.C.L.S.)

Nurse Anesthesia (M.N.A.)

Nutrition, Clinical (M.S.)

Nutrition Sciences (Ph.D.)

Occupational Therapy (M.S.)

Physical Therapy (M.S.)

**Basic Life and Biomedical Sciences**

Biochemistry (Ph.D.)

Biology (Ph.D., M.S.)

Cell Biology (Ph.D.)

Medical Genetics (Ph.D.)

Microbiology (Ph.D.)

Neurobiology (Ph.D.)

Pathology (Ph.D.)

Pharmacology (Ph.D.)

Physiology and Biophysics (Ph.D.)

Vision Science (Ph.D., M.S.)

**Clinical Sciences**

Dentistry (M.S.)

Nursing (Ph.D., M.S.N.)

Oral Biology (M.S.)

**Coordinated Degrees**

M.D.-Ph.D.

M.S.-M.D. & Ph.D.-M.D.

O.D.-M.S. & O.D.-Ph.D.

M.D.-M.S.B.M.S.

M.B.A.-M.P.H.

M.S.H.A.-M.B.A.

M.P.A.-M.P.H.

M.P.A.-J.D.

Ph.D.-M.B.A.

### **Education**

Education, Arts (M.A.Ed., 5th Year, Ed.S.)

Education, Counseling (M.A.C.N., Ed.S.)

Education, Early Childhood (Ph.D., M.A.Ed., Ed.S., 5th Year)

Education, Elementary (M.A.Ed., Ed.S., 5th Year)

Education, Health (M.A.Ed., Ed.S., 5th Year)

Education, High School (M.A.Ed., Ed.S., 5th Year)

Education, Physical (M.A.Ed., Ed.S., 5th Year)

Education, Special (M.A.Ed., 5th Year)

Educational Leadership (Ed.D., Ph.D., M.A.Ed., Ed.S.)

Health Education/Health Promotion (Ph.D.)

### **Engineering**

Biomedical Engineering (Ph.D., M.S.B.M.E.)

Civil Engineering (Ph.D., M.S.C.E.)

Computer Engineering (Ph.D.)

Electrical Engineering (M.S.E.E.)

Environmental Health Engineering (Ph.D.)

Materials Engineering (Ph.D., M.S.Mt.E.)

Mechanical Engineering (M.S.M.E.)

## **Physical & Mathematical Sciences**

Chemistry (Ph.D., M.S.)

Computer and Information Science (Ph.D., M.S.)

Forensic Science (M.S.F.S.)

Materials Science (Ph.D.)

Mathematics (M.S.)

Mathematics, Applied (Ph.D.)

Physics (M.S., Ph.D.)

## **Public Health**

Biostatistics (Ph.D., M.S.)

Environmental Health Sciences (Ph.D.)

Epidemiology (Ph.D.)

Health Education/Health Promotion (Ph.D.)

## **Social Sciences, Art, & Humanities**

Art History (M.A.)

Criminal Justice (M.S.C.J.)

English (M.A.)

History (M.A.)

Medical Sociology (Ph.D.)

Psychology (Ph.D.)

Behavioral Neuroscience

Cognitive Science

Developmental Psychology

Medical Psychology

## Abbreviations

Graduate Record Examination	GRE
Grade Point Average	GPA
Graduate Management Admission Test	GMAT
Miller Analogies Test	MAT
Medical College Admission Test	MCAT
Test of English as a Foreign Language	TOEFL
Test of Written English	TWE

## Course Codes

Accounting	AC
Administration–Health Services	AH
Anthropology	ANTH
Art History	ARH
Biochemistry and Molecular Genetics	BMG
Biology	BY
Biomedical Engineering	BME
Biostatistics	BST
Cell Biology	CB
Cellular and Molecular Biology	CMB
Chemistry	CH
Civil Engineering	CE
Clinical Dentistry/Biomaterials	CD
Clinical Laboratory Sciences	CLS
Communication Management	CM
Computer and Information Sciences	CS
Criminal Justice	JS
<b>Education</b>	<b>E</b>
Ed: Arts Education	EDA
Ed: Counseling and Guidance	ECG
Ed: Curriculum	EDC
Ed: Early Childhood Education	ECE
Ed: Education Psychology	EPR
Ed: Educational Collaborative	ECT
Teacher	
Ed: Educational Foundations	EDF
Ed: Educational Leadership	EDL
Ed: Educational Technology	EDT
Ed: Elementary	ELE
Ed: Elementary & Early Childhood	EEC
Education	
Ed: English as a Second Language	EESL
Ed: Exceptional Children and	ECY
Youth	
Ed: Foreign Language	EFL
Ed: Health Behavior	HB
Ed: Health Education	HE
Ed: High School	EHS
Ed: Middle School	EMS
Ed: Music Education	EMU
Ed: Physical Education	PE
Ed: Reading	EDR
Electrical and Computer Engineering	EE



English	EH
Environmental Health Sciences	ENH
Epidemiology	EPI
Forensic Science	FS
French	FR
German	GN
Gerontology	GER
Graduate School	GRD
Health Administration	HA
Health Behavior	HB
Health Care Organization	HCO, HCOW
Health Informatics	HI
History	HY
Information Systems	IS
Integrative Biomedical Sciences	IBS
Justice Science	JS
Legal Studies	LS
Management	MG
Marine Science	MESC
Marketing	MK
Master of Business Administration	MBA
Materials Science and Engineering	MSE
Mathematics	MA
Mechanical Engineering	ME
Medical Genetics	MGE
Microbiology	MIC
Neurobiology	NBL
Neuroscience	NEUR
Nurse Anesthesia	NA
Nursing	NUR
Nutrition Sciences	NTR
Occupational Therapy	OT
Oral Biology	OB
Pathology	PAT
Pharmacology	PHR
Philosophy	PHL
Physical Therapy	PT, PTGR
Physics	PH
Physiology and Biophysics	PHY
Psychology	PY
Public Administration	MPA
Quantitative Methods	QM
Sociology	SOC
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To search the list of graduate faculty, choose the first letter of the faculty member's last name from the list in the upper frame.

Only regular graduate faculty and persons with adjunct status are included. Information on persons with ad hoc or emeritus status is available from the Graduate School (4-8227).

Graduate faculty status is required for persons to serve on Graduate Study Committees. For a faculty member to be considered for graduate faculty, the following three documents must be sent to the Graduate School Office (HUC 511, ZIP 1150):

- A letter of nomination from the appropriate Graduate Program Director
- A current CV from the nominee
- A completed faculty data form

Many departments use different faculty data forms. If your department does not currently have a form, please use the one designed by the Graduate School. This form is available in the Graduate School Office and in [PDF format for downloading or filling out online](#).

If you see an omission or error in the list of names, please contact Laura Burchfiel in the Graduate School at (205) 934-0656 or send email to [lburchfiel@uab.edu](mailto:lburchfiel@uab.edu).

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### UAB Policies

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## Policies

October 19, 2004

In addition to the UAB policies contained in these appendixes, other university-wide policies apply to students. These include policies concerning health care for international students and visiting international scholars, AIDS and AIDS-related conditions, a drug-free workplace, alcoholic beverage use, smoking, sexual harassment, electronic data processing security, and computer software use. Copies of these policies are available in the Graduate School Office.

Each graduate student should pick up a copy of the current Graduate Student Handbook in the Graduate School offices or download a copy at [Graduate Student Handbook](#).

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## UAB Student Records Policy

The General Education Provisions Act, Section 438, as amended, and the regulations promulgated for the enforcement of the act, found at 45 Federal Register 30911, as amended at 45 Federal Register 86296, provide that all students enrolled or previously enrolled at the University of Alabama at Birmingham have the following rights in relation to their educational records:

### I. General Policy

No information from records, files, or other data directly related to a student, other than public information defined below, shall be disclosed to individuals or agencies outside the university without the written consent of the student, except those disclosures set forth in paragraph IX.

### II. Definition of Educational Record

Student educational records are defined as those records, files, documents, and other material which contain information directly related to students and which are maintained by UAB or a party acting for UAB. Records of instructional, supervisory, and administrative personnel which are in the sole possession of the maker and accessible only to the maker or a substitute are specifically excluded from this definition of educational record. Educational records of students are not available to UAB Police personnel, and records of the University Police, which, at UAB, are maintained separately from educational records, are maintained solely for purpose of law enforcement, and are not disclosed to individuals other than law enforcement personnel of the same jurisdiction, are not part of the educational record. Records which are made or maintained by physicians, psychiatrists, psychologists, or other professionals or paraprofessionals and which are maintained in connection with treatment and are not available to anyone else are also excluded from a student's educational record, but such records are available to another physician or appropriate professional of the student's choice if requested. Records which only contain information relating to a person after that person is no longer a student are not considered part of the student's educational record.

### III. Definition of Student

For the purpose of this policy a student is defined as any individual currently or previously enrolled in any academic offering of UAB. It does not include prospective students.

### IV. Public Information

The following is a list of public information which may be made available by the university without prior consent of the student and which is considered part of the public record of the student's attendance: Name, address (local and permanent), telephone number, email address, date and place of birth, major field of study, participation in officially recognized activities and sports, dates of attendance, degrees and awards received, and institution most recently previously attended. The information will not be made available if a student directs a written instruction to the appropriate records official prior to the end of the registration period for any given term.

### V. Types and Location of Records

Each school maintains a file on each student enrolled, containing applications, grade reports or other performance evaluations, and correspondence. Some departments or programs maintain similar files. The counseling service, placement service, and financial aid office maintain a file on students who use those services. The university has designated the following officials as responsible for student records within their

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respective areas: University Registrar, Academic Affairs, Room 207, Hill University Center; Dean, Graduate School, Room 511, Hill University Center; Director of Student Affairs, School of Dentistry, Room 207, School of Dentistry Building; Office of the Assistant Dean for Academic and Student Affairs, 604 Webb Building; Associate Director for Records, School of Medicine, Room P100, Volker Hall; Director of Student Services, School of Nursing, Room 105B, School of Nursing Building; Assistant Dean for Student Affairs, School of Optometry, Room 104, School of Optometry Building; Associate Dean for Academic Affairs, School of Public Health, Room 308, Tidwell Hall. The above shall hereinafter be referred to as "records officials." Each of these records officials is responsible for maintaining a listing of student records within such records official's area of responsibility, indicating the location and general content of the records. Any student request concerning records or files, including requests that public information not be disclosed, requests for disclosure to third parties, and requests for access by the student should be directed to this official. Forms for all such requests may be obtained from these officials. These persons will also act as hearing officers when the content of a record is challenged as provided below.

#### VI. Disclosure of Student Records to the Student

The student is accorded the right to inspect, in the presence of a university staff member, records, files, and data primarily and directly related to the student. To inspect a file a student should go to the office of the appropriate records official and initiate a request in writing. If a student desires to obtain copies of the items in the educational record rather than personally reviewing the record, the written request to the records official for copies must be signed and notarized to prevent disclosure to persons other than the student. A time for inspection shall be granted within forty-five days of the date of the request, and copies will be mailed within the same time period. Copies shall be made and provided to the student at a cost to the student equal to actual cost of reproduction and payable in advance.

The right of inspection does not include financial statements of parents, confidential recommendations placed in the file prior to January 1, 1975, provided that such recommendations were solicited with a written assurance of confidentiality or sent or retained with a documented understanding of confidentiality and used only for the purpose solicited, and other confidential recommendations, access to which has been waived by the student in accordance with paragraph VIII.

#### VII. Challenging the Contents of the Record

UAB will respond to any reasonable request for an explanation or interpretation of any item in a student's file. Requests for such explanation or interpretation should be addressed in writing to the appropriate records official.

If, after inspecting a record, a student believes that information contained in the educational record is inaccurate or misleading or violates his or her privacy, the student may request that the record be amended by presenting such request in writing to the appropriate records official. A request that the record be amended shall be answered by the records official within fifteen days of its receipt with information that the record has been amended as requested or that the record has not been amended and that the student has a right to a hearing on the matter. A written request for a hearing should be addressed to the appropriate records official as listed in V, who will set a date and time for hearing with reasonable notice of same to the student within forty-five days of receiving the request.

The request for hearing should identify the item or items in the file to be challenged and state the grounds for the challenge, e.g., inaccuracy, misleading nature, inappropriateness. The records official shall examine the contested item, shall hear the person responsible for placing the item in the file if appropriate, and shall examine any documents or hear any testimony the student wishes to present. A student may be assisted or represented by individuals of his or her choice, including an attorney, at his or her own expense. The records official may decide that the item should be retained or that it should be deleted or altered. The records official shall issue a written decision, based solely on the evidence presented at the hearing, within ten days of the conclusion of the hearing. If the decision is adverse to the student, the notice of decision shall include a statement that the student has the right to place a statement in the record commenting on the information and/or setting forth reasons for disagreeing with the decision.

#### VIII. Waiver of Access

UAB may request that a student waive the student's right to inspect confidential recommendations respecting that student's application for admission, provided that the student be notified, upon request, of the names of all those providing the



recommendations, the recommendations are used only for the purpose solicited, and the waiver is not a condition of admission or any other benefit. Confidential recommendations respecting application for employment or the receipt of an honor or other recognition may also be waived.

A waiver may be revoked with respect to actions occurring after revocation by so notifying the records official in writing.

#### IX. Providing Records to Third Parties

The general policy of UAB is to refuse access to or disclosure of information from student records to third parties without the written consent of the student. Should a student wish to have such records released, a signed and dated written request must be directed to the proper records official, specifying the records to be released, the reason for release, the party or class of parties to whom records are to be released, and a request for copies to the student, if desired. UAB will then transfer or grant access to the information. The transferred information shall contain a statement that the information may be used by the receiving party or, if an organization, by its officers, agents, and employees for the purpose requested, but that the party shall not transfer the information to any other party except with the written consent of the student. A charge not to exceed the actual cost of reproduction will be assessed against the student when copies are made for the party or the student.

Student records are available to the following persons with the accompanying conditions without written consent of the student:

1. Instructional or administrative personnel whose duties include responsibilities to students which in the institution reasonably require access to student records.
2. Officials of other schools in which a student seeks to enroll. UAB will make a reasonable attempt to notify the student of the transfer, as well as the student's right to a copy, upon request, and the right to a hearing to challenge the contents if desired.
3. Certain representatives of federal departments or agencies or state educational authorities as provided by the law. In absence of consent or specific authorization by federal law of the collection of personally identifiable data, data collected by excepted officials shall be protected in a manner which will not permit personal identification of students and parents by other than those officials, and personally identifiable data shall be destroyed when no longer needed.
4. Financial aid officers or their assistants in connection with the application for or receipt of financial aid, provided that personally identifiable information may only be disclosed for the purpose of determining eligibility, amount, and conditions and to enforce terms and conditions.
5. Organizations conducting studies for administrative evaluation, tests, etc., provided that studies are not conducted in a manner which will permit personal identification of students or their parents by other than representatives of the organization and that the information will be destroyed when no longer needed for the purposes collected.
6. Accrediting organizations.
7. Other appropriate persons in an emergency to protect health or safety of students or others. In determining appropriateness of disclosure, consideration will be given to the seriousness of the threat to health or safety of the student and others, the need for information to meet the emergency, whether the parties requesting information are in a position to deal with the emergency, and the extent to which time is of the essence.
8. In response to lawful subpoena or court order.

UAB will keep a record, indicating the name and legitimate interest, of all disclosures except those made to a student, those made pursuant to written consent, those designated as public information, and those made to persons at UAB with a legitimate educational interest. This record of disclosure will become a part of the educational record, subject to inspection and review.

X. The UAB Student Records Policy shall be published in the catalog of each school, and a copy shall be displayed prominently on a bulletin board in each school. In order to comply with the requirement that UAB give annual notice of this policy to enrolled students, a short notice of the policy shall be included in the Class Schedule for each term.

XI. Any student who believes that UAB has violated his or her right to access or privacy of educational records as established by the Family Education Rights and Privacy Act of 1974, as amended, the accompanying regulations published at 45 Federal Register

of 1974, as amended, the accompanying regulations published at 45 Federal Register 30911, as amended at 45 Federal Register 86296, and this policy may address a complaint to:

The Family Educational Rights and Privacy Act Office  
Department of Education  
400 Maryland Avenue, S.W.  
Washington, D.C. 20202

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**Registration/Academic Records**

[Registrar@uab.edu](mailto:Registrar@uab.edu)

(205) 934-8222

Fax: (205) 975-6069

8:00 a.m.-6:00 p.m. (M-Th), 8:00 a.m.-5:00 p.m. (F)

Physical Address: 207 Hill University Center, 1400 University Blvd.

Mailing Address: HUC 207, 1530 3RD AVE S, BIRMINGHAM AL 35294-1150

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The University of Alabama at Birmingham

NON-RESIDENT TUITION POLICY

February 9, 1990

Introduction

The Board of Trustees has established a "Non-resident Tuition Policy" which addresses non-resident tuition, certification of residency status by campus officials, and establishment of campus policies to administer an appeals process. This UAB policy implements certain provisions of that Board policy.

Policy Statement

The Division of Student Affairs, the Graduate School, and the admissions/registration offices of the Health Affairs schools, as appropriate, are designated as the offices empowered at UAB to determine and certify "resident" or "non-resident" student status. These offices are responsible for documenting each residency status evaluation and for maintaining the records used to substantiate that evaluation.

As the provisions of section II. of the Board policy indicate, "though certification of an address and an intent to remain in the state indefinitely are prerequisites to establishing status as a resident, ultimate determination of that status shall be made by the institution by its evaluation of the presence or absence of connections with the state of Alabama..." However, meeting the specific criteria included in section II. of the Board policy may not in all circumstances result in certification as a "resident student." Also, according to the provisions of the Board policy, UAB has been given the authority to, and has by separate Board resolution, expanded the definition of "resident student" to encompass all the categories in sections III. A. and III. B. of the Board policy.

The decision by an admissions or registration officer concerning certification of residency status may be appealed in writing by the student to the Vice President for Student Affairs who may overrule the decision or may, at his or her discretion, convene a review committee composed of a representative from the Office of the Dean of Student Affairs, a representative from the Office of the Vice President for Academic Affairs, and a representative from the Office of the Vice President for Health Affairs. If the decision of the review committee is appealed by the student, the Vice President for Student Affairs may add a recommendation of concurrence or non-concurrence with the review committee and forward the findings to the President for determination. The decision of the President is final.

**University of Alabama at Birmingham**

**EQUAL OPPORTUNITY POLICY**

**May 27, 2004**

(Replaces policy dated December 22, 2003)

See also the UAB "Sexual Harassment Policy."

**Policy Statement**

The University of Alabama at Birmingham (UAB) hereby reaffirms its policy of equal opportunity in education and employment.

**Equal Employment Opportunity**

The University of Alabama at Birmingham is expressly committed to maintaining and promoting nondiscrimination in all aspects of recruitment and employment of individuals at all levels throughout UAB. Specifically, it is the intent of UAB to recruit, hire, and promote all faculty and staff without regard to race, color, religion, sex, sexual orientation, national origin, disability unrelated to job performance, disabled veteran status, or Vietnam era veteran status. UAB also complies with the Age Discrimination in Employment Act which prohibits employment discrimination against persons 40 years of age or older. UAB will not tolerate any conduct by an administrator, supervisor, faculty, or staff member which constitutes any form of prohibited discrimination.

All personnel actions, programs, and facilities are administered in accordance with equal opportunity and affirmative action policies.

**Implementation in Employment**

In working toward the implementation of this policy, UAB will state its position as an equal opportunity/affirmative action employer in all solicitations and advertisements for employment vacancies placed by, or on behalf of, UAB. UAB will broadly publish and circulate its policy of equal employment opportunity by including a statement in all media communication and printed matter for employment purposes. Further, UAB will consider, through appropriate and designated procedures, complaints or grievances of any individual who has reason to believe that he or she has been affected by prohibited discrimination.

**Equal Education Opportunity**

As an institution of higher education and in the spirit of its policies of equal employment opportunity, UAB hereby reaffirms its policy of equal educational opportunity. All applicants for admission will be considered without regard to an applicant's race, color, religion, sex, sexual orientation, age, national origin, disability unrelated to program performance, disabled veteran status, or Vietnam era veteran status. Complaints or grievances of any student who has reason to think he or she has been affected by discrimination will be considered through established procedures.

This policy is included in all student handbooks and catalogs. The following summary statement may be printed in other UAB publications:

## EQUAL OPPORTUNITY POLICY

May 27, 2004

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*The University of Alabama at Birmingham administers its educational programs and activities, including admission, without regard to race, color, religion, sex, sexual orientation, age, national origin, disability unrelated to program performance, disabled veteran status, or Vietnam era veteran status.*

### **Inquiries and Complaints**

Any inquiries or complaints concerning the application of the Americans with Disabilities Act (ADA); Title VII of the Civil Rights Act of 1964; Executive Order 11246, as amended; Title IX of the Education Amendments of 1972; the Rehabilitation Act of 1973; or other legislation and its implementing regulations as they relate to the University of Alabama at Birmingham should be directed to any one of the following persons, as appropriate:

Dr. Pamela Burks  
Director, Cultural Diversity and Career Development  
Staff Affirmative Action Officer  
419 Medical Towers Building  
(205) 934-8988

Dr. Virginia D. Gauld  
Vice President for Student Affairs  
Student Affirmative Action Officer  
Title IX and 504 Coordinator  
503 Hill University Center  
(205) 934-8146

Dr. Louis Dale  
Vice President for Equity and Diversity  
Faculty Affirmative Action Officer  
401 Campbell Hall  
(205) 934-8762

### **Overall Implementation**

The Office of the Vice President for Financial Affairs and Administration is responsible for procedures to implement this policy.

**University of Alabama at Birmingham**

**POLICY CONCERNING THE MAINTENANCE OF HIGH ETHICAL STANDARDS  
IN RESEARCH AND OTHER SCHOLARLY ACTIVITIES**

**January 27, 1997**

(Replaces policy dated April 22, 1996.)

See also the following UAB documents:

*Institutional Review Board Guidebook*

*Institutional Review Board Assurance of Compliance*

*Animal Resources Program Information Manual.*

NOTE: This policy has been adapted from a statement on “The Maintenance of High Ethical Standards in the Conduct of Research” published by the Executive Council of the Association of American Medical Colleges and has been revised to be in compliance with the Public Health Service final rule entitled “Responsibilities of Awardee and Applicant Institutions for Dealing With and Reporting Possible Misconduct in Science.” It incorporates recommendations of the UAB Faculty Policies and Procedures Committee and the UAB Faculty Senate.

**Introduction**

The principles that govern scientific research and scholarship have long been established and have been applied by faculties and administrators for the discovery of new knowledge needed by mankind. The maintenance of high ethical standards in research based on these principles is a central and critical responsibility of faculties and administrators of academic institutions. Validity and accuracy in the collecting and reporting of data are intrinsically essential to the scientific process; dishonesty in these endeavors runs counter to the very nature of research, that is, the pursuit of truth.

The responsibility of the academic community to the public is acknowledged. The maintenance of public trust in this pursuit is vital. In short, it is in the best interest of the public and of academic institutions to prevent misconduct in research and to deal effectively and responsibly with instances in which misconduct is suspected.

**Policy Statement**

1. UAB shall accept as faculty members only those individuals whose career activities clearly demonstrate the highest ethical standards. To this end, the credentials of all potential faculty are to be thoroughly examined by the appropriate department/unit heads or their representatives in order to verify the claimed accomplishments of the candidate. The appropriate department/unit heads or their representatives shall seek further confirmation of the candidate's accomplishments during the normal procedures of personal interviews and letters from references. Proof of faculty credentials shall be maintained by the appropriate dean or department head.
2. Faculty members who are in supervisory positions with regard to colleagues, fellows, technicians, and

## POLICY CONCERNING THE MAINTENANCE OF HIGH ETHICAL STANDARDS IN RESEARCH AND OTHER SCHOLARLY ACTIVITIES

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- students are expected to work closely with those individuals to provide them with appropriate guidance and counsel to the end that those individuals continue to maintain the highest professional and ethical standards.
3. The faculty is encouraged to increase student and staff awareness of the importance of maintaining high ethical standards in research and to discuss issues related to research ethics in formal courses, in seminars, and by other informal means.
  4. Research results should be supported by verifiable evidence. Faculty and staff should maintain sufficient written records or other documentation of their studies. It is the responsibility of department/unit heads, division directors, and experienced investigators to develop among junior colleagues and students the necessary respect for careful recording and preservation of primary data.
  5. The faculty is encouraged to engage in free discussion of results, to share data and techniques, and to avoid secrecy in the conduct of original investigations. It should be remembered that independent confirmation of results is important in direct proportion to the potential significance of the results in question and may be crucial to the establishment of new concepts.
  6. Faculty members are responsible for the quality of all reports based on their own efforts or on the collaborative work of students, technicians, or colleagues, especially those which bear the faculty member's name. The term "reports" as used here includes, but is not limited to, manuscripts submitted for publication and abstracts submitted for presentation at meetings. The same standards of scientific integrity apply to abstracts as to full-length publications. Abstracts or other reports of preliminary findings should indicate clearly that the findings are preliminary. No faculty member shall allow his/her name to be used on any report containing results for which that faculty member cannot assume full professional and ethical responsibility.
  7. Any UAB employee (including, but not limited to, regular and adjunct faculty, fellows, technicians, and student employees) or any UAB student who has reason to suspect any other employee or student of misconduct with regard to the conducting or reporting of research has the responsibility of following up these suspicions in accordance with the procedures outlined below. For purposes of this policy, "misconduct" means fabrication, falsification, plagiarism, or other practices which seriously deviate from those that are commonly accepted within the scientific community for proposing, conducting, or reporting research. It does not include honest error or honest differences in interpretations or judgments of data. Intentionally withholding information relevant to the investigation of an alleged case of misconduct, intentionally pressuring others to do so, or bringing malicious charges against another individual shall itself be considered misconduct. Also, any act of interference, retaliation, or coercion by a UAB employee against a student or employee for using this policy is prohibited and is itself a violation of this policy.

### **Procedures To Be Followed**

The "Scientific Misconduct Allegation Review Checklist" attached to this policy is to be used in conjunction with the procedures in this section.

It is the responsibility of student employees, trainees, fellows, faculty members, staff members, or other

POLICY CONCERNING THE MAINTENANCE OF HIGH ETHICAL STANDARDS  
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employees who become aware of misconduct in research and other scholarly activities to report such misconduct to one of the following: (a) their department/unit head, (b) the dean of the school in which their department/unit is located, or (c) the UAB Scientific Integrity Officer. In the case of graduate students or of trainees at any level, such evidence also may be reported to the Dean of the Graduate School.

The individual receiving such evidence of misconduct must immediately report such evidence and the allegation of misconduct to the UAB Scientific Integrity Officer, the department/unit head and the dean of the unit in which the alleged misconduct occurred, and the Provost. If the UAB Scientific Integrity Officer determines that the allegation warrants initiation of the inquiry process, the inquiry shall be initiated immediately, and the Office of Counsel shall be informed.

Allegations of this nature are very serious matters, and all parties involved should take measures to assure that the positions and reputations of all individuals named in such allegations and all individuals who in good faith report apparent misconduct are protected. Details of the charge, the name of the accused, the identity of the individual bringing suspected fraud, and all other information about the case shall be kept confidential as far as possible, compatible with investigating the case. Revealing confidential information to those not involved in the investigation shall itself be considered misconduct.

Because UAB is interested in protecting the health and safety of research subjects, students, staff, and faculty and because UAB is responsible for protecting sponsored research funds and for ensuring that those funds are spent for the purposes for which they were given, if the situation warrants it, interim administrative action may be used prior to conclusion of either the inquiry or the investigation to provide for the protection of individuals and funds in accordance with existing UAB policy. Such action includes, but is not limited to, administrative suspension; re-assignment of student(s); involvement of the Institutional Review Board, the Institutional Animal Care and Use Committee, and the Office of Internal Audit-UAB; or notification of external sponsors when required by federal regulations.

***Initial Inquiry*** For purposes of this policy, “inquiry” means information gathering and initial fact finding to determine whether an allegation or apparent instance of scientific misconduct warrants an investigation.

1. The department/unit head or dean shall investigate immediately the charges through an inquiry process, including an interview with the suspected individual. The person conducting the inquiry shall ensure that individuals with the necessary and appropriate expertise are consulted concerning technical aspects of the activities in question. At least one of those individuals must be from outside the suspected individual's department. The record of the inquiry shall document the review of relevant evidence.

The department/unit head or dean conducting the inquiry shall keep the UAB Scientific Integrity Officer informed and may request assistance from the UAB Scientific Integrity Officer. The UAB Scientific Integrity Officer shall keep the Office of Counsel informed during the inquiry process, and the Office of Counsel shall provide advice concerning procedural matters. In order to ensure that a real or apparent conflict of interest does not exist, the UAB Scientific Integrity Officer shall review the selection of persons to be involved in the inquiry. If it is determined that a conflict of interest exists, the UAB Scientific Integrity Officer is responsible for designating who will be involved in the inquiry.



POLICY CONCERNING THE MAINTENANCE OF HIGH ETHICAL STANDARDS  
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If UAB plans to terminate an inquiry for any reason prior to completion of the normal progression of such an inquiry, the UAB Scientific Integrity Officer shall notify the federal Office of Research Integrity and shall include in that notification a description of the reasons for termination of the inquiry.

UAB will make every effort to complete the inquiry within 60 days of its initiation. If the inquiry extends beyond 60 days, the reasons for the extension will be documented by the UAB Scientific Integrity Officer and will be retained with the record of the inquiry.

The written report of the inquiry shall state what evidence was reviewed, shall indicate the relevant expertise of the persons reviewing the evidence, shall summarize the relevant interviews, and shall include the conclusions of the inquiry. The individual(s) against whom the allegation was made shall be given a copy of the inquiry report and shall have an opportunity to make written comment regarding the report. This report, including a conclusion as to whether there is reasonable cause to believe that misconduct has occurred, shall be forwarded to the Provost (with a copy to the UAB Scientific Integrity Officer) through the appropriate dean who should make whatever comment or recommendation is deemed warranted.

2. The Provost, with the advice and counsel of the UAB Scientific Integrity Officer and others as appropriate, shall decide whether to close the matter or to appoint an Investigating Committee. If findings from the inquiry provide sufficient basis for conducting an investigation, the investigation must be started within 30 days of completion of the inquiry. The written report of the inquiry will be made available to the Investigating Committee.
3. If the Provost determines that it is not necessary to undertake an investigation, the Provost will report to the President the reasons for this decision and the findings of the inquiry. The report will be maintained in a secure manner for at least three years by the Office of the UAB Scientific Integrity Officer.

***Investigation*** For purposes of this policy, “investigation” means the formal examination and evaluation by a committee of all relevant facts to determine if scientific misconduct has occurred.

1. The Investigating Committee is appointed by the Provost and will elect its own chairperson. Members of the Committee shall consist of at least three tenured faculty members who have the expertise to deal with technical aspects of the activities in question. At least two of these faculty members must be from outside the suspected individual's department. The Provost shall take precautions not to appoint any committee member who has a real or apparent conflict of interest with the outcome of the investigation.

The chairperson shall conduct meetings of the Investigating Committee as frequently as required in order to determine whether or not the activities in question do indeed constitute misconduct. All such meetings and the deliberations thereof shall be held in confidence to protect the affected individual or individuals. Those accused of misconduct shall be given a written summary of the charges and supporting evidence and shall be afforded an opportunity to appear before the Committee to comment

POLICY CONCERNING THE MAINTENANCE OF HIGH ETHICAL STANDARDS  
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on allegations. The accused may be represented by counsel. The Office of Counsel shall be kept informed of the investigation process and shall advise the Investigating Committee concerning procedural matters.

The Committee should take no more than 60 days to complete its review and to prepare its report for submission to the President. UAB will make every effort to complete all investigative matters within 120 days from initiation of the investigation. This includes the work of the committee, preparing the report, submitting the report to the President, making the report available for comment by the subject(s) of the investigation, and submitting the final report to the federal Office of Research Integrity. If the investigation cannot be completed within 120 days, the UAB Scientific Integrity Officer shall request an extension from the federal Office of Research Integrity. The extension request will include an explanation for the delay, an interim report on progress to date, an outline of what remains to be done, and an estimated date of completion.

If UAB plans to terminate an investigation for any reason prior to completion of the normal progression of such an investigation, the UAB Scientific Integrity Officer shall notify the federal Office of Research Integrity of UAB's plan to terminate the investigation and shall include a description of the reasons for such termination.

2. The President, based on the Investigating Committee's findings and responses to those findings, shall determine what actions are appropriate. Appropriate actions may include discharge from employment at UAB or expulsion from UAB in the case of a student. Such actions shall be consistently applied throughout UAB. The President will notify the UAB Scientific Integrity Officer who in turn will work with the Office of Grants and Contracts Administration to notify any agencies or foundations supporting the research in question and any journals or other publications which may have been affected by the publication of results of that research.
3. The UAB Scientific Integrity Officer shall submit the report of the investigation to the federal Office of Research Integrity and shall include in that report the policies and procedures under which the investigation was conducted, how and from whom information was obtained relevant to the investigation, the findings of the investigation, and the basis of the findings. Also included will be a description of any sanctions taken by UAB and the actual text of, or an accurate summary of, the views of any individual(s) found to have engaged in scientific misconduct.

**Additional Notifications**

1. If the Provost initiates a formal investigation, any agency or foundation supporting the research in question shall be notified by the Director of the Office of Grants and Contracts Administration upon receipt of information from the UAB Scientific Integrity Officer. Any such agency or foundation shall be notified immediately if it is ascertained at any time during the initial inquiry or subsequent investigation that there is an immediate health hazard involved; an immediate need to protect federal funds or equipment; an immediate need to protect the interests of the persons making the allegations, the individuals who are the subject of the allegations, or any co-investigators and associates, if any; a probability that the alleged incident is going to be publicly reported; or a possibility that criminal violation has occurred. The agencies also will be given interim reports of any investigation should the circumstances warrant.

POLICY CONCERNING THE MAINTENANCE OF HIGH ETHICAL STANDARDS  
IN RESEARCH AND OTHER SCHOLARLY ACTIVITIES

January 27, 1997

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2. If the initial inquiry or the subsequent investigation indicates that the allegations are unsubstantiated, UAB will make diligent efforts to restore the reputation of those accused at UAB, with any involved funding agencies and elsewhere.
3. Any involved funding agencies shall be notified of the final outcome of any investigation.

***Addition to UAB Catalog: Undergraduate Programs***

Until the next printing of the *UAB Catalog: Undergraduate Programs*, the following two sentences are *added* as the second and third sentences in the second paragraph of the “Academic Conduct” section on page 22 of the 1996-1997 edition of that catalog: “A student may be expelled on the first offense. Students should consult the policies of the school in which they are enrolled to determine the circumstances under which expulsion can occur with a first offense.”

**Attachment**

The form entitled “Scientific Misconduct Allegation Review Checklist” as attached to this policy is to be used as a guideline and summary of documentation related to reviews of allegations of violations of this policy. The form may be revised from time to time without affecting the policy itself.

**CONFIDENTIAL**

**University of Alabama at Birmingham**

**SCIENTIFIC MISCONDUCT ALLEGATION REVIEW CHECKLIST**

January 27, 1997, Revision

This checklist is to be used as a guideline and summary of documentation with respect to the review of any written allegation that there has been a violation of the "Policy Concerning the Maintenance of High Ethical Standards in Research and Other Scholarly Activities." Upon completion, this form and appropriate attachments will be held on file in the Office of the UAB Scientific Integrity Officer and will be used only for reporting purposes.

**A. General Information**

1. Allegation made against \_\_\_\_\_ in the Department of \_\_\_\_\_

2. Funding source(s) of research in which allegation of scientific misconduct occurred:  
(Please check all that apply and specify name of agency or other source.)

- |   |   |
|---|---|
| <input type="checkbox"/> NIH Institute or Agency: _____ | <input type="checkbox"/> Local Government: _____      |
| <input type="checkbox"/> Other Federal Agency: _____    | <input type="checkbox"/> Industry: _____              |
| <input type="checkbox"/> State Government: _____        | <input type="checkbox"/> No Extramural Support: _____ |

3. Summary of Allegation:  
\_\_\_\_\_  
\_\_\_\_\_

**B. Processing of the Allegation**

<u>Date</u>	<u>Initials*</u>	<u>Action</u>
		1. Allegation was received in writing by one of the following: (Attach copy)
___/___/___	_____	Department/Unit head <b>OR</b>
___/___/___	_____	Dean <b>OR</b>
___/___/___	_____	UAB Scientific Integrity Officer <b>OR</b>
___/___/___	_____	Dean of the Graduate School (if allegation was received from a graduate student or trainee)
		2. The following persons were notified immediately of the allegation by the person in item B.1 who initially received the written allegation: (Use "N/A" here for the entry of the person who initially received the allegation.)
___/___/___	_____	Individual(s) accused of alleged misconduct
___/___/___	_____	UAB Scientific Integrity Officer
___/___/___	_____	Head of the Department/Unit in which the alleged misconduct occurred
___/___/___	_____	Dean of the school in which the alleged misconduct occurred

\_\_\_\_\_  
\* Initials are to be those of the person completing the action.  
UAB Graduate Catalog 2004-2006

\_\_\_/\_\_\_/\_\_\_ \_\_\_\_\_ Provost

**C. Processing of the Inquiry**

- | <u>Date</u> | <u>Initials*</u> | <u>Action</u>  |
|-------------|------------------|--|
| ___/___/___ | _____            | 1. UAB Scientific Integrity Officer reviewed selection of persons to be involved in inquiry to ensure that there are no conflicts of interest.   |
| ___/___/___ | _____            | 2. If funding agencies are to be notified immediately according to the “Additional Notifications” section of the high ethical standards policy, department/unit head or dean notified Director of the Office of Grants and Contracts Administration.         |
| ___/___/___ | _____            | 3. Department/Unit head or dean completed written report of inquiry, including findings/conclusion of the inquiry. (Attach copy)   |
| ___/___/___ | _____            | 4. Department/Unit head or dean gave individual(s) against whom allegation was made a copy of the inquiry report (within 60 days of initiation of inquiry).  |
| ___/___/___ | _____            | 5. Written comments were received by the department/unit head or dean from the individual(s) against whom allegation was made.<br>(Attach copy of comments if any are received)  |
| ___/___/___ | _____            | 6. Department/Unit head forwarded report and recommendations to appropriate dean.<br>(Enter “N/A” if inquiry process was conducted by the dean.)   |
| ___/___/___ | _____            | 7. Dean forwarded report and his/her recommendations to the Provost.   |
| ___/___/___ | _____            | 8. Decision made by Provost (within 30 days of completion of inquiry):<br>(Check one)<br><input type="checkbox"/> Close the matter (If so, skip to E.1 below).<br><input type="checkbox"/> Appoint an Investigating Committee (If so, proceed to D.1 below). |

**D. Processing of the Investigation**

- | <u>Date</u> | <u>Initials*</u> | <u>Action</u>  |
|-------------|------------------|--|
| ___/___/___ | _____            | 1. Provost appointed Investigating Committee.  |
| ___/___/___ | _____            | 2. Provost notified UAB Scientific Integrity Officer that an investigation had been initiated.   |
| ___/___/___ | _____            | 3. Individual(s) accused of misconduct were given a written summary of the charges and supporting evidence.  |
| ___/___/___ | _____            | 4. UAB Scientific Integrity Officer notified Director of the Office of Grants and Contracts Administration that an investigation had been initiated. |
| ___/___/___ | _____            | 5. The Office of Grants and Contracts Administration notified funding agencies that an investigation had been initiated.                             |

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\* Initials are to be those of the person completing the action.  
UAB Graduate Catalog 2004-2006

- \_\_\_/\_\_\_/\_\_\_ \_\_\_\_\_ 6. Investigating Committee prepared its report for submission to the President (within 60 days of initiation of investigation).
- \_\_\_/\_\_\_/\_\_\_ \_\_\_\_\_ 7. All investigation matters and reports completed (within 120 days of initiation of investigation).
- \_\_\_/\_\_\_/\_\_\_ \_\_\_\_\_ 8. If investigation cannot be completed within 120 days, UAB Scientific Integrity Officer requested extension from the federal Office of Research Integrity.
- \_\_\_/\_\_\_/\_\_\_ \_\_\_\_\_ 9. If UAB is unable to complete the investigation process, UAB Scientific Integrity Officer notified federal Office of Research Integrity.
- \_\_\_/\_\_\_/\_\_\_ \_\_\_\_\_ 10. President determined what actions were appropriate and communicated those to the appropriate UAB officials.
- \_\_\_/\_\_\_/\_\_\_ \_\_\_\_\_ 11. UAB Scientific Integrity Officer and the Office of Grants and Contracts Administration notified appropriate funding agencies and any affected journals or other publications.
- \_\_\_/\_\_\_/\_\_\_ \_\_\_\_\_ 12. UAB Scientific Integrity Officer submitted report of the investigation to federal Office of Research Integrity.
- \_\_\_/\_\_\_/\_\_\_ \_\_\_\_\_ 13. The UAB Scientific Integrity Officer closed file.

#### E. Final Actions If Matter Is Closed Without an Investigation

- | <u>Date</u> | <u>Initials*</u> | <u>Action</u>  |
|-------------|------------------|--|
| ___/___/___ | _____            | 1. Provost notified the President and the UAB Scientific Integrity Officer that an investigation would not be necessary and that the matter was closed.                    |
| ___/___/___ | _____            | 2. The UAB Scientific Integrity Officer documented the reasons for the decision and the findings of the inquiry and arranged to have the records retained for three years. |
| ___/___/___ | _____            | 3. The UAB Scientific Integrity Officer notified the accused of the Provost's decision.  |
| ___/___/___ | _____            | 4. The UAB Scientific Integrity Officer initiated any necessary actions to restore the reputations of those accused.   |
| ___/___/___ | _____            | 5. The UAB Scientific Integrity Officer closed file.   |

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\* Initials are to be those of the person completing the action.

## Student Participation in Proprietary Research

August 8, 2000

Faculty, staff, and students of a university create, disseminate, and apply knowledge for the benefit of society. When faculty of the university are involved in research, some of which may be of a proprietary nature, particular care must be taken to ensure that the need for graduate students to publicly present and publicly defend the results of their thesis or dissertation research is not compromised. Graduate student advisors, graduate program directors, and graduate students themselves, therefore, share in the responsibility to ensure that graduate students do not become involved in thesis or dissertation research that is, or has the potential to become, proprietary if participation in that research will delay completion of their degree requirements or negatively effect their productivity of future employability.

The policy of the Graduate School and university is that a faculty member or a graduate student cannot enter an agreement that prevents or significantly delays the presentation or publication of research results. Journal publication delays not exceeding three months are acceptable, but publication of Ph.D. dissertation materials through University Microfilms is a requirement of the Graduate School and, thus, cannot be delayed.

In instances where, despite good faith efforts on the part of the graduate student advisor, the graduate program director, and the graduate student, the graduate student's thesis or dissertation research is later found to be of a proprietary nature, the Graduate Dean will be notified immediately. The Graduate School Dean, in turn, will immediately convene a meeting of the graduate student, the graduate advisor, the involved graduate program director, and members of the student's thesis or dissertation committee. This group, in consultation with the Vice President for Research and/or the Executive Director of the Research Foundation, will resolve the problem.

If the situation cannot be resolved through the efforts of this group, a ruling will be made by the appropriate Vice President for Health or Academic Affairs.

**The University of Alabama at Birmingham**

**DRUG-FREE CAMPUS POLICY FOR STUDENTS**

**December 14, 1991**

(Replaces policy dated September 26, 1990.)

NOTE: See also the following related policies:

Drug-free Workplace Policy;

Drug Screening Policy for Student Athletes;

School of Medicine "Policy on Impairment and Chemical Substance Abuse";

School of Dentistry "Policy on Impairment and Chemical Substance Abuse";

School of Nursing "Policy on Impairment and Chemical Substance Abuse."

Policy Statement

This policy is applicable to all students enrolled in credit course(s) or degree-granting programs at the University of Alabama at Birmingham and to all students receiving academic credit at UAB (other than for continuing education units) for study in a program in a foreign country conducted by UAB alone or in conjunction with a foreign university.

Unlawful possession, use, manufacture, distribution, or dispensing of illicit drugs, controlled substances, or alcoholic beverages by any UAB student on UAB property or as part of any UAB-sponsored or UAB-sanctioned activity is prohibited. The legal possession, use, or distribution of alcoholic beverages on UAB property or at UAB-sponsored or UAB-sanctioned activities is governed by the UAB General Policy Regarding the Use and Consumption of Alcoholic Beverages and applicable local, state, and federal laws.

In certain situations, the University is required to report the activities prohibited by this policy to appropriate law enforcement authorities. In all cases, the University may report activities prohibited by this policy to appropriate law enforcement authorities if it appears that the activity is a violation of law.

Disciplinary Actions

Violations of this policy constitute nonacademic misconduct and will be subject to established disciplinary action for nonacademic misconduct in accordance with stipulations in the *Direction* Student Handbook or other applicable procedures. Violations of this policy by students should be reported to the appropriate student affairs office or other office handling student nonacademic misconduct in the same manner in which other instances of nonacademic misconduct are reported.



## DRUG-FREE CAMPUS POLICY FOR STUDENTS

December 14, 1991

Page 2

In some cases of violation of this policy for unlawful use, a student may be given, at the discretion of the University, the option to participate satisfactorily in an approved drug or alcohol abuse assistance or rehabilitation program in lieu of dismissal. Participation in such an assistance or rehabilitation program is at the expense of the student.

### Drug-free Awareness Program

At least annually, UAB shall inform students of the dangers of drug and alcohol abuse on campus, of the existence of this policy statement and its penalties for violations, and of available drug and alcohol counseling, rehabilitation, and assistance through the following activities:

1. Publication, at least annually, of this policy in appropriate student publications and distribution to students in UAB's foreign programs and to students in programs conducted in conjunction with foreign universities;
2. Inclusion of this policy in future editions of student class schedules and/or registration materials, student handbooks, and student catalogs;
3. Dissemination of this policy and of information at student orientation and assistance programs regarding the dangers of drug and alcohol use and abuse and available rehabilitation programs; and
4. Continuation, and expansion, of the UAB drug and alcohol awareness program which includes sponsorship of the "Alcohol/Drug Awareness Week" and publication of pamphlets and other materials.

### Applicability to Other Policies

Other drug-free policies created to cover specific areas of the University may be more restrictive than this policy but may not be less restrictive. At a minimum, other such policies must include, or reference, the provisions of this policy. Violators will be subject to the provisions of the more stringent policy but will not be punished under more than one policy for the same offense.

This policy does not revoke or otherwise interfere with policies in the health professional schools designed to determine whether health care professionals are impaired and to offer rehabilitation, subject to the above provisions.

## DRUG-FREE CAMPUS POLICY FOR STUDENTS

December 14, 1991

Page 3

The wording in the "Non-academic Conduct" section of the Direction student handbook which relates to causes of dismissal due to the use, possession, etc. of illicit drugs, controlled substances, or alcoholic beverages references only certain provisions of this more extensive policy. The entire policy is applicable in all cases even if the policy itself is not printed in full.

### Attachments

The "Applicable Legal Sanctions," "Drug and Alcohol Use Health Risks," and "Drug and Alcohol Counseling, Treatment, and Rehabilitation Programs" attached to this policy are a part of the policy but may be revised from time to time without affecting the policy itself.

### Effective Date and Implementation

This policy is effective immediately upon its being signed by the President.

The offices of the appropriate Vice Presidents are responsible for the development and maintenance of procedures to implement this policy within their areas of responsibility.

In addition to being distributed to students on the UAB campus, this policy will be distributed to students in UAB's foreign programs and to students in programs conducted in conjunction with foreign universities. The Vice President for Student Affairs is responsible for all distributions to students covered by this policy.

## Attachment A

### "Applicable Legal Sanctions"

December 14, 1991

#### **Federal Penalties and Sanctions for Illegal Possession of a Controlled Substance**

(55 Federal Register 33589)

*21 U.S.C. 844(a)*

First conviction: Up to 1 year imprisonment and fined at least \$1,000 but not more than \$100,000, or both.

After 1 prior drug conviction: At least 15 days in prison, not to exceed 2 years and fined at least \$2,500 but not more than \$250,000, or both.

After 2 or more prior drug convictions: At least 90 days in prison, not to exceed 3 years and fined at least \$5,000 but not more than \$250,000, or both.

Special sentencing provisions for possession of crack cocaine: Mandatory at least 5 years in prison, not to exceed 20 years and fined up to \$250,000, or both, if:

- (a) First conviction and the amount of crack possessed exceeds 5 grams.
- (b) Second crack conviction and the amount of crack possessed exceeds 3 grams.
- (c) Third or subsequent crack conviction and the amount of crack possessed exceeds 1 gram.

*21 U.S.C. 853(a)(2) and 881(a)(7)*

Forfeiture of personal and real property used to possess or to facilitate possession of a controlled substance if that offense is punishable by more than 1 year imprisonment. (See special sentencing provisions re: crack.)

*21 U.S.C. 881(a)(4)*

Forfeiture of vehicles, boats, aircraft, or any other conveyance used to transport or conceal a controlled substance.

*21 U.S.C. 844a*

Civil fine of up to \$10,000 (pending adoption of final regulations).

*21 U.S.C. 853a*

Denial of Federal benefits, such as student loans, grants, contracts, and professional and commercial licenses, up to 1 year for first offense, up to 5 years for second and subsequent offenses.

*18 U.S.C. 922(g)*

Ineligible to receive or purchase a firearm.

*Miscellaneous*

Revocation of certain Federal licenses and benefits, e.g., pilot licenses, public housing tenancy, etc., are vested within the authorities of individual Federal agencies.

**Note:** See Attachment A.1 for additional Federal drug trafficking penalties and information.

**Note:** These are only Federal penalties and sanctions. Additional *State* penalties and sanctions may apply.

## Attachment A, Continued

### **Summary of State Penalties and Sanctions**

Under Alabama law, the possession, purchase, or consumption of alcoholic beverages by a person under 21 years of age is punishable by a fine of up to \$500 and by up to three months in jail. Also under Alabama law, for a first offense, unlawful possession of a controlled substance (that is, illegal drugs) may be punished by imprisonment up to ten years and a \$5,000 fine and unlawful distribution of controlled substances may be punished by imprisonment up to 20 years and a \$10,000 fine. Subsequent offenses may carry more stringent sentences.

### **Drug-Free Schools and Communities Act**

Illegal drug and alcohol use, consumption, distribution, etc. on college and university campuses also are covered by the provisions of the United States Drug-Free Schools and Communities Act Amendment of 1989 (Public Law 101-226).

### **Legal Sanctions in Foreign Countries**

Students in a program in a foreign country conducted by UAB alone or in conjunction with a foreign university also may be subject to sanctions under foreign law or under the Uniform Code of Military Justice. Although the legal sanctions described in this policy under United States law may not apply to students in a foreign country, UAB will nevertheless hold such students to the same standards as students within the United States and will take the disciplinary actions described in this policy for violations of these standards.

# Federal Trafficking Penalties

As of November 18, 1988

CSA	PENALTY		Quantity	DRUG	Quantity	PENALTY	
	2nd Offense	1st Offense				1st Offense	2nd Offense
I and II	Not less than 10 years. Not more than life.  If death or serious injury, not less than life.  Fine of not more than \$4 million individual, \$10 million other than individual.	Not less than 5 years. Not more than 40 years.  If death or serious injury, not less than 20 years. Not more than life.  Fine of not more than \$2 million individual, \$5 million other than individual.	10-99 gm or 100-999 gm mixture	METHAMPHETAMINE	100 gm or more or 1 kg <sup>1</sup> or more mixture	Not less than 10 years. Not more than life.  If death or serious injury, not less than 20 years. Not more than life.  Fine of not more than \$4 million individual, \$10 million other than individual.	Not less than 20 years. Not more than life.  If death or serious injury, not less than life.
			100-999 gm mixture	HEROIN	1 kg or more mixture		
			500-4,999 gm mixture	COCAINE	5 kg or more mixture		
			5-49 gm mixture	COCAINE BASE	50 gm or more mixture		
			10-99 gm or 100-999 gm mixture	PCP	100 gm or more or 1 kg or more mixture		
			1-10 gm mixture	LSD	10 gm or more mixture		
			40-399 gm mixture	FENTANYL	400 gm or more mixture		
10-99 gm mixture	FENTANYL ANALOGUE	100 gm or more mixture					
	Drug	Quantity	First Offense		Second Offense		
	Others <sup>2</sup>	Any	Not more than 20 years. If death or serious injury, not less than 20 years, not more than life. Fine \$1 million individual, \$5 million not individual.		Not more than 30 years. If death or serious injury, life. Fine \$2 million individual, \$10 million not individual.		
III	All	Any	Not more than 5 years. Fine not more than \$250,000 individual, \$1 million not individual.		Not more than 10 years. Fine not more than \$500,000 individual, \$2 million not individual.		
IV	All	Any	Not more than 3 years. Fine not more than \$250,000 individual, \$1 million not individual.		Not more than 6 years. Fine not more than \$500,000 individual, \$2 million not individual.		
V	All	Any	Not more than 1 year. Fine not more than \$100,000 individual, \$250,000 not individual.		Not more than 2 years. Fine not more than \$200,000 individual, \$500,000 not individual.		

<sup>1</sup>Law as originally enacted states 100 gm. Congress requested to make technical correction to 1 kg.

<sup>2</sup>Does not include marijuana, hashish, or hash oil. (See separate chart.)

# Federal Trafficking Penalties - Marijuana

As of November 18, 1988

Quantity	Description	First Offense	Second Offense
1,000 kg or more; or 1,000 or more plants	<b>Marijuana</b> Mixture containing detectable quantity*	Not less than 10 years, not more than life. If death or serious injury, not less than 20 years, not more than life. Fine not more than \$4 million individual, \$10 million other than individual.	Not less than 20 years, not more than life. If death or serious injury, not less than life. Fine not more than \$8 million individual, \$20 million other than individual.
100 kg to 1,000 kg; or 100-999 plants	<b>Marijuana</b> Mixture containing detectable quantity*	Not less than 5 years, not more than 40 years. If death or serious injury, not less than 20 years, not more than life. Fine not more than \$2 million individual, \$5 million other than individual.	Not less than 10 years, not more than life. If death or serious injury, not less than life. Fine not more than \$4 million individual, \$10 million other than individual.
50 to 100 kg	<b>Marijuana</b>	Not more than 20 years. If death or serious injury, not less than 20 years, not more than life. Fine \$1 million individual, \$5 million other than individual.	Not more than 30 years. If death or serious injury, life. Fine \$2 million individual, \$10 million other than individual.
10 to 100 kg	<b>Hashish</b>		
1 to 100 kg	<b>Hashish Oil</b>		
50-99 plants	<b>Marijuana</b>		
Less than 50 kg	<b>Marijuana</b>	Not more than 5 years. Fine not more than \$250,000, \$1 million other than individual.	Not more than 10 years. Fine \$500,000 individual, \$2 million other than individual.
Less than 10 kg	<b>Hashish</b>		
Less than 1 kg	UAB Graduate <del>Hashish</del> <b>Hashish Oil</b> 2006		

\*Includes Hashish and Hashish Oil.

(Marijuana is a Schedule I Controlled Substance)

## Attachment B

### "Drug and Alcohol Use Health Risks"

December 14, 1991

#### **General**

Although there has been recent change in American health habits and societal attitudes toward recreational drug and alcohol use, problems continue to exist and experimentation is starting at an earlier age. An important piece of information to surface in recent years is that even moderate, nonprescribed use of alcohol and nonprescribed use of drugs can have an adverse effect on overall health and well-being. Consider the following facts:

1. Drinking more than one or two alcoholic beverages a week promotes more visible signs of aging;
2. Consuming one and one-half or more alcoholic beverages per day increases the risk of breast cancer;
3. Drinking alcoholic beverages poisons the heart muscle, counteracts the benefits of exercise, increases male impotence, and depresses the body's immune system;
4. Tobacco use is a contributing factor in the development of chronic bronchitis, emphysema, circulatory problems, and coronary disease, as well as being the leading cause of lung cancer;
5. Cocaine use is responsible for kidney damage, stroke, lung and heart diseases, seizures, and intense psychological problems.
6. Many forms of narcotics are highly addictive to users.
7. Marijuana use creates certain dysfunctions related to thinking, learning, and recall; aggravates asthma, bronchitis, and emphysema; contributes to fertility problems; and contributes to the development of lung cancer;
8. The nonprescribed use of tranquilizers, barbiturates, and amphetamines is dangerous and may cause major health problems, including death;
9. Extended drug and/or alcohol use may result in substance dependency and loss of control of an individual's life.

Source: Compiled by UAB Substance Abuse Program from the following resources:  
Drug Data: What Everyone Needs to Know about Mood-altering Drugs,  
Comp Care Publications, Minneapolis.  
You Are What You Drink, Allan Luks and Joseph Barbato, Villard Books,  
New York.  
You Can Stop, Jacquelyn Rogers, Simon & Schuster, New York.

## Attachment B.1

### **Alcohol -- Effects**

(55 Federal Register 33591)

Alcohol consumption causes a number of marked changes in behavior. Even low doses significantly impair the judgment and coordination required to drive a car safely, increasing the likelihood that the driver will be involved in an accident. Low to moderate doses of alcohol also increase the incidence of a variety of aggressive acts, including spouse and child abuse. Moderate to high doses of alcohol cause marked impairments in higher mental functions, severely altering a person's ability to learn and remember information. Very high doses cause respiratory depression and death. If combined with other depressants of the central nervous system, much lower doses of alcohol will produce the effects just described.

Repeated use of alcohol can lead to dependence. Sudden cessation of alcohol intake is likely to produce withdrawal symptoms, including severe anxiety, tremors, hallucinations, and convulsions. Alcohol withdrawal can be life-threatening. Long-term consumption of large quantities of alcohol, particularly when combined with poor nutrition, can also lead to permanent damage to vital organs such as the brain and the liver.

Mothers who drink alcohol during pregnancy may give birth to infants with fetal alcohol syndrome. These infants have irreversible physical abnormalities and mental retardation. In addition, research indicates that children of alcoholic parents are at greater risk than other youngsters of becoming alcoholics.

### **Uses and Effects of Controlled Substances**

See Attachment B.2 for additional information concerning health risks involved in drug use.



# Controlled Substances - Uses & Effects

DRUGS/ CSA SCHEDULES	TRADE OR OTHER NAMES	MEDICAL USES	DEPENDENCE Physical Psychological	TOLERANCE	DURATION (hours)	USUAL METHODS OF ADMINISTRATION	POSSIBLE EFFECTS	EFFECTS OF OVERDOSE	WITHDRAWAL SYNDROME			
<b>NARCOTICS</b>												
Opium	II III V Dover's Powder, Paregoric Paregoric	Analgesic, antidiarrheal	High	High	Yes	3-6 Oral, smoked	Euphoria, drowsiness respiratory depression, constricted pupils, nausea	Shallow and shallow breathing, clammy skin, convulsions, coma, possible death	Watery, eyes, runny nose, yawning, loss of appetite, irritability, tremors, panic, cramps, nausea, chills and sweating			
Morphine	II III Morphine, MS-Contin Rovamol, Roxanol SR	Analgesic, antitussive	High	High	Yes	3-6 Oral, smoked, injected						
Codaine	II III V Tylenol w/Codaine, Empirin w/Codaine Robaxon A.C., Fiorinal w/Codaine	Analgesic, antitussive	Moderate	Moderate	Yes	3-6 Oral, injected						
Heroin	I Diacetylmorphine, Horse, Smack	None	High	High	Yes	3-6 Injected, smoked						
Hydromorphone	I Dilaudid	Analgesic	High	High	Yes	3-6 Oral, injected						
Meperidine (Pethidine)	II Demerol, Mepergan	Analgesic	High	High	Yes	3-6 Oral, injected						
Methadone	II Dolophine, Methadone, Methadone	Analgesic	High	High-Low	Yes	12-24 Oral, injected						
Other Narcotics	I III III IV V Numorphan, Percodan, Percocet, Tylox, Tussisone, Fentanyl, Darvon, Lunell, Talwin <sup>1</sup>	Analgesic, antidiarrheal, antitussive	High-Low	High-Low	Yes	Variable Oral, injected						
<b>DEPRESSANTS</b>												
Chloral Hydrate	IV Nectoc	Hypnotic	Moderate	Moderate	Yes	5-8 Oral				Slurred speech, disorientation, drunken behavior without odor of alcohol	Shallow respiration, clammy skin, dilated pupils, weak and rapid pulse, coma, possible death	Anxiety, insomnia, tremors, delirium, convulsions, possible death
Barbiturates	II III IV Amytal, Bulsol, Fiorinal, Lofexal, Nembutal, Secobarbital, Phenobarbital	Anesthetic, anticonvulsant, sedative, hypnotic, veterinary euthanasia agent	High-Mod.	High-Mod.	Yes	1-16 Oral						
Benzodiazepines	IV Alivan, Dalmane, Diazepam, Librium, Xanax, Serax, Valium, Tranexone Versitan, Versed, Halcion, Prospan, Restoril	Anxiolysis, anticonvulsant, sedative, hypnotic	Low	Low	Yes	4-8 Oral						
Methaqualone	I Quaalude	Sedative, hypnotic	High	High	Yes	4-8 Oral						
Glutethimide	III Doriden	Sedative, hypnotic	High	Moderate	Yes	4-8 Oral						
Other Depressants	III IV Equanil, Milonax, Naladar, Placidyl, Valmid	Anxiolysis, sedative, hypnotic	Moderate	Moderate	Yes	4-8 Oral						
<b>STIMULANTS</b>												
Cocaine <sup>1</sup>	II Coke, Flake, Snow, Crack	Local anesthetic	Possible	High	Yes	1-2 Sniffed, smoked, injected	Increased alertness, excitation, euphoria, increased pulse rate & blood pressure, insomnia, loss of appetite	Agitation, increase in body temperature, hallucinations, convulsions, possible death	Apathy, long periods of sleep, irritability, depression, disorientation			
Amphetamines	II Biphentamine, Dietobase, Desoxyn, Dexedrine, Obelrol	Attention deficit disorders, narcolepsy, weight control	Possible	High	Yes	2-4 Oral, injected						
Phenmetrazine	II Proludin	Weight control	Possible	High	Yes	2-4 Oral, injected						
Methylphenidate	II Ritalin	Attention deficit disorders, narcolepsy	Possible	Moderate	Yes	2-4 Oral, injected						
Other Stimulants	III IV Adipex, Cylert, Dextro, Isomiln, Mifitol, Plogine, Satorox, Tenuate, Topani, Prolo-2	Weight control	Possible	High	Yes	2-4 Oral, injected						
<b>HALLUCINOGENS</b>												
LSD	I Acid, Microdot	None	None	Unknown	Yes	8-12 Oral	Illusions and hallucinations, poor perception of time and distance	Longer, more intense "trip" episodes, psychosis, possible death	Withdrawal syndrome not reported			
Mescaline and Peyote	I Mesc, Buttons, Cactus	None	None	Unknown	Yes	8-12 Oral						
Amphetamine Variants	I 2,5-DMA, FMA, STP, MDA, MDMA, TMA, DOM, DOB	None	Unknown	Unknown	Yes	Variable Oral, injected						
Phencyclidine	II PCP, Angel Dust, Hog	None	Unknown	High	Yes	Days Smoked, oral, injected						
Phencyclidine Analogues	I PEP, PCPY, TCP	None	Unknown	High	Yes	Days Smoked, oral, injected						
Other Hallucinogens	I Bulfinerine, Rogaine, DMF, DET, Polkylin, Palovyn	None	None	Unknown	Possible	Variable Smoked, oral, injected, sniffed						
<b>CANNABIS</b>												
Marijuana	I Pot, Acapulco Gold, Grass, Reeler, Sensimilla, The Slicks	None	Unknown	Moderate	Yes	2-4 Smoked, oral	Euphoria, relaxed inhibitions, increased appetite, disoriented behavior	Fatigue, paranoia, possible psychosis	Insomnia, hyperactivity, and decreased appetite occasionally reported			
Tetrahydrocannabinol	<b>UAB Graduate Catalog 2004-2006</b> THC	None	Unknown	Moderate	Yes	2-4 Smoked, oral						
Hashish	I Hash	None	Unknown	Moderate	Yes	2-4 Smoked, oral						
Hashish Oil	I Hash Oil	None	Unknown	Moderate	Yes	2-4 Smoked, oral						

<sup>1</sup> Designated a narcotic under the CSA.

<sup>2</sup> Not designated a narcotic under the CSA.

## Attachment C

"Drug and Alcohol Counseling, Treatment, and Rehabilitation Programs"

December 14, 1991

[This page revised August 5, 1998]

### **Student Services**

The Campus Assistance Program is designed to address the following issues: continued longitudinal needs assessments, campus community awareness, enlistment of support from all campus segments, identification of high-risk students, early intervention, development of peer counseling and support groups, and referral to on/off campus resources and treatment facilities when indicated. The following are on-campus programs available to students:

Campus Assistance Program  
Wellness Center  
Hill University Center - Suite 460  
934-5816

UAB Mental Health Services  
Center for Psychiatric Medicine  
1713 Sixth Avenue, South  
Birmingham, Alabama 35294-0018  
ACCESS line 934-7008

UAB Substance Abuse Program  
401 Beacon Parkway West  
Birmingham, Alabama 35209  
917-3733

Other non-UAB, off-campus services are available in the Birmingham area and in many of the foreign countries in which UAB conducts programs of study. Such counseling, treatment, and rehabilitation services are too numerous to list here, but anyone needing assistance with locating such off-campus or foreign country services may contact one of the programs listed above or the UAB Center for International Programs, as appropriate.

# **University of Alabama at Birmingham**

## **IMMUNIZATION POLICY**

**March 20, 2002**

(Replaces policy dated December 4, 2000)

### **Introduction**

The American College Health Association recommends that students be immunized against certain diseases. Therefore, UAB hereby establishes this policy on immunization.

For purposes of this policy, immunization against Rubeola (Red Measles) includes an initial vaccine plus a second dose of vaccine (see below).

### **First-time Entering UAB Students**

All first-time entering students born on or after January 1, 1957, who enroll in credit courses on UAB's main campus must show proof of immunization against Rubeola (Red Measles). (*Two doses are required for proof of previous immunization: Dose 1 must have been given at 12 months after birth or later, and Dose 2 must have been given after 1980.*) Enrolling students must show proof of these immunizations with either an official certificate of immunization, a photocopy of an immunization certificate, or written documentation from their physician. If the person has never been immunized, two injections of the vaccine at least one month apart are required.

### **International Students and International Scholars**

Because of the disparity of immunization requirements among many foreign countries, all UAB international students and international scholars are required to be immunized against Tetanus, Diphtheria, Mumps, Rubeola (Red Measles), and Rubella (German Measles). In lieu of being re-immunized, such individuals may present proof of having had such immunizations. If they do not have such proof or have not been immunized, they must be immunized against these diseases prior to attending, enrolling, or participating in UAB academic, research, observing, or clinical programs and activities.

Furthermore, all international students and international scholars must show proof of a non-reactive Tuberculin skin test (or appropriate treatment if positive) within three months prior to enrollment or visiting. Individuals who have a history of reactive Tuberculin skin testing must provide a current chest x-ray (taken since their last reactive skin test but within three months prior to enrollment or visiting) indicating that the person currently is clear of Tuberculosis.

## IMMUNIZATION POLICY

March 20, 2002

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### **Students Enrolled in Health-related Schools**

Because of the nature of their work, students engaged in health professional training programs could have a higher risk of contracting Rubeola, Rubella, Mumps, Tetanus, Diphtheria, Varicella (Chickenpox), Tuberculosis, and Hepatitis B. Therefore, all UAB students in the Joint Health Sciences programs and in the Schools of Medicine, Dentistry, Optometry, Public Health, Nursing, and Health Related Professions are required to be immunized against Tetanus, Diphtheria, Varicella (Chickenpox), Mumps, Rubeola (Red Measles), Rubella (German Measles), and Hepatitis B. In lieu of being re-immunized, such individuals may present proof of having had such immunizations. Proof must be either official medical documentation or certificates of immunization or positive titer. If students do not have such proof or have not been immunized, they must begin the immunization process against these diseases prior to being admitted, attending, enrolling, or participating in UAB academic, research, or clinical programs and activities.

Students completing their Hepatitis B series of vaccines must obtain Hepatitis B titer 1 to 2 months after their third vaccine to see if additional boosters are necessary. If the titer is negative, students will be given the option either to repeat the entire Hepatitis B series or to take 1 to 2 Hepatitis B “booster” shots to try to attain a positive titer. Students who have completed their Hepatitis B vaccine series prior to matriculation are required to take a Hepatitis B titer prior to participating in a clinical environment to see if additional boosters or labs are required.

All students enrolled in health-related schools must have had a Tuberculin skin test with negative results (or appropriate treatment if positive) within three months prior to matriculation. Students participating in clinical environments with patients will be required to obtain a two-step Tuberculin skin test before starting clinical rotations and are mandated to renew their Tuberculin one-step skin test once per year.

### **General**

The UAB Student Health Service will provide such immunizations and titer testing on a fee-for-service basis for any student who needs to meet his or her UAB immunization or titer requirements. Students may choose to fulfill these requirements at the Jefferson County Health Department or with a private physician.

Individual UAB schools may impose additional immunization requirements as needed for their students.

### **Exceptions**

Exceptions to this policy will be made only for those students who can document medical or religious contraindications to the vaccine. Such documentation must be submitted to the appropriate admissions or registration office as indicated in the procedures to implement this policy.

### **Implementation**

The Provost (in conjunction with the Vice President/Dean, School of Medicine and the Assistant Vice President for Enrollment Services and University Registrar) is responsible for procedures to implement this policy for students in the Joint Health Sciences programs and in the Schools of Medicine, Dentistry, Optometry, Public Health, Nursing, and Health Related Professions.

The Vice President for Student Affairs (in conjunction with the Assistant Vice President for Enrollment Services and University Registrar and the Associate Vice President for Enrollment Management) is responsible for procedures to implement this policy for all other UAB students.

The Office of International Scholar and Student Services is responsible for procedures to implement this policy for international students and international scholars.

## University of Alabama at Birmingham

### COMPUTER SOFTWARE COPYING AND USE POLICY

July 13, 1999

(Replaces policy entitled "Computer Software Copying Policy" dated June 1, 1994.)

See also the following related policies:

"Computer Software Policy" [Software Development and Ownership]

"Electronic Data Processing Security Policy"

"Search Policy" in the *You and UAB Handbook for Administrative, Professional, and Support Personnel*

#### Introduction

Respect for the intellectual work of others is a tradition at UAB. UAB values the free exchange of ideas but not plagiarism or the unauthorized copying of computer software, including programs, applications, and data. Under the federal copyright law, it is illegal to make a copy of computer software except for archival or back-up purposes without the permission of the copyright holder. Therefore, unauthorized copying of computer software or its documentation is illegal, and, if discovered, individuals and institutions who break this law can be liable for substantial damages. The *person* responsible may be held liable.

All state and federal laws and UAB policies must be adhered to in the use of UAB's computer equipment and systems. Any use of UAB equipment that violates copyright law or licensure contracts, that compromises or attempts to compromise the integrity of UAB-based or any other computers or computer systems, or that involves gambling or other illegal activity also is forbidden and may subject the computer user to criminal, civil, and/or UAB sanctions. Any use of UAB's software, including shareware, must comply with all copyright laws and with the terms of the license granted by the software owner, including any prohibitions against simultaneous use on multiple computers. Unauthorized use or copying of any software (whether or not owned by UAB) is not permitted on any UAB equipment.

This policy covers computer software which has been purchased by, acquired by, donated to, and/or licensed to, UAB and includes software that is bundled with, or preloaded on, computer systems purchased by UAB. It also includes software downloaded from networks (including the Internet), and in those instances it is important for UAB users and departments/units to ensure that any such commercial software or shareware may legally be downloaded, that the software is freeware, or that the software is in the public domain. UAB and individuals must comply with all terms and conditions of software downloaded from networks, including the Internet.

If computer software carries a UAB copyright, it may be used and distributed by UAB as long as such distribution is in keeping with the desires of the originating department/unit and is not in violation of the "Computer Software Policy." If a UAB determination of interest in licensing the

## COMPUTER SOFTWARE COPYING AND USE POLICY

July 13, 1999

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software is pending, the software would be considered non-UAB software for the purposes of this policy until such time that UAB determines its interest in licensing the software. This policy does not alter the categories of software and the rights pertaining thereto as indicated in the UAB “Computer Software Policy.”

### Definitions

For purposes of this policy, the following definitions apply:

“*Computer software*” includes, but is not limited to, purchased or commercial software, sound, graphics, images, or datasets; shareware; freeware; and electronically stored documentation and the media that hold it. *Not* included in the definition as used in this policy are noncopyrighted computer data files that have no significance beyond the individual or department/unit.

“*UAB software*” is defined as computer software purchased or acquired by a UAB department or unit or by a UAB employee as part of his or her role at UAB. It includes software donated to UAB or software purchased by related foundations and donated for use by UAB. It includes computer programs written by UAB employees or students if creating such software is a UAB-associated effort.

“*Non-UAB software*” is defined as computer software purchased, acquired, or created by an individual(s) and not officially acquired by a UAB department or unit.

“*UAB-associated efforts*” (related to computer software development) is defined relative to the UAB “Computer Software Policy” as UAB-assisted efforts and UAB-assigned efforts.

### Policy Statement

It is the policy of the University of Alabama at Birmingham to comply with copyright law and license agreements entered into with vendors or authors of computer software. No illegally obtained or illegally copied (often referred to as “pirated”) computer software is allowed at UAB. UAB does not, and will not, condone illegal copying of computer software or the use of illegally copied or obtained computer software. Anyone connected with UAB who causes unauthorized computer software to be installed or loaded in connection with his or her role at UAB or who acquires unauthorized computer software in connection with his or her role at UAB is in violation of this policy.

Whenever a staff member, faculty member, contractor of services to UAB, student, or visitor to the campus, in connection with his or her role at UAB, receives a copy of computer software from UAB, requests software to be loaded or installed on a UAB computer, or loads or

## COMPUTER SOFTWARE COPYING AND USE POLICY

July 13, 1999

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installs computer software on a UAB computer, he or she must abide by the stipulations included in the license agreements associated with that computer software. It is the responsibility of anyone requesting installation of, or installing or loading, computer software onto a UAB computer to be familiar with the license agreements for that computer software, as documented by the vendor.

***Individual employees are accountable for software they load or install on UAB computers or which they supply for loading or installing on the department's or unit's computers or networks. They also are accountable for any existing software on UAB computers over which they have control.***

The installation or use of non-UAB software on UAB computers is prohibited unless approved in writing by the department/unit head. The department/unit head may choose to give blanket permission to an individual on a per-machine basis. The non-UAB software should be free of viruses or other destructive mechanisms to the greatest extent possible and must be used for legitimate UAB purposes directly related to UAB's instruction, research, and service activities.

Taking UAB-owned computer software home or elsewhere off campus to use on a non-UAB computer, even if the purpose is to perform UAB-related work, also is prohibited unless such use is authorized in writing and is permitted in the license agreement associated with the computer software. This constitutes theft of UAB property unless the software license specifically allows concurrent use and such use has been approved in writing by one's supervisor or department/unit head. If the software license does not allow such use and a department/unit requests an employee to perform such work, the department/unit should purchase a separate copy of the software for installation on the employee's computer.

A computer lab or a department/unit with publicly accessible computers which allows non-UAB software to be installed *temporarily* on the network or computers for purposes such as completing class assignments, printing documents, converting document formats, etc., must have documented procedures in place for removing any non-UAB software installed on the computers. This practice is not considered a violation of this policy as long as use of the non-UAB software on such UAB computers is directly related to UAB's instruction, research, and service activities.

### **Proof of Ownership of Software**

Computer software purchased by, and/or licensed to, UAB is an institutional resource and, therefore, should be safeguarded and accounted for in the same manner as other UAB resources. All commercial computer software license agreements, records of purchase, and original and back-up disks (or other software distribution media) must be kept by the department/unit in a safe place and must be made available for review or inspection. All license or use agreements for shareware or freeware computer software also must be available for inspection. Likewise, any written authorizations for the use of UAB-owned software on non-UAB computers must be available for inspection.



## COMPUTER SOFTWARE COPYING AND USE POLICY

July 13, 1999

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The following are examples of documents which can be used to show ownership or right to use software:

- A. The dated purchase order, invoice, or sales receipt for purchased software or proof of a site-license agreement covering all copies in use or accessible by users in the department.
- B. The original software distribution media.
- C. The original documentation.
- D. For software that is bundled with, or preloaded on, computer systems purchased by UAB, an itemized listing of the software on the dated purchase order, invoice, or sales receipt for the computer.
- E. For software downloaded from external networks or acquired from noncommercial sources, a statement indicating the nature of the software (for example, downloadable commercial software, shareware, freeware, or public domain), the use and registration requirements for the software, and proof of registration of the software, when applicable. Acquisition of software universally known to be available free to educational institutions and/or to the general public does not have to be documented. (Note: Examples of statements to document legality of downloaded software include, but are not limited to, receipts for payment of shareware registration, printed copies of e-mail messages if the user is required to e-mail the author, screen prints of the status of freeware or public domain software, etc.) It is recognized that the extent of documentation needed for freeware or public domain software will not be as extensive as for other types of software.

These proofs of purchase/ownership must cover *all* copies in use or accessible by users in the department.

### **Software License Registration**

Registration with the author(s) or vendor(s) of computer software purchased by, or received from, UAB for installation on a UAB computer in connection with one's role at UAB must include UAB or one's department/unit as the licensee.

### **Applicability**

## COMPUTER SOFTWARE COPYING AND USE POLICY

July 13, 1999

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This policy applies to all staff, faculty, students, contractors of services to UAB, and visitors.

### **Disciplinary Action**

A violation of this policy by employees, including faculty, shall result in disciplinary action according to established UAB disciplinary procedures up to, and including, discharge for nonfaculty employees and termination for cause for faculty employees. A violation of this policy by a student constitutes nonacademic misconduct, and the student will be subject to established disciplinary action.

### **Implementation**

The Vice President for Planning and Information Management is responsible for overall procedures to implement this policy. The Executive Director of the UAB University Hospital is responsible for specific procedures to cover implementation in Hospital departments/units.

## Graduate Council

August 8, 2000

The Graduate Council of UAB shall be constituted as follows: (a) the director, or designated representative, of each program in the Graduate School<sup>1[1]</sup>, (b) for graduate students entirely under UAB jurisdiction, elected by the graduate students at large<sup>2[2]</sup>; and (c) the Graduate School dean. The Graduate School dean shall serve as the chair of the Graduate Council. In the absence of the Graduate dean, the dean may designate a temporary chair.

The Graduate Council shall meet as required, but at least once each regular term. Additional meetings may be called by the Graduate dean. A minimum of fourteen (14) calendar days notice to all members is required for each meeting. Twenty-five percent of the Graduate Council members shall constitute a quorum. A member of the staff of the Graduate School shall be appointed by the Graduate School dean to record minutes of each meeting and be responsible for distributing these minutes to all members of the Graduate Council and others as deemed appropriate. The rules contained in Robert's Rules of Order (Revised) shall govern the Council in all cases which they are applicable.

<sup>3[1]</sup> The term "program" used above is to signify each approved graduate degree offering (as listed in the inside front cover), without regard to the UAB unit responsible for its implementation. (Where there is more than one director for a program, there shall only be one vote.)

<sup>4[2]</sup> The elected student members are to be in good standing, enrolled and registered, each in a different program.

### Graduate Council Web Site

## **University of Alabama at Birmingham**

### **SEXUAL HARASSMENT POLICY**

**January 27, 1999**

(Replaces policy dated April 17, 1996)

#### **Introduction**

The University of Alabama at Birmingham is firmly committed to providing an environment that is free of discrimination, including sexual harassment. Sexual harassment includes unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature when (1) submission to such conduct is made, either explicitly or implicitly, a term or condition of an individual's employment or academic evaluation, (2) submission to, or rejection of, such conduct by an individual is used as the basis for employment or academic decisions affecting such individual, or (3) such conduct has the purpose or effect of unreasonably interfering with an individual's work performance or of creating an intimidating or hostile working or educational environment. Such behavior may violate federal law and/or give rise to personal liability for the results of such behavior. Consequently, UAB prohibits all forms of sexual harassment and will investigate complaints thoroughly and with the utmost seriousness.

A violation of this policy may result in the taking of disciplinary action up to, and including, discharge.

#### **Sexual Harassment in the Workplace**

It is a violation of UAB policy for any employee, including faculty, to engage in sexual harassment in the workplace or in work-related situations. Employees who believe that they have been sexually harassed by a supervisor, co-worker, or other employee of UAB should report the incident promptly to the Human Resource Management Relations Office. Only Human Resource Management has the responsibility for coordinating and conducting an investigation of sexual harassment claims in the workplace and also for recommending corrective action to the UAB administration.

#### **Sexual Harassment in the Instructional Setting**

UAB prohibits sexual harassment of students by the teaching staff or other employees of UAB. For purposes of this policy, the term "teaching staff" means all those who teach at UAB and includes, but is not limited to, full-time faculty, part-time faculty, students functioning in teaching roles (such as graduate assistants), and academic administrators.

## SEXUAL HARASSMENT POLICY

January 27, 1999

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A student who believes that he or she has been sexually harassed should report the incident promptly to the Vice President for Student Affairs.

Sexual harassment by a student is considered nonacademic misconduct, and the alleged student offender will be subject to the disciplinary process contained in the *Direction: Student Handbook*.

### **Sexual Harassment--General**

Full and prompt reporting is necessary for effective implementation of this policy, and UAB encourages such reporting. However, UAB's duty to protect employees and students exists when UAB's supervisory personnel know, or have reason to know, of unreported sexual harassment. Supervisors therefore are directed to take all appropriate steps to prevent sexual harassment in their areas of responsibility and to take corrective action, including disciplinary action, in response to inappropriate behavior which may constitute sexual harassment even in the absence of a complaint.

This policy seeks to encourage students, staff, and faculty to express freely and responsibly, through established procedure, complaints of sexual harassment. All such complaints shall be treated as confidential information and shall be disclosed only to those with a need to know as part of the investigatory and resolution process. Any act of interference, retaliation, or coercion by a UAB employee against a student or employee for using this policy interferes with such free expression and is itself a violation of this policy.

### **Implementation**

This policy will be published regularly in the *UAB Reporter* and in the *Class Schedule*. The policy will be included in revisions of handbooks relating to staff, faculty, and students.

The Vice President for Financial Affairs and Administration is responsible for implementation of this policy as it relates to sexual harassment in the workplace. The Vice President for Student Affairs is responsible for implementation of this policy as it relates to sexual harassment in the instructional setting.

## Ownership of Intellectual Property Rights

May 18, 2000

UAB recognizes that research and scholarship should be encouraged and carried out without regard to financial gain from licensing fees, royalties, or other such income. However, UAB also recognizes that patentable inventions, discoveries, software programs, and other intellectual property often arise from UAB-related staff or faculty efforts.

The policies governing the administration of inventions are included in the Board of Trustees Rule 509. Other institutional policies govern other forms of intellectual property including computer software. Those policies also provide recognition and incentive to inventors and at the same time ensure that UAB shares in the rights pertaining to inventions in which it has an investment. Any income accruing to UAB is used in the furtherance of its academic mission.

Disclosure of discoveries and inventions which appear to have commercial value and/or utility should be made to the UAB Research Foundation. Any such invention or discovery (1) which is the result of research carried on by, or under the direction of, any employee of the University and/or having the costs thereof paid from University funds or from funds under the control of, or administered by, the University, or (2) which is made by an employee of the University and which relates to the inventor's field of work at the University, or (3) which has been developed in whole or in part by the utilization of resources or facilities belonging to the University shall be assigned to the University. Therefore, employees or students may not themselves assign or grant any option to any such intellectual property developed during the course of their employment without a release from UAB.

Questions concerning intellectual property rights should be directed to the UAB Research Foundation.

**University of Alabama at Birmingham**

**POLICY CONCERNING EMPLOYEE FALSIFICATION  
OF UAB RECORDS AND DOCUMENTS**

April 20, 1998

(Replaces "Policy Concerning Falsification of UAB  
Records and Documents" dated June 27, 1996.)

See also the following related items:

"Policy Concerning the Maintenance of High Ethical Standards in Research and Other  
Scholarly Activities"

Regulations and procedures governing faculty credentials

Board of Trustees Board Rule 105 *Ownership and Preservation of Records and Files*.

NOTE: Falsification of documents and records by a student who is not functioning in a UAB  
employee capacity is considered nonacademic misconduct and is handled in  
accordance with regulations covering nonacademic misconduct. See *Direction  
Student Handbook*.

**Introduction**

As a health-care, research, and educational institution, the University of Alabama at  
Birmingham is acutely interested in issues relating to the integrity of its employees.

For purposes of this policy, falsification of records exists when a UAB employee is  
discovered to have provided false information on the employment application; to have failed to  
disclose requested information; knowingly to have falsified information; or knowingly to have  
recorded false information on any UAB document or record, regardless of format and  
including electronic communications. The following is a partial list of infractions which are  
specifically prohibited: falsifying information on an application for initial employment or for  
transfer; falsifying employee recruitment/credential records; falsifying employee expense  
account records or other reimbursement records; falsifying personnel/payroll documents  
(including, but not limited to, pay records, time sheets, or other types of time records); clocking  
the time card/time record of another employee or completing and submitting for approval the  
time sheet/time record of another employee; falsifying health records or vacation/sick leave  
records; falsifying research records, medical records, or departmental administrative records;  
and falsifying student records (including, but not limited to, admissions application materials,  
transcripts, grade sheets, registration documents, and student identification documents).

POLICY CONCERNING EMPLOYEE FALSIFICATION  
OF UAB RECORDS AND DOCUMENTS

April 20, 1998

Page 2

**Policy Statement**

Falsification of UAB records or documents is prohibited. Any knowing or negligent misrepresentation of a material fact or any failure to make a complete disclosure of any requested information are causes for immediate discharge without notice or pay in lieu of notice for nonfaculty employees or termination for cause for faculty employees. Any exception to the immediate and automatic discharge of nonfaculty employees for these reasons must be approved in writing by the Associate Vice President for Human Resource Management. Any exception to the recommendation of termination for cause for faculty for these reasons must be approved in writing by the Provost and by the Associate Vice President for Human Resource Management.

**Implementation**

The Office of the Vice President for Financial Affairs and Administration is responsible for procedures to implement this policy as it relates to employee or departmental administrative records. The Office of the Provost is responsible for procedures to implement this policy as it relates to academic records, research records, or faculty recruitment/credential records.



**University of Alabama at Birmingham**

**HEALTH CARE POLICY FOR INTERNATIONAL STUDENTS AND SCHOLARS**

**May 1, 2000**

(Replaces policy dated February 12, 1997)

See also UAB Immunization Policy.

**Introduction**

The purpose of this policy is to ensure that international students and scholars have appropriate health-care opportunities and health insurance coverage while they are enrolled as UAB students or are participating in UAB activities.

**Students/Scholars Covered by this Policy**

1. All UAB degree-seeking international students, regardless of courseload, school, or degree program, must participate in the UAB Student Health Service and must have adequate health insurance coverage.
2. All transient and temporary international students must have adequate health insurance coverage. Those students may use the services of the UAB Student Health Service on a fee-for-service basis.
3. International scholars who participate in activities at UAB for longer than four weeks should be encouraged to participate in the UAB Student Health Service and must have adequate health insurance coverage. International scholars here for four weeks or less who do not participate in the UAB Student Health Service may use the services of Student Health on a fee-for-service basis. The inviting UAB department will be offered the opportunity to accept responsibility for the fee-for-service charges incurred. If the department does not wish to pay the fee-for-service bills, the international scholar will be responsible for the bills.

**Definitions**

For purposes of this policy, the following definitions apply:

“Transient international students” are defined as international students who are in the United States under the authorization of another institution or organization but who are taking coursework at UAB.

“Temporary international students” are defined as international students who are taking less than a full-time course of study at UAB and who are not pursuing an official UAB degree or certificate.

“Adequate health insurance” is defined as follows:

- a. Insurance provided through the UAB Student Health Service, *OR*
- b. Equivalent personal health insurance, the evidence for which must be shown to, and verified by, the UAB Student Health Service.

**Implementation**

The Vice President for Student Affairs is responsible for procedures to implement this policy.

## University of Alabama at Birmingham

### POLICY CONCERNING AIDS AND HIV INFECTION

April 24, 1998

(Replaces "Policy Concerning AIDS and AIDS-related Conditions" dated September 21, 1989)

NOTE: See also UAB University Hospital policies concerning prevention of transmission of HIV infections.

#### Definitions

The following are definitions or explanations of terminology used in this policy:

**AIDS** -- Acquired immunodeficiency syndrome occurs in someone with HIV infection when one or more of certain diseases or infections occurs or when a CD4 (also known as T4 helper) lymphocyte cell count is below 200.

**HIV** -- Human immunodeficiency virus (the virus which causes AIDS).

**HIV antibody** -- A protein in the body produced in response to infection with HIV. (There are tests which look for HIV antibody in a person infected with HIV.)

**HIV infection** -- A condition involving asymptomatic (without symptoms) or symptomatic (with symptoms) stages of infection.

#### Introduction

Human immunodeficiency virus (HIV) is the virus which causes the disease, AIDS. Infection with that virus damages the human body's immune (defense) system and allows life-threatening infections to develop. HIV has no known cure or vaccine for prevention. Available medical knowledge indicates that transmission of HIV is primarily through sexual contact or sharing intravenous drug paraphernalia with someone who has an HIV infection. It also can be spread from an infected mother to her baby before, or during, delivery and through breast feeding. HIV cannot be transmitted through casual contact such as sharing food or drink, touching surfaces, shaking hands, dry kissing, or working together. HIV cannot be transmitted by mosquitoes or other insects.

Even if there are no symptoms, an HIV-infected person can transmit HIV to a sexual partner or to a needle-sharing partner.

Because of the seriousness of the HIV/AIDS issue, the University of Alabama at Birmingham has established this policy which focuses on prevention (through detailed education of students, faculty, and staff) and on the compassionate care of people with HIV

## POLICY CONCERNING AIDS AND HIV INFECTION

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infection or AIDS.

A supervisor or anyone in the UAB community who becomes aware of an HIV/AIDS-related situation involving an employee, student, or visitor shall follow the guidelines stated in this policy.

### **Policy Statement**

#### 1. Admissions or Employment

The University of Alabama at Birmingham accepts otherwise-qualified individuals presenting themselves for admission or employment, irrespective of their HIV status.

#### 2. Handicapping Conditions

Persons with AIDS (and, possibly, those with other manifestations of HIV infection) will be considered as having handicapping conditions as defined in the Rehabilitation Act of 1973 and the Americans with Disabilities Act. In determining policy and in making related decisions, UAB officials shall properly attend to the legal rights of these individuals and shall make reasonable accommodations as are appropriate for individuals with handicapping conditions.

Decisions regarding the continuation of employment of faculty and staff with HIV infection or AIDS will be made on the basis of job-related criteria. Within current UAB policies and procedures, individuals may be reassigned to accommodate a disabling condition. Termination will be pursued only when the employee, even with reasonable reassignment of responsibilities, can no longer perform the duties and responsibilities of his or her position. Any such termination action will be taken in accordance with established UAB procedures.

#### 3. Student Attendance

UAB students who have HIV infections, whether they are symptomatic or asymptomatic, will be allowed regular classroom attendance as long as they are physically and mentally able to attend classes as determined by current UAB academic standards.

HIV-infected students enrolled in UAB health profession schools may have their educational program modified by their school to limit the risk of disease transmission, in accordance with the Alabama Infected Health-care Worker Management Act.

#### 4. Access to Facilities

## POLICY CONCERNING AIDS AND HIV INFECTION

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There will be no unreasonable restriction of access on the basis of HIV infection to student or employee facilities, theaters, restaurants, snack bars, gymnasiums, swimming pools, saunas, recreational facilities, or other common areas.

### 5. Student Housing

Currently available medical information does not indicate that there exists a risk of transmission of infection by casual contact which would preclude sharing a residence with a person with AIDS or HIV infection. However, there may be reasonable concern for the health of students with immune deficiencies (of any origin) when those students might be exposed to certain contagious diseases (for example, measles or chicken pox) in a close living situation. For these reasons, decisions regarding housing and private rooms for students with HIV infections will be made on a case-by-case basis by UAB Student Housing and Residential Life officials. It is the responsibility of the student to make his/her HIV status known to UAB in order for any accommodation request to be considered. It also is the responsibility of an HIV-infected student to take necessary precautions to avoid exposure of others to infection through known means of transmission.

### 6. Self-disclosure

In general, students, student applicants, employees, and applicants for employment at UAB will not be asked to respond to questions concerning the existence of HIV infection. However, both students and employees with HIV infection are encouraged to inform campus health-care providers so that UAB may provide information about proper medical care, medical care availability, support, counseling, and education. This, like any other medical information, will be handled in a strictly confidential manner in accordance with established UAB policy and Alabama law.

### 7. Immunizations

Incoming students known to have HIV infection need not be exempted from UAB requirements for nonlive virus vaccinations. However, because of potentially serious consequences for HIV-infected persons' receiving live virus vaccines, persons who are recommended to receive such immunizations should consult the UAB Student Health Center or the Jefferson County Department of Health for current recommendations.

### 8. Information, Testing, and Counseling

#### A. Testing

## POLICY CONCERNING AIDS AND HIV INFECTION

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Students or employees requesting HIV antibody testing will be referred to the Jefferson County Department of Health. UAB University Hospital employees also may receive such testing through the Employee Health Services.

### B. Services

Counseling, information, and education are available through various UAB units including the Student Health Service, the Division of Student Affairs, the Hospital Employee Health Service, and the Office of Human Resource Management. These services currently are made available to the students or employees at no cost and in accordance with the guidelines in each unit.

## 9. Confidentiality of Information

### A. Standards

No information concerning HIV infection or AIDS or their diagnoses will be provided to any third party other than an employee's immediate supervisor without the expressed written consent of the infected person. Medical information cannot be released to any person, group, agency, insurer, employer, or institution without specific written consent of the patient or legal guardian, except as required by law. All disclosures of diagnoses of HIV infection or AIDS to individuals functioning in supervisory roles must be treated as confidential information.

According to present law, UAB physicians and other health-care providers are mandated to protect the confidentiality of medical information with exceptions being made only if the need arises to protect others in very specific, life-threatening circumstances. Also, disclosure by persons other than health-care providers that an individual has HIV infection or AIDS may be considered an invasion of that individual's privacy. Situations in which disclosure will be made will be determined on a case-by-case basis in consultation with the chair of the AIDS Activities Coordinating Committee and the Office of Counsel, if needed.

### B. Public Health Reporting Requirements

UAB will observe the public health reporting requirements of the Alabama State Department of Public Health. Individuals known to have HIV infection will be reported to the State Department of Public Health according to prevailing statutes.

### C. "Need to Know"

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According to the American College Health Association, current medical information concerning HIV neither justifies nor requires warning others of the presence of someone with HIV infection or AIDS. Given the absence of any evidence of transmission of HIV by casual contact, there is no need or justification for warning individuals in the academic workplace, administrative officers, or instructors of the presence of such an individual. Therefore, the number of people at UAB who will be aware of the existence and/or identity of students or employees who have HIV infection will be kept to an absolute minimum, both to protect the confidentiality and the privacy of the infected persons and to avoid the generation of unnecessary fear and anxiety among faculty, staff, and students.

### 10. Education

Training requirements for employees deemed at-risk by the AIDS Activities Coordinating Committee shall consist of sessions sufficient in number and depth to comply with prevailing Centers for Disease Control and Prevention recommendations and "Bloodborne Pathogens Standards." In the absence of such guidelines, the AIDS Activities Coordinating Committee shall determine educational standards. Records of AIDS education training for at-risk employees shall be maintained in the appropriate UAB Human Resource Management office.

### 11. Safety Precautions

#### A. Personnel

Since many people with HIV infection are not identified in advance, universal precautions as defined by the Centers for Disease Control and Prevention and by the Occupational Safety and Health Administration will guide the procedures for the handling of blood and body fluids containing viable blood of any student, employee, or patient. Questions regarding these safety guidelines should be directed to the Department of Occupational Health and Safety, the Hospital Employee Health Service, the Office of Human Resource Management, the Hospital Committee on Infections, or the UAB Biosafety Committee. Each unit has the responsibility for developing department-specific directives and procedures. Departments also have the responsibility for compliance monitoring and staff education to prevent the transmission of HIV infection.

#### B. Equipment

Manuals and procedures already in use at UAB cover the precautions which should be taken when handling infectious materials. Certain of those procedures are re-emphasized here especially as pertains to the transmission

## POLICY CONCERNING AIDS AND HIV INFECTION

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of HIV infection.

UAB personnel will use disposable, single-use needles and other equipment whenever such equipment will puncture the skin or mucous membranes of patients, employees, or students. Extreme caution should be exercised when handling sharp objects, particularly in disposing of needles. All used needles should be placed in puncture-resistant containers designated for this purpose. Needles should never be bent or recapped after use. Any needles which are made to be re-used or other equipment that punctures skin or mucous membranes should be appropriately cleaned and sterilized before re-use. Blood-soaked articles should be placed in leak-proof bags with biohazard labels before being sent for reprocessing or disposal in accordance with established UAB infection control guidelines.

### C. Teaching Laboratories

Laboratory courses requiring exposure to blood, such as biology courses in which blood is obtained by finger prick for typing or examination, should use disposable equipment, and no lancets or other blood-letting devices should be re-used or shared. No students, except those in health-care professions, should be required to obtain or process the blood of others.

### 12. Job Performance

Faculty, staff, students, and all other persons affiliated with UAB shall perform the responsibilities of their positions irrespective of the HIV status of patients, students, or co-workers. Failure to comply with this policy will be considered a failure to adequately perform the responsibilities of one's position and may result in disciplinary action up to, and including, discharge.

### 13. Behavior Risk

UAB students, faculty, and staff with HIV infection or AIDS who are aware of the potential danger of their condition to others and who engage in behavior (while performing their employee-related or student-related activities) which threatens the safety and welfare of others may be subject to disciplinary action in accordance with established UAB disciplinary procedures and/or applicable law.

### **Applicability to Other UAB AIDS Policies**

More specific, written guidelines and procedures are the responsibility of individual departments and may be developed, as needed, by department/unit heads. All unit policies must be compatible with this UAB-wide policy and may not be in conflict with it.

## University of Alabama at Birmingham

### POLICY CONCERNING CONSENSUAL ROMANTIC RELATIONSHIPS

April 17, 2001

NOTE: See also the following related policies:

UAB Sexual Harassment Policy.

Section 3.7 "Nepotism Policy" in the *Faculty Handbook and Policies*.

Section 4.20 "Nepotism" in the *You & UAB Handbook for Administrative, Professional, and Support Personnel*.

#### Introduction

Whether the relationship is student/teacher or employee/employer, the work or academic relationship must be, and must remain, professional at all times. Romantic or sexual relationships between supervisors and subordinates may create an appearance of impropriety which is contrary to the interests of UAB. Even though a relationship may have been entirely consensual at its inception, a significant power differential exists when one party to the relationship has the authority to influence the academic progress or employment of the other party. Such relationships are particularly vulnerable to exploitation as well as to claims of exploitation.

#### Definitions

For purposes of this policy, the term *supervisor* includes any employee, faculty member, or other person in a position to supervise, grade, evaluate, or influence the academic progress or employment of a student or employee. The term *subordinate* refers to any employee (including faculty), student, or other person who is supervised, graded, or evaluated by another person.

This policy does not apply to employees who are married to each other or who are living in the same household; those situations are addressed by the Nepotism Policy.

#### Policy Statement

It is the policy of the University of Alabama at Birmingham that employees (including faculty) may not engage in consensual romantic or sexual relationships when one party to the relationship is a supervisor who supervises, evaluates, or grades the other party.

#### Compliance and Disciplinary Action

It is the responsibility of the parties involved in such a consensual romantic or sexual relationship to take whatever steps are necessary to ensure immediate compliance with this policy. Compliance may be achieved in a number of ways including, but not limited to, (1) voluntary transfer or reassignment of one party so that the supervisor/subordinate relationship or the student/teacher relationship no longer



## POLICY CONCERNING CONSENSUAL ROMANTIC RELATIONSHIPS

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exists or (2) termination of the romantic relationship.

Failure to comply with this policy will result in the taking of disciplinary action appropriate to the circumstances up to, and including, discharge or termination for cause for faculty employees.

### **Implementation**

The Vice President for Financial Affairs and Administration is responsible for implementation of this policy as it relates to the workplace. The Provost is responsible for implementation of this policy as it relates to the instructional setting.

# University of Alabama at Birmingham

## IV. Policy Index and Cross-reference

This section is designed to be an index to the policies included in the Policy Reference Manual and a cross-reference to other UAB-wide policies published elsewhere in area-specific policy manuals. See Section III of the Manual for additional information concerning policy manuals referenced here.

The on-line version of the UAB Policy Reference Manual may be updated with more current information; however, if the contents of the on-line version are in conflict with official UAB policies, the official policies will take precedence.

The on-line version of the Manual

is available for viewing and printing in Adobe Acrobat PDF format.

To view and print the policies referenced in the middle column below, you must have Adobe Acrobat Reader installed on your computer.

If you do not have Reader installed, please use the link below to obtain your free copy.



For information on specific UAB policies, contact James Lowery.

*Updated August 20, 2004*

**A B C D E F G H I J K L M N O P Q R S T U V W X Y Z**

<b>Subject</b>	<b>In UAB Policy Reference Manual</b>	<b>Cross-reference to Another Manual</b>
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Academic Chairs--SEE Chairs and Professorships		
Academic Discipline (Student)--SEE Student Discipline, Academic		
Academic Freedom		Faculty Handbook & Policies
Academic Misconduct (Student)--SEE Student Discipline, Academic		
Academic Progress, Student		Division of Student Affairs

		Policies and Procedures Manual
Acceptance of Awards--SEE Acceptance of Benefits		
Acceptance of Benefits	<u>Acceptance of Benefits, Awards, and Prizes from External Entities</u>	
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Acceptance of Prizes--SEE Acceptance of Benefits		
Accidents (Employees)--SEE On-the-Job Injury/Illness		
Accounting and Financial Reporting		Financial Accounting Reference Manual and Board of Trustees Board Manual
Accounts Payable Policies		Purchasing/Accounts Payable Reference Manual and Financial Management Reference Guide
Activity Fee, Student		Division of Student Affairs Policies and Procedures Manual and student catalogs
Activity Fee, Waiver of Student		Division of Student Affairs Policies and Procedures Manual and student catalogs
Administrative "Hold" on Student Records		Division of Student Affairs Policies and Procedures Manual
Admission of Foreign Professionals and Foreign Students to Undergraduate and Graduate Programs		Division of Student Affairs Policies and Procedures Manual and student catalogs
Admission of Graduate Students		Division of Student Affairs Policies and Procedures Manual and UAB Catalog:

		Graduate School
Admission of Health Profession Students		Division of Student Affairs Policies and Procedures Manual and student catalogs of the health profession schools
Admission of Undergraduate Students		Student Affairs Policies and Procedures Manual; Undergraduate Programs Catalog; School of Health Related Professions Catalog; and School of Nursing Catalog
Affiliation Agreements, The University of Alabama School of Medicine		Board of Trustees Board Manual
Affirmative Action (See also Equal Opportunity)		Affirmation Action Plan; Human Resource Management Personnel Policies and Procedures Manual; and Faculty Handbook & Policies
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Affirmative Action for Vietnam Era Veterans (See also Equal Opportunity)		Affirmative Action Plan
AIDS	<a href="#"><u>Policy Concerning AIDS and HIV Infection</u></a>	
Airline Ticket Purchasing, Employee	<a href="#"><u>Employee Airline Ticket Purchasing Policy</u></a>	
Alcohol and Drug Testing for Reasonable Cause (Hospital)		UAB University Hospital Policy and Procedure Manual
Alcoholic Beverages	<a href="#"><u>General Policy Regarding the Use and Consumption of Alcoholic Beverages</u></a>	See also area-specific policies maintained by the Vice Presidents/Provost/Director of the UAB Health System offices.

Animal Facilities, Access to		Animal Resources Program Manuals
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Animals, Use of Laboratory		Animal Resources Program Manuals
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Asset Management Policy--SEE Investment Management Policy		
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Auditing (See also Auditing, Internal)		Board of Trustees Board Manual
Auditing, Internal	<u>Internal Audit Policy</u>	

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Auxiliary Aids for Students with Disabilities		Division of Student Affairs Policies and Procedures Manual
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Benefits, Faculty--SEE Faculty Benefits		
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Biosafety		Biosafety Manual
Board of Trustees Agenda		Board of Trustees Board Manual
Board of Trustees Bylaws		Board of Trustees Board Manual

Board of Trustees Recognition of Faculty and Staff		Board of Trustees Board Manual
Board of Trustees Resolutions		Contact the Board Liaison in the Office of the President
Board of Trustees Rules, Adoption, Amendment, or Repeal of		Board of Trustees Board Manual
Body Donation--SEE Organ and Body Donation		
Bomb Threats--SEE Emergency Response		
Bomb Threats, Arena		Division of Student Affairs Policies and Procedures Manual
Bomb Threats, Hill University Center		Division of Student Affairs Policies and Procedures Manual
Bomb Threats, Hospital		Hospital Policy and Procedure Manual
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Building Fees		Division of Student Affairs Policies and Procedures Manual and student catalogs
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Chairs and Professorships (See also Fund Raising)		Board of Trustees Board Manual
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Chemical Waste Management		Chemical Safety and Waste Management Manual
Child Labor Provisions		Human Resource Management Personnel Policies and Procedures Manual and UAB & FLSA (Fair Labor Standards Act)
Citizenship of Employees (See also Labor Certification)		Human Resource Management Personnel Policies and Procedures Manual
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Collection and Disposition of Trash--SEE Trash, Collection		



and Disposition of		
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Compensation Policies (See also Fixed Increment Compensation Payment)		Human Resource Management Personnel Policies and Procedures Manual and Faculty Handbook & Policies
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Compulsory Retirement		You & UAB Handbook and Faculty Handbook & Policies
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Conflicts of Commitment	<a href="#"><u>Conflicts of Commitment</u></a>	See also You & UAB Handbook and Faculty Handbook & Policies
Conflicts of Interest	<a href="#"><u>Conflicts of Interest</u></a>	See also You & UAB Handbook; Faculty Handbook & Policies; and Board of Trustees Board Manual
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Departmental Faculty Policies		Faculty Handbook & Policies and faculty policies of each department
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Discipline, Employee		Human Resource Management Personnel Policies and Procedures Manual and You & UAB Handbook
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Dress Codes		Human Resource Management Personnel Policies and Procedures Manual and You & UAB Handbook
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Emergency Response (Contact University Police Department in case of emergency)		Emergency Response Planning (See also plans for specific areas or buildings.)
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Purchasing Policy--SEE Airline Ticket Purchasing, Employee		
Employee Benefits		Human Resource Management Personnel Policies and Procedures Manual and You & UAB Handbook
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Employee Exempt and Non- exempt Status Determination		Human Resource Management Personnel Policies and Procedures Manual
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Employee Initial Six Months Probationary Period		Human Resource Management Personnel Policies and Procedures Manual and You & UAB Handbook
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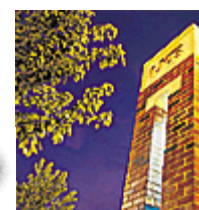
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We may be reached at  
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AB 420, 701 20th Street South  
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## Graduate School Deadlines

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Campus Calenda



## Deadline for Application Materials to be in Graduate School Office

Term	Deadline for all materials to be in Graduate School Office	Classes Begin
Fall Semester 2004	July 1, 2004	August, 19, 2004
Spring Semester 2005	November 1, 2004	January 4, 2005
Summer Semester 2005	April 8, 2005	May 9, 2005

### Plan I Graduate School Graduation Deadline Dates For Students Completing a Thesis/Dissertation

These dates are subject to change. Please check the Schedule of classes each term for any changes to these dates. Please check with your department as some programs have earlier deadline dates for the application for degree.

SEMESTER	DIPLOMA DATE	DEADLINE FOR APPLICATION FOR DEGREE	LAST DAY FOR FINAL DEFENSE OF THESIS/DISSERTATION	FINAL VERSION OF THESIS/DISSERTATION FOR GRADUATE SCHOOL APPROVAL

Fall 2004	December 18	September 10	November 5	November 15
Spring 2005	May 7	January 28	April 6	April 15
Summer 2005	August 13	June 10	July 8	July 18
Fall 2005	December 17	September 9	November 4	November 14
Spring 2006	May 6	January 27	April 7	April 17
Summer 2006	August 12	June 9	July 7	July 17

**Please Note:**

Failure to meet these deadlines will require the filing of a **"NEW"** Application for Degree Form (reorder) and registration in subsequent semesters. The application for degree form (approved at the departmental level and received in the Graduate School) should be filed prior to the beginning of the semester in which the student plans to graduate.

***It is the student's responsibility to see that the above deadlines are met.*** Students will not be cleared for graduation until all paperwork has been processed, all grades have been finalized, and all fees (e.g., binding, microfilm and when used copyright) have been paid. Fee payment receipts for binding, microfilming and copyrighting must be turned into the Graduate School Office.

**The above dates are subject to change. Please check with the Graduate School 511 Hill University Center or call 934-8234 if you have any questions concerning graduation.**

**Plan II Graduate School  
Graduation Deadline Dates  
For Students Not Completing a Thesis/Dissertation**

These dates are subject to change. Please check the Schedule of classes each semester for any changes to these dates. Please check with your department as some programs have earlier deadline dates for the application for degree.

SEMESTER	DIPLOMA DATE	DEADLINE FOR APPLICATION FOR DEGREE	LAST DAY FOR RECEIPT OF FINAL PAPERS
Fall 2004	December 18	September 10	December 3
Spring 2005	May 7	January 28	April 22
Summer2005	August 13	June 10	July 29
Fall 2005	December 17	September 9	December 2

Spring 2006	May 6	January 27	April 21
Summer2006	August 12	June 9	July 28

**Please Note:**

Failure to meet these deadlines will require the filing of a **"NEW"** Application for Degree Form (reorder) and registration in subsequent semesters. The application for degree form (approved at the departmental level and received in the Graduate School) should be filed prior to the beginning of the semester in which the student plans to graduate.

***It is the student's responsibility to see that the above deadlines are met.*** Students will not be cleared for graduation until all paperwork has been processed, all grades have been finalized, and all fees (e.g., binding, microfilm and when used copyright) have been paid. Fee payment receipts for binding, microfilming and copyrighting must be turned into the Graduate School Office.

**The above dates are subject to change. Please check with the Graduate School 511 Hill University Center or call 934-8234 if you have any questions concerning graduation.**

## Deadline Dates to Apply As a Nondegree Graduate Student

SEMESTER	DEADLINE DATE
Fall 2004	August 19
Spring 2005	January 4
Summer 2005	May 6
Fall 2005	August 17
Spring 2006	January 4
Summer 2006	May 9

### Deadlines for Change of Residency

**All forms and necessary documents** must be received in the graduate school office by the following dates so in-state tuition will be granted for the appropriate term.

Forms received after the deadline will be processed for the next semester.

**PLEASE CHECK WITH THE GRADUATE SCHOOL AS THESE DATES ARE SUBJECT TO**

**CHANGE**

SEMESTER	DEADLINE DATE
Fall 2004	August 18
Spring 2005	January 3
Summer 2005	May 6
Fall 2005	August 17
Spring 2006	January 4
Summer 2006	May 9

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## Admission to Candidacy Deadline Dates

SEMESTER	DEADLINE DATE
Fall 2004	August 18
Spring 2005	January 3
Summer 2005	May 6
Fall 2005	August 17
Spring 2006	January 4
Summer 2006	May 9

Forms must be processed by the above dates to be applicable for the semester. Remember that Doctoral Students are required to have 2 semesters of candidacy.

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Early Assigned Time Registration	Apr 14-18
Early Open Registration	Apr 21 - May 30
Early Phone/Web Registration	Apr 14 - May 30
Assigned Time Registration	July 28 - Aug 1
Open Registration	Aug 4-19
Phone/Web Registration	July 28 - Aug 19
Classes Begin	Aug. 20
Registration After Classes Begin	Aug 20-28
Financial Aid Disbursement	Aug 22
Last Day to Drop w/o Paying Tuition and Fees	Aug 27
Last Day to Add a Class	Aug 28
1st Payment Deadline	Aug 29
Labor Day Holiday	Sep 1
Final Payment Deadline	Oct 1
Last Day to Withdraw with a "W" (Undergraduates)	Oct 21
No Classes for Students	November 26
Thanksgiving Holidays	Nov. 27 - Nov. 30
Classes End	Dec 5
Last Day to Withdraw (Graduates)	Dec 5
Final Exams	Dec 6 - 12
Commencement Ceremony	Dec 13
Grades Available on ACCESS	Dec 17

Spring Semester 2004	
Assigned Time Registration	Nov 10 - 14
Phone/Web Registration	Nov 10 - Jan 5
Open Registration	Nov 17 - Jan 5
Classes Begin	Jan 6
Registration After Classes Begin	Jan 6 - 14
Financial Aid Disbursement	Jan 8
Last Day to Drop w/o Paying Tuition and Fees	Jan 13
Last Day to Add a Class	Jan 14
1st Payment Deadline	Jan 15
Martin Luther King Holiday	Jan 19
Final Payment Deadline	Feb 17
Last Day to Withdraw with a "W" (Undergraduates)	Mar 9
Spring Break	Mar 21 - 27
Last Day to Withdraw with a "W" (Graduates)	Apr 26



(Graduates)	
Classes End	Apr 26
Open Days	Apr 27 & 28
Final Exams	Apr 29 - May 5
Commencement Ceremony	May 8
Grades Available on ACCESS	May 9

<b>Summer 12-Week Session 2004</b>	
Assigned Time Registration	Apr 12-16
Phone/Web Registration	Apr 12 - May 7
Open Registration	Apr 19 - May 7
Classes Begin	May 10
Registration After Classes Begin	May 10 - 18
Financial Aid Disbursement	May 12
Last Day to Drop w/o Paying Tuition and Fees	May 17
Last Day to Add a Class	May 18
1st Payment Deadline	May 19
Memorial Day Holiday	May 31
Final Payment Deadline	June 11
Last Day to Withdraw with a "W" (Undergraduates)	June 21
Independence Day Holiday	July 5
Last Day to Withdraw with a "W" (Graduates)	Aug 4
Classes End	Aug 4
Final Exams	Aug 5 - 11
Grades Available on ACCESS	Aug 15

<b>Summer May Session 2004</b>	
Assigned Time Registration	Apr 12-16
Phone/Web Registration	Apr 12 - May 7
Open Registration	Apr 19 - May 7
Classes Begin	May 10
Registration After Classes Begin	May 10-11
Last Day to Drop w/o Paying Tuition and Fees	May 10
Last Day to Add a Class	May 11
Financial Aid Disbursement	May 12
1st Payment Deadline	May 12
Final Payment Deadline	May 12
Last Day to Withdraw with a "W" (Undergraduates)	May 19
Last Day to Withdraw with a "W" (Graduates)	May 27
Classes End	May 27
Final Exams	May 28
Grades Available on ACCESS	Aug 15

<b>Summer 9 Week Session 2004</b>	
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**Summer 9-Week Session 2004**

Assigned Time Registration	April 12 - 16
Phone/Web Registration	April 12 - June 1
Open Registration	April 19 - June 1
Classes Begin	June 2
Registration After Classes Begin	June 2 - 10
Financial Aid Disbursement	June 4
Last Day to Drop w/o Paying Tuition and Fees	June 9
Last Day to Add a Class	June 10
1st Payment Deadline	June 11
Independence Day Holiday	July 5
Last Day to Withdraw with a "W" (Undergraduates)	July 13
Final Payment Deadline	July 14
Last Day to Withdraw with a "W" (Graduates)	Aug 4
Classes End	Aug. 4
Final Exams	Aug. 5 - 11
Grades Available on ACCESS	August 15

**Summer A Session 2004**

Assigned Time Registration	April 12 - 16
Phone/Web Registration	April 12 - June 1
Open Registration	April 19 - June 1
Memorial Day Holiday	May 31
Classes Begin	June 2
Registration After Classes Begin	June 2 - 4
Last Day to Drop w/o Paying Tuition and Fees	June 3
Financial Aid Disbursement	June 4
Last Day to Add a Class	June 4
1st Payment Deadline	June 11
Final Payment Deadline	June 11
Last Day to Withdraw with a "W" (Undergraduate)	June 18
Last Day to Withdraw with a "W" (Graduates)	July 1
Classes End	July 1
Final Exams	July 2
Grades Available on ACCESS	August 15

**Summer B Session 2004**

Assigned Time Registration	April 12 - 16
Phone Registration	April 12 - July 2
Open Registration	April 19 - July 2
Classes Begin	July 6
Registration After Classes Begin	July 6 - 8
Last Day to Drop w/o Paying Tuition and Fees	July 7
Last Day to Add a Class	July 8
Financial Aid Disbursement	July 8
Independence Day Holiday	July 5
1st Payment Deadline	July 14

Final Payment Deadline	July 14
Final Payment Deadline	July 14
Last Day to Withdraw with a "W" (Undergraduates)	July 22
Last Day to Withdraw with a "W" (Graduates)	August 4
Classes End	August 4
Final Exams	August 5
Grades Available on ACCESS	August 15

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**Registration/Academic Records**

[Registrar@uab.edu](mailto:Registrar@uab.edu)

(205) 934-8222

Fax: (205) 975-6069

8:00 a.m.-6:00 p.m. (M-Th), 8:00 a.m.-5:00 p.m. (F)

Physical Address: 207 Hill University Center, 1400 University Blvd.

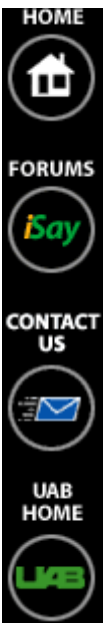
Mailing Address: HUC 207, 1530 3RD AVE S, BIRMINGHAM AL 35294-1150

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# UAB Student Calendar

## Event Type

## Start Date




## Time Period



### December 2004

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

### January 2005

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

## Academic Calendar

### Fall 2004

- Apr 12 - Apr 16 Early Assigned Time Registration
- Apr 12 - Jun 1 Early Web/Phone (ACCESS) Registration
- Apr 19 - Jun 1 Early Open Registration
- Jul 26 - Jul 30 Assigned Time Registration
- Jul 26 - Aug 18 Web/Phone (ACCESS) Registration
- Aug 2 - Aug 18 Open Registration
- Aug 19 - Aug 27 Registration After Classes Begin
- Aug 19 Classes Begin
- Aug 23 Financial Aid Disbursement
- Aug 26 Last Day to Drop
- Aug 27 Last Day to Add
- Aug 30 First Payment Deadline
- Sep 6 Labor Day Holiday
- Sep 30 Final Payment Deadline
- Oct 20 Last Day to Withdraw (Undergraduate)
- Nov 24 No Classes Held
- Nov 25 - Nov 26 Thanksgiving Holidays
- Dec 6 Last Day to Withdraw (Graduate)
- Dec 6 Last Day of Class
- Dec 7 - Dec 8 Open Days
- Dec 9 - Dec 15 Final Exams
- Dec 18 Graduation
- Dec 19 Grades Available on ACCESS

### Spring 2005

- Nov 8 - Nov 12 Assigned Time Registration
- Nov 8 - Dec 30 Web/Phone (ACCESS) Registration
- Nov 15 - Dec 30 Open Registration

Jan 4 - Jan 12	Registration After Classes Begin
Jan 4	Classes Begin
Jan 6	Financial Aid Disbursement
Jan 11	Last Day to Drop
Jan 12	Last Day to Add
Jan 13	First Payment Deadline
Jan 17	Martin Luther King, Jr. Holiday
Feb 15	Final Payment Deadline
Mar 8	Last Day to Withdraw (Undergraduate)
Mar 27 - Apr 2	Spring Break
Apr 25	Last Day to Withdraw (Graduate)
Apr 25	Last Day of Class
Apr 26 - Apr 27	Open Days
Apr 28 - May 4	Final Exams
May 7	Graduation
May 8	Grades Available on ACCESS

### **Summer 12-Week Session 2005**

Apr 11 - Apr 15	Assigned Time Registration
Apr 11 - May 6	Web/Phone (ACCESS) Registration
Apr 18 - May 6	Open Registration
May 9 - May 17	Registration After Classes Begin
May 9	Classes Begin
May 12	Financial Aid Disbursement
May 16	Last Day to Drop
May 17	Last Day to Add
May 18	First Payment Deadline
May 30	Memorial Day Holiday
Jun 10	Final Payment Deadline
Jun 20	Last Day to Withdraw (Undergraduate)
Jul 3 - Jul 4	Independence Day Holiday
Aug 3	Last Day of Class
Aug 3	Last Day to Withdraw (Graduate)
Aug 4 - Aug 10	Final Exams
Aug 14	Grades Available on ACCESS

### **Summer May Session 2005**

Apr 11 - Apr 15	Assigned Time Registration
Apr 11 - May 6	Web/Phone (ACCESS) Registration
Apr 18 - May 6	Open Registration
May 9 - May 11	Registration After Classes Begin
May 9	Classes Begin
May 10	Last Day to Drop
May 11	Financial Aid Disbursement
May 11	Last Day to Add
May 12	First Payment Deadline
May 12	Final Payment Deadline
May 18	Last Day to Withdraw (Undergraduate)

May 26	Last Day of Class
May 26	Last Day to Withdraw (Graduate)
May 27	Final Exams
May 30	Memorial Day Holiday
Aug 14	Grades Available on ACCESS

**Summer 9-Week Session 2005**

Apr 11 - Apr 15	Assigned Time Registration
Apr 11 - May 31	Web/Phone (ACCESS) Registration
Apr 18 - May 31	Open Registration
Jun 1 - Jun 9	Registration After Classes Begin
Jun 1	Classes Begin
Jun 3	Financial Aid Disbursement
Jun 8	Last Day to Drop
Jun 9	Last Day to Add
Jun 10	First Payment Deadline
Jul 3 - Jul 4	Independence Day Holiday
Jul 12	Last Day to Withdraw (Undergraduate)
Jul 13	Final Payment Deadline
Aug 3	Last Day of Class
Aug 3	Last Day to Withdraw (Graduate)
Aug 4 - Aug 10	Final Exams
Aug 14	Grades Available on ACCESS

**Summer A Session 2005**

Apr 11 - Apr 15	Assigned Time Registration
Apr 11 - May 31	Web/Phone (ACCESS) Registration
Apr 18 - May 31	Open Registration
Jun 1 - Jun 3	Registration After Classes Begin
Jun 1	Classes Begin
Jun 2	Last Day to Drop
Jun 3	Financial Aid Disbursement
Jun 3	Last Day to Add
Jun 10	First Payment Deadline
Jun 10	Final Payment Deadline
Jun 17	Last Day to Withdraw (Undergraduate)
Jul 1	Last Day of Class
Jul 1	Last Day to Withdraw (Graduate)
Jul 5	Final Exams
Aug 14	Grades Available on ACCESS

**Summer B Session 2005**

Apr 11 - Apr 15	Assigned Time Registration
Apr 11 - Jul 5	Web/Phone (ACCESS) Registration
Apr 18 - Jul 5	Open Registration
Jul 6 - Jul 8	Registration After Classes Begin
Jul 6	Classes Begin
Jul 7	Last Day to Drop

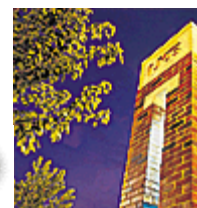
Jul 8	Financial Aid Disbursement
Jul 8	Last Day to Add
Jul 13	First Payment Deadline
Jul 13	Final Payment Deadline
Jul 22	Last Day to Withdraw (Undergraduate)
Aug 3	Last Day of Class
Aug 3	Last Day to Withdraw (Graduate)
Aug 4	Final Exams
Aug 14	Grades Available on ACCESS

Interested in submitting events for the UAB Student Calendar?  
Contact Ramsey Scott at (205) 934-5120 or [rscott@uab.edu](mailto:rscott@uab.edu).

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## Graduate School Deadlines

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- [To Graduate with a Thesis \(Plan I\) or Dissertation](#)
- [To Graduate without a Thesis \(Plan II\)](#)
- [To Apply As a Nondegree Graduate Student](#)
- [To Change Residency](#)
- [To Be Admitted to Candidacy](#)

Campus Calenda



## Deadline for Application Materials to be in Graduate School Office

Term	Deadline for all materials to be in Graduate School Office	Classes Begin
Fall Semester 2004	July 1, 2004	August, 19, 2004
Spring Semester 2005	November 1, 2004	January 4, 2005
Summer Semester 2005	April 8, 2005	May 9, 2005

### Plan I Graduate School Graduation Deadline Dates For Students Completing a Thesis/Dissertation

These dates are subject to change. Please check the Schedule of classes each term for any changes to these dates. Please check with your department as some programs have earlier deadline dates for the application for degree.

SEMESTER	DIPLOMA DATE	DEADLINE FOR APPLICATION FOR DEGREE	LAST DAY FOR FINAL DEFENSE OF THESIS/DISSERTATION	FINAL VERSION OF THESIS/DISSERTATION FOR GRADUATE SCHOOL APPROVAL



Fall 2004	December 18	September 10	November 5	November 15
Spring 2005	May 7	January 28	April 6	April 15
Summer 2005	August 13	June 10	July 8	July 18
Fall 2005	December 17	September 9	November 4	November 14
Spring 2006	May 6	January 27	April 7	April 17
Summer 2006	August 12	June 9	July 7	July 17

**Please Note:**

Failure to meet these deadlines will require the filing of a **"NEW"** Application for Degree Form (reorder) and registration in subsequent semesters. The application for degree form (approved at the departmental level and received in the Graduate School) should be filed prior to the beginning of the semester in which the student plans to graduate.

***It is the student's responsibility to see that the above deadlines are met.*** Students will not be cleared for graduation until all paperwork has been processed, all grades have been finalized, and all fees (e.g., binding, microfilm and when used copyright) have been paid. Fee payment receipts for binding, microfilming and copyrighting must be turned into the Graduate School Office.

**The above dates are subject to change. Please check with the Graduate School 511 Hill University Center or call 934-8234 if you have any questions concerning graduation.**

**Plan II Graduate School  
Graduation Deadline Dates  
For Students Not Completing a Thesis/Dissertation**

These dates are subject to change. Please check the Schedule of classes each semester for any changes to these dates. Please check with your department as some programs have earlier deadline dates for the application for degree.

SEMESTER	DIPLOMA DATE	DEADLINE FOR APPLICATION FOR DEGREE	LAST DAY FOR RECEIPT OF FINAL PAPERS
Fall 2004	December 18	September 10	December 3
Spring 2005	May 7	January 28	April 22
Summer2005	August 13	June 10	July 29
Fall 2005	December 17	September 9	December 2

Spring 2006	May 6	January 27	April 21
Summer2006	August 12	June 9	July 28

**Please Note:**

Failure to meet these deadlines will require the filing of a **"NEW"** Application for Degree Form (reorder) and registration in subsequent semesters. The application for degree form (approved at the departmental level and received in the Graduate School) should be filed prior to the beginning of the semester in which the student plans to graduate.

***It is the student's responsibility to see that the above deadlines are met.*** Students will not be cleared for graduation until all paperwork has been processed, all grades have been finalized, and all fees (e.g., binding, microfilm and when used copyright) have been paid. Fee payment receipts for binding, microfilming and copyrighting must be turned into the Graduate School Office.

**The above dates are subject to change. Please check with the Graduate School 511 Hill University Center or call 934-8234 if you have any questions concerning graduation.**

## Deadline Dates to Apply As a Nondegree Graduate Student

SEMESTER	DEADLINE DATE
Fall 2004	August 19
Spring 2005	January 4
Summer 2005	May 6
Fall 2005	August 17
Spring 2006	January 4
Summer 2006	May 9

### Deadlines for Change of Residency

**All forms and necessary documents** must be received in the graduate school office by the following dates so in-state tuition will be granted for the appropriate term.

Forms received after the deadline will be processed for the next semester.

**PLEASE CHECK WITH THE GRADUATE SCHOOL AS THESE DATES ARE SUBJECT TO**

**CHANGE**

SEMESTER	DEADLINE DATE
Fall 2004	August 18
Spring 2005	January 3
Summer 2005	May 6
Fall 2005	August 17
Spring 2006	January 4
Summer 2006	May 9

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## Admission to Candidacy Deadline Dates

SEMESTER	DEADLINE DATE
Fall 2004	August 18
Spring 2005	January 3
Summer 2005	May 6
Fall 2005	August 17
Spring 2006	January 4
Summer 2006	May 9

Forms must be processed by the above dates to be applicable for the semester. Remember that Doctoral Students are required to have 2 semesters of candidacy.

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## University/Community Events Calendar

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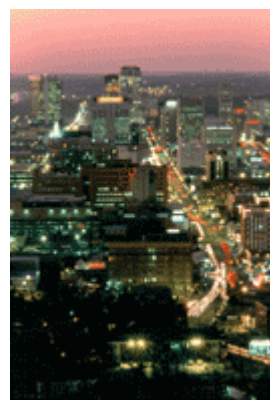
Welcome to UAB's Events Calendar. This calendar reflects not only university-wide events but also includes community events in the Birmingham area.

If you know of any events that should be on the calendar please contact us at 934-8552

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## December 2004

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**GWP**= George Ward Park; **HUC**= Hill University Center; **R-K**= Reynolds-Kirschbaum Recital Hall; **VAG**=Visu  
**WC**= West Campus Field

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<p><b>29</b></p> <p>Men's Basketball:  <b>UAB vs La. Tech.</b>            7:30pm (Bartow            Arena)</p>	<p><b>30</b></p> <p>Reynolds Lecture            Series: <i>The Great            American Medicine            Show</i>, George            Oetting, Ed.D., 12pm            (Lister Hill Library)</p>	<p><b>1</b></p> <p>UAB Dept. of Music:            Student Recital,            12:20pm (R-K            Recital Hall)</p> <p>Women's Basketball:  <b>UAB vs            Chattanooga</b>, 7pm            (Bartow Arena)</p>	<p><b>2</b></p> <p>Men's Basketball:  <b>UAB vs Nebraska</b>,            8pm (Bartow Arena)</p>	<p><b>3</b></p> <p>UAB Dept. of Music:            UAB Wind            Symphony, 3:30pm            (Jemison Concert            Hall)</p>	<p><b>4</b></p> <p>Women's Basketball:  <b>UAB @ North            Carolina State</b>, 1pm            (Raleigh, NC)</p> <p>UAB Dept. of Music:            UAB Middle School            Honor Bands, 3pm            (Jemison Concert            Hall)</p> <p>Men's Basketball:  <b>UAB @ Marshall</b>,            7pm (Huntington,            WV)</p> <p>Alabama Ballet:  <i>George Balanchine's            The Nutcracker</i>®,            2:30pm &amp; 7:30pm            (BJCC)</p>
<p><b>6</b></p> <p>Fall Classes            End</p>	<p><b>7</b></p> <p>Women's Basketball:  <b>UAB @ Alabama</b>,            7pm (Tuscaloosa,            AL)</p> <p>UAB Dept. of Music:            UAB Jazz Ensemble,            8pm (Jemison            Concert Hall)</p>	<p><b>8</b></p>	<p><b>9</b></p> <p>Exams Begin</p>	<p><b>10</b></p> <p>UAB Dept. of Music:            UAB Wind            Symphony, 3:30pm            (Jemison Concert            Hall)</p> <p>Alabama Ballet:  <i>George Balanchine's            The Nutcracker</i>®,            7:30pm (BJCC)</p> <p>Men's Basketball:  <b>UAB @ Oklahoma            State</b>, 9pm            (Stillwater, OK)</p>	<p><b>11</b></p> <p>UAB Dept. of Music:            UAB Senior High            Honor Bands, 3pm            (Jemison Concert            Hall)</p> <p>Alabama Ballet:  <i>George Balanchine's            The Nutcracker</i>®,            2:30pm (BJCC)            Alabama Ballet: <i>The            Nutty Nutcracker</i>,            7:30pm (BJCC)</p>
<p><b>13</b></p>	<p><b>14</b></p>	<p><b>15</b></p> <p>Exams End</p> <p>Men's Basketball:  <b>UAB vs Belmont</b>,            7:30pm (Bartow            Arena)</p>	<p><b>16</b></p>	<p><b>17</b></p> <p>Men's Basketball:  <b>UAB @ Richmond</b>,            TBA (Richmond, VA)</p>	<p><b>18</b></p> <p>Commencement            (Bartow Arena)</p> <p>Women's Basketball:  <b>UAB @ Kentucky</b>,            7pm (Lexington, KY)</p>

					ASO SuperPops: Sandi Patty Holiday Concert, 8pm (BJCC)
<b>20</b>	<b>21</b>  <u>Women's Basketball:</u> <u>UAB @ South</u> <u>Alabama, 1pm</u> <u>(Mobile, AL)</u>  <u>Men's Basketball:</u> <u>UAB vs clemson,</u> <u>5pm (Honolulu,</u> <u>Hawaii)</u>	<b>22</b>  <u>Men's Basketball:</u> <u>UAB vs TBA</u> <u>(Honolulu, Hawaii)</u>	<b>23</b>  <u>Men's Basketball:</u> <u>UAB TBA (Honolulu,</u> <u>Hawaii)</u>	<b>24</b>  HOLIDAY	<b>25</b>
<b>27</b>  HOLIDAY	<b>28</b>  <u>Men's Basketball:</u> <u>UAB vs Alabama</u> <u>A&amp;M, 7:30pm</u> <u>(Bartow Arena)</u>	<b>29</b>  <u>Women's Basketball:</u> <u>UAB vs Tennessee</u> <u>State (Blazer</u> <u>Invitational), 7pm</u> <u>(Bartow Arena)</u>	<b>30</b>  <u>Women's Basketball:</u> <u>UAB @ Blazer</u> <u>Invitational, 5pm &amp;</u> <u>7pm (Bartow Arena)</u>	<b>31</b>  HOLIDAY  <u>Men's Basketball:</u> <u>UAB @ South</u> <u>Alabama, 3pm</u> <u>(Mobile, AL)</u>	<b>1</b>

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January 2005

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**WC**= West Campus Field

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>27</b> HOLIDAY	<b>28</b> Men's Basketball: <u>UAB vs Alabama</u> A&M, 7:30pm (Bartow Arena)	<b>29</b> Women's Basketball: <u>UAB vs Tennessee</u> State (Blazer Invitational), 7pm (Bartow Arena)	<b>30</b> Women's Basketball: <u>UAB @ Blazer</u> Invitational, 5pm & 7pm (Bartow Arena)	<b>31</b> HOLIDAY Men's Basketball: <u>UAB @ South</u> Alabama, 3pm (Mobile, AL)	<b>1</b>
<b>3</b> HOLIDAY Women's Basketball: <u>UAB @ Georgia</u> Tech, 6pm (Atlanta, GA)	<b>4</b>	<b>5</b> Men's Basketball: <u>UAB vs Southern</u> Miss, 7:30pm (Bartow Arena)	<b>6</b>	<b>7</b> ASO Coffee Series: <u>Sibelius</u> , 11am (Jemison Concert Hall) Contemporary Print Show, Opening Reception - 7pm, Jan. 7-Feb. 4 (VAG) Women's Basketball: <u>UAB vs Cincinnati</u> , 7pm (Bartow Arena) ASO Masterworks: <u>Sibelius Symphony</u> No. 1, 8pm (Jemison Concert Hall)	<b>8</b> Men's Basketball: <u>UAB @ South</u> Florida, 12pm (Tampa, FL) ASO Masterworks: <u>Sibelius Symphony</u> No. 1, 8pm (Jemison Concert Hall)
<b>10</b>	<b>11</b>	<b>12</b> Men's Basketball: <u>UAB vs Charlotte</u> , 7:30pm (Bartow Arena)	<b>13</b>	<b>14</b> ASO Symphony @ 6: <u>Symphonic</u> <u>Celluloid</u> , 6pm (Jemison Concert Hall) Women's Basketball: <u>UAB @ Houston</u> , 7pm (Houston, TX) Philadanco Dance Group, 7:30pm (Jemison Concert Hall)	<b>15</b> Men's Basketball: <u>UAB @ East</u> Carolina, 12pm (Greenville, NC) Philadanco Dance Group, 7:30pm (Jemison Concert Hall)
<b>17</b> HOLIDAY	<b>18</b>	<b>19</b> Men's Basketball: <u>UAB @ Tulane</u> , TBA	<b>20</b>	<b>21</b> Women's Basketball: <u>UAB vs Memphis</u> ,	<b>22</b> Men's Basketball: <u>UAB vs Memphis</u> ,

		(New Orleans, LA)		7pm (Bartow Arena)	1pm (Bartow Arena) Regina Carter, Jazz Violin, 8pm (Jemison Concert Hall) ASO SuperPops: Roberta Flack, 8pm (BJCC)
<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b> Women's Basketball: <b>UAB @ DePaul</b> , 7pm (Chicago, IL) ASO Masterworks: <i>Dvorák Symphony No. 8</i> , 8pm (Jemison Concert Hall)	<b>29</b> Men's Basketball: <b>UAB vs South Florida</b> , 7:30pm (Bartow Arena) ASO Masterworks: <i>Dvorák Symphony No. 8</i> , 8pm (Jemison Concert Hall)
<b>31</b>	<b>1</b> UAB Faculty Recital: Paul Mosteller, 7pm (R-K Recital Hall)	<b>2</b> Men's Basketball: <b>UAB @ Marquette</b> , TBA (Milwaukee, WI)	<b>3</b>	<b>4</b> UAB Theodore Haddin Humanities Forum: <i>Bath House Books: the Library of a Fifteenth-Century Knight</i> , Elaine Whitaker, 11:45am (Sterne Library) Softball: <b>UAB @ Bama Bash</b> , TBA (Tuscaloosa, AL)	<b>5</b> Women's Basketball: <b>UAB vs Charlotte</b> , 2pm (Bartow Arena) Men's Basketball: <b>UAB vs Louisville</b> , 7pm (Bartow Arena) Softball: <b>UAB @ Bama Bash</b> , TBA (Tuscaloosa, AL)

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**WC**= West Campus Field

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>31</b>	<b>1</b> UAB Faculty Recital: Paul Mosteller, 7pm (R-K Recital Hall)	<b>2</b> Men's Basketball: <b>UAB @ Marquette</b> , TBA (Milwaukee, WI)	<b>3</b>	<b>4</b> UAB Theodore Haddin Humanities Forum: <i>Bath House Books: the Library of a Fifteenth-Century Knight</i> , Elaine Whitaker, 11:45am (Sterne Library)  Softball: <b>UAB @ Bama Bash</b> , TBA (Tuscaloosa, AL)	<b>5</b> Women's Basketball: <b>UAB vs Charlotte</b> , 2pm (Bartow Arena)  Men's Basketball: <b>UAB vs Louisville</b> , 7pm (Bartow Arena)  Softball: <b>UAB @ Bama Bash</b> , TBA (Tuscaloosa, AL)
<b>7</b> Women's Basketball: <b>UAB vs ECU</b> , 7pm (Bartow Arena)	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b> Visiting Artist Project, Feb. 11- March 11 (Visual Art Gallery)  Women's Basketball: <b>UAB @ Southern Miss</b> , 7pm (Hattiesburg, MS)  Softball: <b>UAB @ Florida International Tournament</b> , TBA (Miami, FL)  ASO Symphony @ 6: Concert Classics, 6pm (Jemison Concert Hall)	<b>12</b> ASC Kids' Club presents: <i>African Music and Dance with Atu</i> , 10am & 11:30am (R-K Recital Hall)  UAB Dept. of Music: Honor Choir Concert, 3pm (Jemison Concert Hall)  Men's Basketball: <b>UAB @ TCU</b> , TBA (Ft. Worth, TX)  Softball: <b>UAB @ Florida International Tournament</b> , TBA (Miami, FL)  AI Franken, 8pm (Jemison Concert Hall)
<b>14</b>	<b>15</b> Softball: <b>UAB vs Alabama A&amp;M</b> , 4pm (GW Park)	<b>16</b> Softball: <b>UAB @ Auburn</b> , 6pm (Auburn, AL)  UAB Dept. of Theatre: <i>36 Views</i> , 7:30pm (Sirote	<b>17</b> UAB Dept. of Theatre: <i>36 Views</i> , 7:30pm (Sirote Theatre)	<b>18</b> 26th Annual Reynolds Lecture: <i>Viral Hemorrhagic Fever: From Yellow Jack to Ebola--and Beyond?</i> , Karl M. Johnson, MD, 4pm	<b>19</b> Baseball: <b>UAB vs Central Michigan</b> , 2pm (Young Field)  Men's Basketball: <b>UAB @ Cincinnati</b> , 4pm (Cincinnati, OH)

		<p>Theatre)</p> <p>Men's Basketball: <b>UAB vs East Carolina</b>, 7:30pm (Bartow Arena)</p>		<p>(Lister Hill Library)</p> <p>Baseball: <b>UAB vs Central Michigan</b>, 6pm (Young Field)</p> <p>UAB Dept. of Theatre: <b>36 Views</b>, 7:30pm (Sirote Theatre)</p> <p>ASO Coffee Concert: <b>Beethoven Piano Concerto No. 1</b>, 11am (Jemison Concert Hall)</p> <p>ASO Masterworks: <b>Beethoven Piano Concerto No. 1</b>, 8pm (Jemison Concert Hall)</p> <p>Alabama Ballet presents <b>Alvin Ailey American Dance Theater</b>, 8pm (BJCC)</p>	<p>UAB Dept. of Theatre: <b>36 Views</b>, 7:30pm (Sirote Theatre)</p> <p>ASO Masterworks: <b>Beethoven Piano Concerto No. 1</b>, 8pm (Jemison Concert Hall)</p> <p>Alabama Ballet presents <b>Alvin Ailey American Dance Theater</b>, 8pm (BJCC)</p>
<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>
	<p>Softball: <b>UAB vs Jacksonville State</b>, 4pm (GW Park)</p> <p>UAB Dept. of Music: <b>Guest Recital, Susan Fleming, mezzo-soprano</b>, 7:30pm (Hulsey Recital Hall)</p>	<p>Baseball: <b>UAB @ Alabama</b>, 6:30pm (Tuscaloosa, AL)</p> <p>Men's Basketball: <b>UAB @ St. Louis</b>, TBA (St. Louis, MO)</p>	<p>Patty Larkin, guitar, 7:30pm (Sirote Theatre)</p>	<p>Baseball: <b>UAB vs Ball State</b>, 6pm (Young Field)</p> <p>Academy of St. Martin in the Fields Chamber Ensemble, 8pm (Jemison Concert Hall)</p> <p>Softball: <b>UAB @ Stanford Invitational</b>, TBA (Palo Alto, CA)</p>	<p>Women's Basketball: <b>UAB @ USF</b>, 1pm (Tampa, FL)</p> <p>Baseball: <b>UAB vs Ball State</b>, 2pm (Young Field)</p> <p>Men's Basketball: <b>UAB vs Tulane</b>, 7:30pm (Bartow Arena)</p> <p>Softball: <b>UAB @ Stanford Invitational</b>, TBA (Palo Alto, CA)</p> <p>Mark Morris Dance Group, 7:30pm (Sirote Theatre)</p>
<b>28</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	<p>Baseball: <b>UAB vs Florida A&amp;M</b>, 6pm (Young Field)</p> <p>UAB Dept. of Music: <b>Wind Symphony</b>, 8pm (Jemison Concert Hall)</p>	<p>Baseball: <b>UAB vs Florida A&amp;M</b>, 2pm (Young Field)</p> <p>Softball: <b>UAB vs Georgia Tech</b>, 6pm (GW Park)</p> <p>Men's Basketball: <b>UAB vs DePaul</b>, 7:30pm (Bartow Arena)</p>	<p>Women's Basketball: <b>UAB @ C-USA Tournament</b>, TBA (Charlotte, NC)</p>	<p>Baseball: <b>UAB @ LSU</b>, 6:30pm (Baton Rouge, LA)</p> <p>Women's Basketball: <b>UAB @ C-USA Tournament</b>, TBA (Charlotte, NC)</p>	<p>UAB Dept. of Music: <b>Southern Appalachian Clarinet Retreat</b>, (Hulsey Center)</p> <p>Baseball: <b>UAB @ LSU</b>, 2pm (Baton Rouge, LA)</p> <p>Men's Basketball: <b>UAB @ Houston</b>, TBA (Houston, TX)</p> <p>Women's Basketball: <b>UAB @ C-USA Tournament</b>, TBA (Charlotte, NC)</p> <p>Softball: <b>UAB @ Magic City</b></p>

					Tournament, TBA (Birmingham, AL)
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## Arts and Entertainment at UAB

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Featuring the following collections and events:

- Elvis Richardson, "Slide Show Land"
- Doris Alexander Thompson and the Dixie Art Colony
- 28th Annual Juried Student Exhibition

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## UAB Arts and Humanities Calendar

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### [Alys Stephens Performing Arts Center: 2004-2005 Season](#)

Featuring performances from:

- Nancy Wilson and Ramsey Lewis
- Al Franken
- Blind Boys of Alabama
- Branford Marsalis
- The Canadian Brass
- Peking Acrobats
- Mark Morris Dance Group
- The Cheiftains
- Manhattan Transfer
- The Temptations



### [UAB Department of Music: 2004-2005 Calendar](#)

Featuring performances from:

- UAB Chamber Ensembles
- UAB Gospel Choir
- UAB Opera
- Additional UAB Department of Music events

### [UAB Department of Theatre: 2004-2005 Calendar](#)

Upcoming performances include:

- "36 Views"
- "The It Girl"
- "Antigone"

### [UAB African-American Studies Colloquia Series: Winter/Spring 2005 Calendar](#)

Upcoming debates and discussions include:

- "The Social Construction of Race in Malawi"
- "Black Business Practices"
- "Medieval African Technology"
- "Writing During Wartime"

**UAB BookTalk: 2004-2005 Calendar**

Public discussions of the following books:

- *The Da Vinci Code* by Dan Brown
- *The Known World* by Edward P. Jones
- *The Professor and the Madman* by Simon Winchester
- *Ceremony* by Leslie Marmon Silko
- *The Dress Lodger* by Sheri Holman

**UAB Theodore Haddin Humanities Forum: Winter/Spring 2005 Calendar**


Upcoming lectures include:

- "Bath House Books: The Library of a 15th Century Knight"
- "Langston Hughes and Translation: Casting Nets in the 'Big Sea' of Literature"
- "C. P. Snow and the Two Cultures: Scholars Without Borders?"

**UAB Visual Arts Gallery: Fall 2004 Calendar**

Featuring the following collections and events:

- Elvis Richardson, "Slide Show Land"
- Doris Alexander Thompson and the Dixie Art Colony
- 28th Annual Juried Student Exhibition

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With performers like Nancy Wilson and Ramsey Lewis, The Clark Marsalis, Mark Morris Dance Group, The Temptations, Peking Man, and more, word continues to spread quickly about the Center's 2004-2005 season.

Don't wait to buy your tickets. Subscribe today! Subscribers receive great savings, top priority seat exchanges, guaranteed seating, and first choice on single tickets! Choose from our ten series or packages and design your own. For a complete season lineup, [click here](#).

We invite you to [Take a Tour](#) of our four exceptional venues.

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### Upcoming Events



ASC Kids' Club presents  
**Passion for Percussion**  
 Sunday, January 9, 2005; 1:30 & 3 p.m.  
 Reynolds-Kirschbaum Recital Hall  
 \$7

Professors and students from the UAB School of Music will explore the many sounds of percussion, from the subtle sounds of the marimba to exotic sounds of electronic drums. If your kids love noise — and what kid doesn't? — they are sure to love learning to drum.

*Sponsored by Jane Stephens Comer.*



### Philadanco

Friday, January 14, 2005; 7:30 p.m.

Saturday, January 15; 7:30 p.m.

Sirote Theatre

\$46 \$36 \$26 \$10

Held in the highest esteem both nationally and internationally, The Philadel Company, affectionately called Philadanco, has a rich history of contemporary expressions and exemplary training. They perform for over 100,000 people out concerts from the Kennedy Center and Lincoln Center to The Joyce Th Kravis Center. *Dance Magazine* declares, "Philadanco's dancers are a mirror of energy...representing the possibilities of human spirit through dance."

*Presented by the Viva Health, a Member of UAB Health System, Mover Series. Sponsored by Wente Vineyards, Alabama Crown Distributing Company, Mrs. Wyatt R. Haskell.*



### Just Announced...

The Alabama Symphony Orchestra, Birmingham Civil Rights Institute, and Alys Stephens Center present

### Reflect & Rejoice: A Community Tribute to Dr. Martin Luther King, Jr.

Sunday, January 16, 2005; 3 p.m.

Jemison Concert Hall

\$25 \$15 \$7 Student tickets \$7 [Tickets on sale now!](#)

Don't miss this powerful tribute to the legacy of Dr. Martin Luther King, Jr., 1 Alabama Symphony Orchestra. The ASO will be led by guest conductor Le joined by guest cellist Patrice Jackson and The Unity Choir made up of many choirs. This joyous celebration will include classical pieces such as Schumann's Concerto in A minor and jazz standards such as *In a Sentimental Mood* and *Thing* by Duke Ellington.

*Sponsored by Energen Corporation and McWane Cast Iron Pipe Company*



### The Regina Carter Quintet

Saturday, January 22, 2005; 8 p.m.

Jemison Concert Hall

\$46 \$36 \$26

Girl meets violin and the rest, as they say, is history. Detroit-native Regina Carter is breaking musical barriers becoming the country's preeminent jazz violinist. In December of 2004, she was invited to be the first jazz violinist ever to perform on a Guarneri violin, which once belonged to Nicolo Paganini. She followed this release of the acclaimed recording *Paganini: After a Dream*. She has also given solos on Wynton Marsalis' *Blood on the Fields* and Cassandra Wilson's *Traveler*. She is on an explosive tour with fellow violinists Nadja Salerno-Sonnenberg and Eile



[Audio Clip](#)

*Presented by the Jemison Investment Company Contemporary Vibes Series, Alagasco, Mercedes Corporation, Southern Arts Federation, National Endowment for the Arts, Richard Joseph Salon Spa, and WBHM.*

### Vassilis Varvaresos, piano

Sunday, January 23, 2005; 7 p.m.

Reynolds-Kirschbaum Recital Hall

\$29

Piano prodigy Vassilis Varvaresos won First Prize in the 1988 YCA International Piano Competition.





the age of 14, making him the youngest pianist ever to win. Varvaresos also won the Jerome L. Greene Foundation NY Debut Prize and the Beracasa Foundation Prize. *Washington Post* writes, "Varvaresos is still an undergraduate at Juilliard, but in a flashy repertoire," and *The Birmingham News* says that Varvaresos' last performance, "left no doubt that he not only possesses jaw-dropping technique but also capable of original and profound interpretive insights."

*Presented by the Gloria Narramore Moody Foundation Rising Star Series.*



### **The Canadian Brass**

Sunday, January 30; 3 p.m.  
Jemison Concert Hall  
\$46 \$36 \$26

The group that first placed brass music on the map enters its 35th season. From Bach and Mozart to Gershwin and Dixieland this ensemble has hundreds of performances and more than 50 recordings to its credit. With a long history of classical repertoire and a special affinity for Baroque music, they continue to expand into jazz and contemporary music. Millions have seen their appearances on "60 Minutes," "The Today Show" and "The Tonight Show" as well as their performances with John Williams, Boston Pops, Beverly Sills' "Music Around the World," and numerous PBS specials. [www.canbrass.com](http://www.canbrass.com)



[Audio Clip](#)

*Presented by the Birmingham Music Club Classically Inclined Series. Sponsored by the State Council on the Arts, National Endowment for the Arts, and WBHM.*



### **Don't miss...**

#### **New 18-foot sculpture by world-renowned artist Frank Stella!**

We're very excited to announce the much-anticipated installation of a sculpture by Frank Stella, entitled *Prinzessin Natalie*. Stella has been an influential artistic figure in painting, but also in sculpture, being a major force in the development of modern sculpture.

Stella studied at the Phillips Academy in Andover, Massachusetts, as well as at Harvard University. He first gained recognition when his works were exhibited at The Museum of Modern Art in 1960.

The 18-foot piece is installed in the Engel Plaza outside of the Alys Stephens Center. It is possible through the generous support of Marvin and Ruth Engel, picture artist Frank Stella (center). The sculpture, owned and cared for by the Birmingham Music Center, will enhance the exterior of the ASC creating a focal point for the Engel Plaza.

\*Hand-tinted image of the Alys Stephens Center provided by Kathleen Fetters.

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## Alys Stephens Center Offers UAB Students Big Savings on Big Entertainment

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The Alys Robinson Stephens Performing Arts Center is offering UAB students a chance to see four great shows this season for just \$25.

The Alys Arts Card offers full or part-time students their choice of any four shows for just \$25, a \$160 value. Students can purchase the Alys Arts Card at the Alys Stephens Center Box Office, 1200 10th Ave. S., or the Hill University Center Ticket Office.

Students can present the card at the box office any time 48 hours prior to a performance to receive the best available seat in the house at that time. The card does not apply to sold-out performances. The card can also be used to purchase multiple tickets to one performance. As an added bonus, the Alys Arts Card is good for 10 percent off any additional performance tickets purchased.

For more information or to purchase an Alys Arts Card, call 975-2787 or 934-8001.

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## UAB Department of Music: 2004-2005 Calendar

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For more information, call (205) 934-7376, or visit the Department of Music Website at [www.music.uab.edu](http://www.music.uab.edu).



### January 25, 2005

**UAB Faculty Recital featuring Victoria Delano, flute** — 7:30 p.m., Hulsey Recital Hall, 950 13th Street South. Admission is free. Call (205) 934-7376.

### January 30, 2005

**UAB Piano Series featuring James Giles** — 4 p.m., Hulsey Recital Hall, 950 13th Street South. James Giles is assistant professor of piano at Northwestern University, after earning his doctorate at the Manhattan School of Music. He is the first-prize winner at the New Orleans International Piano Competition, the founder of the Las Vegas Piano Institute and Piano Division Chair of the Eastern Music Festival. He recently presented recitals at Wigmore Hall, Queen Elizabeth Hall, Alice Tully Hall and the Kennedy Center. Tickets are \$15; \$5 for UAB students, staff and faculty with valid ID. Call (205) 975-2787 for ticket information.

### February 1, 2005

**UAB Faculty Recital featuring Paul Mosteller, baritone** — 7 p.m., Alys Stephens Center, Reynolds-Kirschbaum Recital Hall, 1200 10th Avenue South. Admission is free. Call (205) 975-2787 for information.

### February 12, 2005

**UAB Honor Choir Concert, featuring junior high and senior high school mixed choirs** — 3 p.m., Alys Stephens Center, Jemison Concert Hall, 1200 10th Avenue South. Lynn Gackle and Jeff W. Reynolds conducting. Admission is free. Call (205) 975-2787 for

information.

## February 22, 2005

**Guest Recital featuring Susan Fleming, voice, and Jeffery Watson, piano** — 7:30 p.m., Hulsey Recital Hall, 950 13th Street South. Concert to include works by Wolf, Strauss, Ravel, Montsalvatge and Musto. Admission is free. Call (205) 934-7376.

## March 1, 2005

**UAB Wind Symphony** — 8 p.m., Alys Stephens Center, Jemison Concert Hall, 1200 10th Avenue South. Sue Samuels directing. Admission is free. Call (205) 975-2787 for information.

## March 5-6, 2005

**UAB Department of Music hosts the 2005 Southern Appalachian Clarinet Retreat** — UAB Hulsey Center, 950 13th Street South. Organized by Denise Gainey. Call (205) 975-0558 for more information.

## March 9, 2005

**UAB Department of Music Student Recital** — 12:20 p.m., Hulsey Recital Hall, 950 13th Street South. Admission is free. Call (205) 934-7376 for information.

## March 11, 13, 2005

**UAB Opera presents Mozart's "The Marriage of Figaro"** — 7:30 p.m. March 11 and 2:30 p.m. March 13. John Ray directing. Alys Stephens Center, Sirote Theatre, 1200 10th Avenue South. Ticket prices are \$15, \$20 and \$25. Call (205) 975-2787 for information.

## March 13, 2005

**UAB Piano Series featuring Ilya Itin** — 4 p.m., Hulsey Recital Hall, 950 13th Street South. Russian-born pianist Ilya Itin has performed with the Cleveland Orchestra, the National Symphony, the London Philharmonic, the Tokyo Philharmonic and the St. Petersburg Philharmonic. He studied at the Sverdlovsk Music Conservatory and

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graduated with highest honors. Itin has lived in the United States since 1990 and since 1991 has studied with Yin Cheng Zong. Tickets are \$15; \$5 for UAB students, staff and faculty with valid ID. Call (205) 975-2787 for ticket information.

### **March 15, 2005**

**UAB Faculty Recital featuring Michael P. Fernandez, viola** — 7:30 p.m., Hulsey Recital Hall, 950 13th Street South. Admission is free. Call (205) 934-7376.

### **March 22, 2005**

**UAB Department of Music Honors Recital** — 7:30 p.m., Hulsey Recital Hall, 950 13th Street South. Admission is free. Call (205) 934-7376.

### **March 23, 2005**

**UAB Department of Music Student Recital** — 12:20 p.m., Hulsey Recital Hall, 950 13th Street South. Admission is free. Call (205) 934-7376.

### **April 5, 2005**

**UAB Computer Music Ensemble** — 7:30 p.m., Hulsey Recital Hall, 950 13th Street South. Conducted by Brian Moon. New works of electro-acoustic music and multimedia by UAB student composers. Admission is free. Call (205) 934-7376.

### **April 6, 2005**

**UAB Chamber Ensembles, featuring UAB Clarinet Choir and Piano Ensembles** — 7:30 p.m., Hulsey Recital Hall, 950 13th Street South. Admission is free. Call (205) 934-7376.

### **April 7, 2005**

**UAB Chamber Ensembles, featuring UAB Guitar Ensembles and Jazz Combo** — 7:30 p.m., Hulsey Recital Hall, 950 13th Street South. Admission is free. Call (205) 934-7376.

**April 12, 2005**

**UAB Percussion Ensemble** — 8 p.m., Alys Stephens Center, Jemison Concert Hall, 1200 10th Avenue South. Conducted by Gene Fambrough. Admission is free. Call (205) 975-2787.

**April 13, 2005**

**UAB Department of Music Student Recital** — 12:20 p.m., Hulsey Recital Hall, 950 13th Street South. Admission is free. Call (205) 934-7376.

**April 14, 2005**

**UAB Jazz Ensemble** — 8 p.m., Alys Stephens Center, Jemison Concert Hall, 1200 10th Avenue South. Conducted by Ray Reach. Admission is free. Call (205) 934-7376.

**April 16, 2005**

**UAB Choirs Spring Concert conducted by Philip Copeland and Jeff Reynolds** — 8 p.m. Alys Stephens center, Jemison Concert Hall, 1200 10th Avenue South. Concert will feature UAB Concert Choir, Chamber Singers and Women's Chorale. Admission is free. Call (205) 975-2787.

**April 18, 2005**

**UAB Gospel Choir Spring Concert, directed by Kevin Turner** — 7 p.m., Alys Stephens Center, Jemison Concert Hall, 1200 10th Avenue South. The UAB Gospel Choir albums, "Live!" and "Lessons for Life" will be available for purchase. General admission tickets are \$5; tickets are \$3 for UAB employees and students with valid ID and for children 12 years and under. Call (205) 975-2787 for ticket information.

**April 19, 2005**

**UAB Wind Symphony** — 8 p.m., Alys Stephens Center, Jemison Concert Hall, 1200 10th Avenue South. Conducted by Sue Samuels. Admission is free. Call (205) 975-2787.



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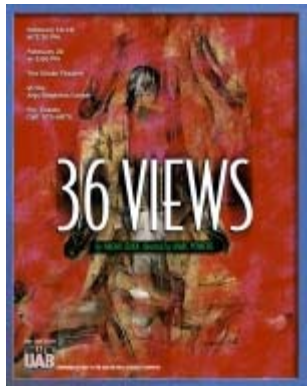
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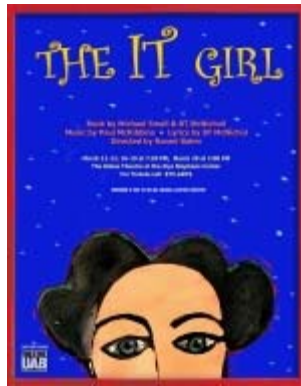
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## Upcoming Shows



**36 VIEWS**  
by Naomi Iizuka  
directed by Marc Powers  
Sirote Theatre  
February 16-20



**THE IT GIRL**  
by Small, McNicholl,  
and McKibbins  
directed by Naomi Hatsfelt  
Odess Theatre  
March 11-12, 16-20

**ANTIGONE**  
by Sophocles  
directed by Ward Haarbauer  
Sirote Theatre April 20-24





## UAB Visual Arts Gallery: Fall 2004 Calendar

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The UAB Visual Arts Gallery is located at 900 13th Street South. Admission is free. The gallery is closed on Sunday and public holidays. For information, please call (205) 934-0815.



### **GALLERY HOURS:**

**Monday – Thursday:** 11 a.m. – 6 p.m.

**Friday:** 11 a.m. – 5 p.m.

**Saturday:** 1 – 5 p.m.

**Sunday:** Closed

No exhibitions are scheduled at this time. Please return soon for an updated list of events.



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2:47 pm **Bedrich Smetana: Bartered Bride: Three Dances**  
 Royal Liverpool Philharmonic / Libor Pesek  
*Virgin Classics 59285*

December , 2004

[90.3 WBHM](#) | **Holiday programming** -- Join WBHM this holiday season for specials ranging from Chanukah, to Handel's Messiah, to The Capitol Steps: Politics Takes a Holiday. [More ...](#)




[90.3 WBHM](#) | **Tarrant, ala.** -- For those who celebrate Christmas – there's not just one way of doing it. Some people have turkey at Christmas, some roast beef. For some the holiday is celebrated on Christmas Eve, others Christmas Day. But the one constant seems to be the Christmas tree. Whether fake or real -- spruce, pine or fir, most people seem to think it's just not Christmas without a tree. WBHM's Rosemary Pennington spent an afternoon at a local Christmas tree farm to try to figure out what makes that evergreen so special. [More ...](#)




### Opera Programming

The Metropolitan Opera can be heard on the webcast of **KBAQ**, the NPR affiliate in Phoenix. Or, you can use [The Met Station Finder](#) to locate other webcasts of The Metropolitan Opera.

WBHM's **opera broadcasts** can be heard, year-round, every Wednesday night at 7

*Smockers' Christmas* [90.3 WBHM](#) | **Birmingham** -- While Christmas trees will tower over many a gift of clothing this holiday, there's one place where the clothes will actually be the decorations on the tree. WBHM's Steve Chiotakis produced this holiday audio postcard. [More ...](#)

[90.3 WBHM](#) | **Anywhere in the south** -- It's just a few days before Christmas and while much of the country is dreaming of snow, we have about as much chance of seeing a White Christmas as we do catching a glimpse of a sugar plum fairy. Yet each year we're subjected to an onslaught of movies and songs that suggest the only REAL Christmas is one




p.m.

with snow. It's the perennial propagation of Hollywood's tyrannical obsession with a White Christmas and Melanie Peeples has had enough! [More ...](#)

**How are we doing?**  
The Listener Survey will be available beginning January 3.

**WBHM | Birmingham** -- Additional Says You! shows from Tuscaloosa will air in the coming weeks. Details inside! [More ...](#)



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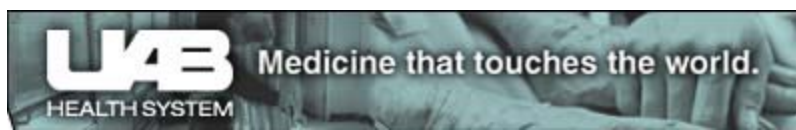
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Tuesday, December 28, 2004



## UAB Calendar of Events

### Fall 2004

For weekly grand rounds and department and division conference calendars, visit the UAB Health System Physician Resources Center at [www.health.uab.edu/4docs](http://www.health.uab.edu/4docs).

### ONLINE CME COURSES

The UAB Division of Continuing Medical Education offers more than 70 online CME courses for physicians in practice. New courses are added on the 1st and 15th of every month. For a full listing of courses, visit [www.uab.edu/cme](http://www.uab.edu/cme). Examples of recent additions:

#### Cardiovascular

- Highlights in Hyperlipidemia Treatment
- Is There a "Best Treatment" for Hypertension?
- Pulmonary Arterial Hypertension
- Management of Atrial Fibrillation: Study Results May Alter Treatment Approaches
- New Directions in Heart Failure Management
- Acute MI: Fibrinolysis vs Angioplasty
- Faster Heart Attack Intervention
- Non-ST-Segment Elevation Infarction
- Cardiac Biomarkers in Acute Coronary Syndromes

#### Dermatology

- Seborrheic Dermatitis

#### Endocrinology

- Diabetes: Fighting the Rising Epidemic
- A Cardiologist Looks at Diabetes
- Management of Thyrotoxicosis
- Insulin Resistance Syndrome

#### Geriatrics

- Management of Community-acquired Pneumonia in the Elderly

#### Immunizations

- Update: Immunizations

#### Infectious Diseases

- Genital Herpes



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- » [UAB Insight contains articles for Category I CME credit](#)



Take a virtual tour of the new University Hospital highlighting key areas of the new facility.



Check out UAB's Health Calendar to find out health events happening this month!



Take a virtual tour of the new University Hospital highlighting key areas of the new facility.



Join UAB Heart Answers Program for Health. Register now to begin receiving information the many ways you stay heart healthy!



Join UAB Generation Women's Health Program now to learn about many programs designed to keep women of every generation healthy!



Join UAB Cancer Awareness and learn about the advances in cancer prevention, detection, and treatment to help you.

Fighting the Pain of Herpes Zoster

a healthier life.

**Nephrology**

Transplant Nephrology Community Outreach Program

**Neurology**

Brighter Outlook for Neurofibromatosis Patients

**Pediatrics**

Fighting Childhood Obesity

**Psychiatry**

Recognizing and Treating Late-life Depression

**Urology**

Refining the Accuracy of Prostate Cancer Screening  
Customizing Approaches for Benign Prostatic  
Hypertrophy

**Women's Health**

Hormone Therapy: The Shifting Frontier  
UAB Preimplantation Genetic Diagnosis Program  
New Pap Test Guidelines

**Join the Alabama Practice-  
Based CME Network**


To assist physicians in improving care of complex adult patients, the Alabama Quality Assurance Foundation and the University of Alabama School of Medicine Division of CME offer a practice-based CME program. The program offers monthly practice-based CME opportunities, literature searches, patient education material, and The Medical Letter publications. For more information: [www.alabamacme.uab.edu](http://www.alabamacme.uab.edu) or contact the UAB CME Office 1.205.934.2687 or 1.800.UAB.MIST. Membership in a Mississippi Practice-Based Network is available at the same number.

For more information about CME opportunities, contact the University of Alabama School of Medicine CME Office via 1.800.UAB.MIST.



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## UAB Student Life Calendar

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### December 1

Web/Phone Registration (ACCESS)  
 Open Registration  
 Kwanzaa  
 Ambassador Applications Available HUC 440

### December 2

Web/Phone Registration (ACCESS)  
 Open Registration  
 BSAC 6th and Final Meeting 7 – 9pm, TBA Call 934-8225.

### December 3

Web/Phone Registration (ACCESS)  
 Open Registration  
 USGA Senate Meeting 6pm, HUC 412  
 BSAC Event  
 Alumni Auditorium

### December 4

Web/Phone Registration (ACCESS)  
 Open Registration  
 Feed the Need – BSAC Community Service  
 12pm, HUC Lobby

### December 5

Web/Phone Registration (ACCESS)  
 Open Registration

### December 6

Last Day of Classes  
 Last Day to Withdraw (Graduate)

Web/Phone Registration (ACCESS)  
Open Registration  
PAB Student Council Meeting/Party 7pm, Great Hall A

**December 7**

Open Day  
Web/Phone Registration (ACCESS)  
Open Registration  
Entertainment Committee Meeting 7pm, HUC 411 Call  
934-8225.

**December 8**

Open Day  
Web/Phone Registration (ACCESS)  
Open Registration

**December 9**

Final Exams  
Web/Phone Registration (ACCESS)  
Open Registration  
Book Buyback at Blazer Bookstore  
Call 934-8225.

**December 10**

Final Exams  
Web/Phone Registration (ACCESS)  
Open Registration  
Backpack Hawaii  
Book Buyback at Blazer Bookstore

**December 11**

Final Exams  
Web/Phone Registration (ACCESS)  
Open Registration  
Backpack Hawaii

**December 12**

Final Exams  
Web/Phone Registration (ACCESS)  
Open Registration  
Backpack Hawaii  
ASC Kids Club presents Christmas Comes to  
Mugwumpville: An ASC Holiday Celebration 1:30pm and  
3pm, ASC

**December 13**

Final Exams  
Web/Phone Registration (ACCESS)  
Open Registration  
Backpack Hawaii

Class Ring Sale at Blazer Bookstore  
Book Buyback at Blazer Bookstore  
USGA Pizza Break for Finals  
8pm, Residence Halls

**December 14**

Final Exams  
Web/Phone Regist. ACCESS Open Regist.  
Backpack Hawaii, Call 934-8224.  
Class Ring Sale at Blazer Bookstore, Book Buyback at  
Blazer Bookstore.  
Entertainment Committee Meeting 7pm, HUC 411  
Call 934-8225.

**December 15**

Final Exams  
Web/Phone Registration (ACCESS)  
Open Registration  
Backpack Hawaii Call 934-8224.  
Class Ring Sale at Blazer Bookstore  
Book Buyback at Blazer Bookstore

**December 16**

Web/Phone Registration (ACCESS)  
Open Registration  
Backpack Hawaii Call 934-8224.

**December 17**

Web/Phone Registration (ACCESS)  
Open Registration  
Backpack Hawaii Call 934-8224.

**December 18**

Graduation 2pm Bartow Arena  
Web/Phone Registration (ACCESS)  
Open Registration  
Backpack Hawaii Call 934-8224.

**December 19**

Grades Available on ACCESS  
Web/Phone Registration (ACCESS)  
Open Registration  
Backpack Hawaii Call 934-8224.

**December 20**

Web/Phone Registration (ACCESS)  
Open Registration  
Backpack Hawaii Call 934-8224.

**December 21**

Web/Phone Registration (ACCESS)  
Open Registration  
Entertainment Committee Meeting  
7pm, HUC 411

**December 22**

Web/Phone Registration (ACCESS)  
Open Registration

**December 23**

Web/Phone Registration (ACCESS)  
Open Registration

**December 24**

Christmas Eve  
Web/Phone Registration (ACCESS)  
Open Registration

**December 25**

Christmas Day  
Web/Phone Registration (ACCESS)  
Open Registration

**December 26**

Web/Phone Registration (ACCESS)  
Open Registration

**December 27**

Web/Phone Registration (ACCESS)  
Open Registration

**December 28**

Web/Phone Registration (ACCESS)  
Open Registration  
Entertainment Committee Meeting 7pm, HUC 411 Call  
934-8225.

**December 29**

Web/Phone Registration (ACCESS)  
Open Registration

**December 30**

Web/Phone Registration (ACCESS)  
Open Registration

**December 31**

Web/Phone Registration (ACCESS)  
Open Registration

**January 1, 2005**

New Year's Day  
Web/Phone Registration (ACCESS)  
Open Registration

**January 2, 2005**

Web/Phone Registration (ACCESS)  
Open Registration

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Campus and Community  
Events Calendars

## Consortium-Wide Events Calendar

### CAMPUS MAPS:

[Birmingham-Southern  
College](#)

[Miles College](#)

[Samford University](#)

[UAB](#)

[University of Montevallo](#)

These events -- sponsored by BACHE or individual Consortium members -- are **open to all students, faculty, and staff** of member institutions, **and the community at large**. All events are free, unless ticket information is noted.



### Consortium-Wide Events

**International Education Week**, November 17-22, 2003. Events are open to BACHE students, faculty, and staff and community members and are free of charge.

**Photo Contest, November 3-22** ■ BACHE Study Abroad Photo Exhibit and Contest Come see the world through the eyes of your fellow students! Photographs submitted for the IEW contest will be on exhibit at the Birmingham Museum of Art on Saturday, November 22. Submission deadline is October 31, 2003. Individual campus finalists will exhibit November 3-7. Consortium-wide winners announced at IEW Gala, November 22, 2:30-5:30p.m. at the Birmingham Museum of Art.

**Monday, November 17** ■ **Samford University, International Film Festival**, 5:00 pm—8:00 p.m. Planetarium Sciencenter. Come see modern films in German (5:00), French (6:30), and Spanish (8:00) with discussion and snacks after each showing. Call 726.2742 for more information.

**Tuesday, November 18** ■ **University of Alabama at Birmingham, Fulbright Program Discussion and Presentation**, 12:00-2:00 p.m. Spain Auditorium. Regional workshop on the Fulbright Program for faculty and professionals. Box lunches to be provided. Reservation required—RSVP by November 3 to [ssharp@cies.iie.org](mailto:ssharp@cies.iie.org). ■ **Miles College/Birmingham-Southern College, UNA-USA Discussion**, 4:00-5:30 p.m. Student Union, 2nd floor. A joint presentation on the “United Nations”, including discussion with UNA-USA members. Come learn about the UN and its work, and learn how international organizations have both local and global impact. 929.1682 for more information. ■ **University of Alabama at Birmingham, Chinese Cultural Festival**, 4:00-6:00 p.m. Smolian International House. Opening ceremonies with Consul General Hu from Consulate in Houston , TX will include a Chinese art exhibit and Chinese

minority costumes worn by students. Reception to follow. 934.3328 for more information.

**Wednesday, November 19** ■ **University of Montevallo, International Dance Extravaganza performed by the UM student dance troupe Orchesis**, 7:00 p.m., Stewart Student Retreat Center. A diverse selection of dance styles, including Spanish Flamenco, Japanese, Native American, and Hawaiian will be highlighted. The event will be accented with foods from each of the cultures represented. Call 665.6411 for more information.

**Thursday, November 20** ■ **Birmingham-Southern College, An Evening of International Music and Food Tasting**. 6:30 p.m. Hill Music Building Recital Hall. Join us while both students and faculty perform songs and instrumental music from around the world. Attendees will have the opportunity to learn international songs and taste food from around the world. Call 226.4950 for more information.

**Saturday, November 22—International Gala Event** ■ **Birmingham Museum of Art**, 2:30-5:30p..m., casual attire. Join fellow students, faculty , and staff from all five BACHE campuses in a celebration of international education at the Birmingham Museum of Art. On display throughout the event will be the individual campus winners of the international education week photo contest. The highlight of the event will be the announcement of the overall photo contest winner. The International Gala will also feature international dance demonstrations and cuisine from countries around the world. For more information contact Ellen Zahariadis, BACHE Director, at [ezaharia@uab.edu](mailto:ezaharia@uab.edu) or by phone at 975.2721.




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## 2004 Religious and Ethnic Holiday Calendar

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### January

1	New Year's Day	
1	Feast of Saint Basil	Orthodox
6	Epiphany - Festival of the Three Kings	Christian
7	Nativity of Jesus Christ	Orthodox
19	Martin Luther King Jr.'s Birthday	Observed
22	Chinese, Korean and Vietnamese New Year	Buddhist

### February

#### *African-American Heritage Month*

2	Eid al-Adha	Islam
12	Abraham Lincoln's Birthday	
14	St. Valentine's Day	
15	Nirvana Day	Buddhist
15-21	Brotherhood/Sisterhood Week	
16	President's Day	
22	George Washington's Birthday	
22	Muharram	Islam
23	Eastern Orthodox Lent Begins	Orthodox
25	Ash Wednesday	Roman Catholic, Protestant

### March

2-20	Month of Fasting	Bahai
6	Holi	Hindu
7	Purim	Jewish
17	St. Patrick's Day	
21	Naw-Ruz	Bahai
21	Bikaramajit	Hindu
25	The Annunciation	Christian
30	Ramanavami	Hindu

### April

4	Palm Sunday	Roman Catholic, Protestant, Orthodox
6	Passover (8 days)	Jewish
8	Maundy Thursday	Roman Catholic, Protestant
9	Good Friday	Roman Catholic, Protestant
9	Holy Friday	Orthodox
11	Easter	Roman Catholic, Protestant, Orthodox

13	New Year (Cambodia)	Buddhist
18	Yom Hashoah	Jewish
21	Ridvan (12 days)	Bahai
24	Armenian Martyr's Day	

## May

### *Asian American Heritage Month*

2	Mawlid al-Nabi	Islam
4	Wesak	Buddhist
5	Cinco de Mayo	
20	Ascension Day	Roman Catholic, Protestant, Orthodox
26	Shavuot	Jewish
30	Pentecost	Roman Catholic, Protestant, Orthodox
31	Memorial Day Observance	

## June

14	Flag Day	
19	Juneteenth	
24	Nativity of St. John the Baptist	Roman Catholic, Protestant

## July

1	Canada Day, Canadian National Day	
4	Independence Day	
9	Martyrdom of the Bab	Bahai
24	Pioneer Day	Mormon

## August

15	Feast of the Blessed Virgin Mary	Roman Catholic, Orthodox
30	Rakhi	Hindu, Jain

## September

### *National Hispanic Heritage Month*

6	Labor Day	National Holiday
6	Janmashtami	Hindu
6	Sri Ramakrishna Jayanti	Hindu
16	Rosh Hashanah	Jewish
17	Citizenship Day	National Holiday
19	San Gennaro Day	
25	Yom Kippur	Jewish
30	Sukkot (7 days)	Jewish

## October

7	Shemini Atzeret	Jewish
8	Simcat Torah	Jewish
11	Columbus Day Observance	National Holiday
15	Ramadan (30 days)	Islam
20	Birth of the Bab	Bahai
22	Dassehra	Hindu, Jain

24	United Nations Day	National Holiday
31	Reformation Day	Protestant, Lutheran

## November

### *National American Indian Heritage Month*

1	All Saints Day	Roman Catholic, Protestant, Lutheran
11	Veterans Day	National Holiday
12	Diwali (5 days)	Hindu, Jain, Sikh
12	Baha'u'llah's Birthday	Bahai
14	Eid al-Fitre	Islam
25	Thanksgiving Day	National Holiday
28	First Sunday of Advent	Christian

## December

6	St. Nicholas Day	Christian
8	Hannukkah (8 days)	Jewish
8	Feast of the Immaculate Conception	Roman Catholic
8	Bodhi Day	Buddhist
12	Festival of Our Lady of Guadalupe	Roman Catholic
25	Christmas	Christian
26	Kwanzaa (7 days)	African-American Holiday

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SUSAN SWAGLER



- So many good books, so little time

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• John Sledge - Books
• Susan Swagler - Books

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Which film should win the Golden Globe for Best Picture - Drama?

- The Aviator
Closer

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• Stowe bound
• Ski resorts going more off-slope
• More from The Birmingham News
• City Scene

### The Huntsville Times

- Symphony marks New Year with humor, tap dance
• Local ornament in White House
• Net site's wrong; 'Constellation' not ready to shine
• More from The Huntsville Times
• What's Happening

### Mobile Register

- Bay Watch
• Books
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• Bay Watch

### City Magazine, Tuscaloosa

- Death Metal
• Year of the Wooded Rooster
• Faking It
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- [Where does indecency cross line on TV? 1:48 p.m. CT](#)
- [Monty Python member writes musical 1:21 p.m. CT](#)
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## Calendar of Events

Birmingham has many great events for people of all ages. Check out the complete list of events on the following pages. Just pick an event you're interested in and a detailed description will follow. If available, click on the attached website link to learn more about the event and even order tickets online! Birmingham has something for everyone!



To see all events for the upcoming year, click the button below.

[View Full Calendar of Events](#)

To narrow your search, use the form below to select the date range. Select the type of event you're interested in . You can select more than one type of event by holding down the 'Ctrl' key and clicking several choices, or select all events for a full listing.

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**Class:**  All  
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