The Graduate School

Today's researchers, scientists, and new professionals face an increasingly competitive world. This is true not only in their fields of study, but in the "survival skills," or areas of research communication, university teaching, writing and publishing, interdisciplinary collaboration, leadership, and mentoring. Indeed, many leading institutions view these abilities as prerequisites for career advancement. This is why the UAB Graduate School's Professional Development Program offers ongoing support for students, post-doctoral fellows, faculty, and staff who want to take advantage of the school’s resources to enhance their skills.

The Professional Development Program offers graduate credit (Standard Letter Grade and Pass/No Pass options) courses, seminars, day-long workshops, and free mini-workshops in a variety of areas, such as

- Mentoring & Leadership - Certificate available
- Teaching at the College Level - Certificates available
- Research Communication - Certificate available
- Leadership & Professional Development - Certificate available
- Laboratory Management - Certificate available
- Critical Thinking
- Presentation and Discussion Skills
- Diversity and Inclusion
- Responsible Conduct of Research
- Job Search

Check out the Current Class Schedule for a list of available offerings, or visit the Professional Development website (http://www.uab.edu/graduate/graduate-school-quicklinks/professional-development-program-) for detailed information on our free mini-workshops.

GRD-Graduate School Courses

GRD 520. Special Topics. 1-4 Hour.
This course addresses topics of current interest related to professional development.

GRD 542. Leading Diverse Teams. 1-2 Hour.
This course provides students with opportunities to comprehend, articulate and apply skills related to leading and building professionally diverse teams.

GRD 617. Critical Thinking and Scientific Integrity for Masters Students. 3 Hours.
This course will give masters students an introduction to the rules of logic and reason that are necessary for effective scientific discourse and debate. In addition, students will be introduced to best practices in the responsible conduct of research, including rigor and reproducibility.

GRD 620. Special Topics. 1-4 Hour.
This course addresses topics of current interest related to professional development.

GRD 647. Navigating the Job Market. 3 Hours.
This course explores the academic and non-academic job markets and the documents and professional skills needed to navigate them effectively.

GRD 701. Presentation and Discussion Skills. 3 Hours.
Develops professional communication skills, including public speaking skills, conversation management, adapting to audience, and overall comprehensibility. Presentations critiqued by self, peers, and instructor.

GRD 703. Special Topics. 1-4 Hour.
This course addresses topics of current interest related to professional development.

GRD 704. Specialized Instruction. 1-9 Hour.
This individualized course addresses particular communication needs of students actively writing theses, dissertations, articles for publication, and grant proposals. Individual plans approved by instructor are required.

GRD 705. Teaching at the College Level. 2 Hours.
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, active learning approaches, evaluation and grading, and using technology to enhance learning.

GRD 706. Grants and Fellowships 101. 1 Hour.
Introduces the extramural funding process. Topics include types of awards, funding sources, components of an application, the review process, and writing effective grant proposals. One-day workshop.

GRD 707. Presenting Effectively. 1 Hour.
Provides an overview of giving effective oral presentations in academic and professional settings. Topics include analyzing audience and purpose, characteristics of an effective delivery, strategies for planning and design, handling questions and answers, boosting confidence, and using technology in presentations. One-day workshop.

GRD 708. Writing Successfully. 1 Hour.
Addresses issues involved in writing for academic and professional settings. Topics include analyzing audience and purpose, addressing common writing problems, developing effective writing practices, writing for publication, communicating research to the general public, and productivity strategies for writers. One-day workshop.

GRD 709. Writing Fellowships. 3 Hours.
Participants are introduced to ways to construct a biosketch, search for funding sources, how to construct a fellowship budget, and grant-related administrative policies. The importance of peer review and how to respond to reviewer critiques is covered as well as training plans, team-building and peer-review skills.

GRD 710. Career Workshop for Graduate Students. 1 Hour.
This workshop introduces a variety of career choices for students working on advanced degrees in the life sciences. Topics may include sources of career information, self-assessment, resume construction, interviewing, using new technologies in job searches, career choices, the hidden job market, networking, and negotiating.

GRD 711. Special Topics. 1-3 Hour.
This course addresses topics of current interest related to professional communication, career development, and ethics.

GRD 713. Mentoring 101. 1 Hour.
This seminar will cover the science and theory on mentoring, including the mentor-mentee relationship, issues of gender, culture, age, and other power differentials; contemporary mentoring strategies as they relate generally and specifically to situations and fields; applying different mentoring models to real life/workplace.
GRD 715. Preparing TAs to Be Effective Teachers. 2 Hours. 
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.

GRD 716. Developing a Teaching Portfolio. 2 Hours. 
This hybrid course guides students in developing a Teaching Portfolio for improving teaching practices and enhancing job search potential. The web-based curriculum introduces essential elements of the portfolio and guides students in drafting a personal Philosophy of Teaching.

GRD 717. Principles of Scientific Integrity. 3 Hours. 
Surveys ethical issues and principles in the practice of science.

GRD 719. Introduction to Mentoring & Leadership. 3 Hours. 
This course covers the principles of mentoring and leadership, focusing on the student's ability to demonstrate, analyze, and evaluate contemporary mentoring and leadership practices. Application positions students to tailor practices to their respective fields, articulate a mentoring and leadership philosophy and develop new career skill sets while producing a mentoring and leadership portfolio.

GRD 722. Writing Research for Broad Audiences. 3 Hours. 
Introduces students to effectively writing about research for broad audiences, including the media, policy makers, and general public. Students learn to write various genres of texts, such as blog posts, press releases, letters-to-the-editor, and feature articles.

GRD 723. Writing Research for Academic Audiences. 3 Hours. 
Introduces students to effectively writing about research for academic, scientific, and specialist audiences. Students learn to write various genres of texts, such as abstracts, reviews, and research papers.

GRD 727. Writing & Reviewing Research. 3 Hours. 
Introduces writers to research writing “best practices,” criteria for evaluating writing, plus editing and peer review. Writers analyze and write short, strategic texts (on their own topics) in 5 research genres – critiques, annotated bibliographies, introductions, empirical, and review articles – based on peer and instructor feedback, for a draft presentation or proposal. For anyone writing course papers, theses, and/or proposals.

GRD 728. Professional Writing & Publishing. 3 Hours. 
Introduces writers to “best practices” in academic/professional writing and publishing, plus editing, and peer review. Writers analyze and write short, strategic texts (in their own topics) in 7 academic/professional genres: abstracts, scholarly/empirical articles, review/historical articles, book chapters, opinion, professional philosophy statements, and digital journalism (writing for the public), based on peer review and instructor feedback, to produce a draft submission and publishing plan. For anyone writing for publication (including a dissertation).

GRD 729. Writing Your Journal Article in 12 Weeks. 3 Hours. 
Introduces writers to a systematic approach to writing a journal article, including essential structures, stylistic conventions, and smart strategies for planning and completing projects under a deadline. Writers begin with their own working manuscripts (unpublished course paper, thesis, dissertation, etc.), identify a target journal, and draft short, strategic sections, based on peer review and instructor feedback, to create a final submission, per author’s guidelines. For anyone with active publishing goals.

GRD 730. Developing and Managing Your Professional Image. 3 Hours. 
This course is designed to raise student awareness of their professional image. Topics include professional perception, polishing professional image, adjusting to professional contexts, and professional image and social media.

GRD 733. Managing & Leading Teams. 1 Hour. 
This workshop will cover the latest science in managing and leading teams across disciplines, focusing on team building, the students’ development of team presentations, peer discussion and review.

GRD 734. Ethical Leadership Development. 3 Hours. 
Designed for those who want to apply evidence-based models to ethical decisions in a professional setting, this course positions students to tailor practice to their own careers, articulate an ethical philosophy for a portfolio, and model ethics as a leader in their respective fields.

GRD 735. Leadership 101. 1 Hour. 
This seminar covers organizational leadership theory, as well as contemporary leadership models and strategies as they relate generally and specifically to situations and fields.

GRD 739. Science Communication Practicum. 3 Hours. 
Designed for those who want to expand career options by developing Science Communication skills for the general public, this practicum offers instruction, networking, and experience in key areas, such as science journalism, science public relations, medical writing, and entrepreneurship.

GRD 740. UAB Prep Scholar Workshop. 2 Hours. 
This course will provide writing and other enrichment activities to prepare UAB PREP Scholars for entry into graduate school.

GRD 741. UAB PREP Scholar Workshop I. 1 Hour. 
This course will provide writing and other enrichment activities to prepare UAB PREP Scholars for entry into graduate school.

GRD 742. UAB PREP Scholar Workshop II. 1 Hour. 
This course will provide writing and other enrichment activities to prepare UAB PREP Scholars for entry into graduate school.

GRD 743. Critical Thinking and Quantitative Concepts. 3 Hours. 
The goal of this course is to enhance students' critical thinking skills in the context of rigorous experimental design and quantitative analysis. Specifically, students will engage in activities that explore robust and unbiased approaches toward analysis, interpretation, and reporting of experimental results.

GRD 744. Leadership Survival Skills. 1 Hour. 
In this course, participants explore the day-to-day activities of leaders, including organizational mission, vision, values, and goals, budgeting, human resources, and project management. Case studies are used to help students reflect on and discuss solutions from a leader’s perspective.

GRD 745. Communication and Diversity Leadership. 3 Hours. 
Upon completion of the course, students will be able to explain, analyze, and apply approaches to leading and communicating in diverse communities.

GRD 746. Critical Decisions in Mentoring & Leadership. 3 Hours. 
This course explores the critical thinking skills related to the decision making processes for mentors and leaders.

GRD 747. Navigating the Job Market. 3 Hours. 
This course explores the academic and non-academic job markets and the documents and professional skills needed to navigate them effectively.
GRD 748. Faculty Mentoring in Higher Education. 1 Hour.
In this one-day workshop, faculty will explore the mentor/mentee relationship in higher education, as well as peer mentoring, role modeling, coaching, and formal/informal mentoring structures.

GRD 749. Improvisational Techniques to Improve Leadership, Teaching, and Research Communication. 1 Hour.
This workshop engages participants through improvisational and theatrical techniques in order to build confidence and improve as leaders, teachers, and/or researchers.

GRD 750. CIRTL Seminar in Teaching and Learning. 2 Hours.
CIRTL seminar provides opportunities for students to read and discuss basics of effective teaching and learning.

GRD 751. CIRTL Seminar in Teaching and Learning II. 2 Hours.
This CIRTL seminar provides opportunities for students to read and discuss teaching as research projects.

GRD 752. Introduction to Evidence-based Teaching. 2 Hours.
This CIRTL Network seminar is designed for graduate students and postdoctoral scholars who plan to teach undergraduate STEM (science, technology, engineering, and mathematics) courses. It addresses a range of topics focused on enhancing STEM teaching.

GRD 753. CIRTL Seminar on STEM Academic Teaching Careers. 1-3 Hour.
This CIRTL Network seminar provides an overview of types of academic teaching positions and addresses topics related to academic careers.

GRD 754. Advanced Evidence-based Teaching. 2 Hours.
This CIRTL Network course explores effective research-based teaching approaches for enhancing learning in STEM (science, technology, engineering, and math) courses. Approaches such as collaborative learning, team-based learning, flipped classrooms, inquiry science, case studies, and problem-based learning will be considered.

GRD 755. CIRTL Teaching Practicum. 3 Hours.
This CIRTL course provides students a structured observation and practicum experience in which they shadow a faculty member as he/she teaches a semester-long course and engage in a variety of guided teaching activities.

GRD 756. CIRTL The College Classroom. 2 Hours.
This CIRTL Network course provides students with the basics of effective teaching with an emphasis on the learning-centered classroom and the interconnected cycle of teaching, assessment, and learning.

GRD 757. CIRTL Effective Use of Technology in Teaching and Learning. 2 Hours.
This CIRTL Network course provides students with strategies and technological choices and tools for effective use of instructional technology in their teaching practices.

GRD 758. CIRTL Diversity in the College Classroom. 2 Hours.
This CIRTL Network course addresses different aspects of diversity, particularly in STEM (science, technology, engineering, and math) education, with the underlying principle of equitable access and enhanced learning of all students. Topics include gender, race, culture, disability, first-generation college students, ethnically diverse students (men of color, Latino/as, and international students), and learning style/environment.

GRD 759. CIRTL Teaching-as-Research in STEM Courses. 3 Hours.
This CIRTL course introduces Teaching-as-Research project design and guides students through the TAR planning process.

GRD 760. CIRTL Teaching-as-Research Project. 3 Hours.
This CIRTL course is designed for students who are conducting a Teaching-as-Research project.

GRD 761. CIRTL Special Topics. 1-5 Hour.
This CIRTL course addresses topics of current interest related to college teaching.

GRD 762. CIRTL Individualized Seminar. 1-3 Hour.
This CIRTL seminar addresses teaching and learning projects related to STEM (science, technology, engineering, and math) education. Individual plans approved by the instructor are required.

GRD 763. CIRTL Individualized Teaching and Learning Project. 1-3 Hour.
This CIRTL individualized course provides students with opportunities to engage in teaching and learning projects related to undergraduate STEM (science, technology, engineering, and math) education. Individual plans approved by the instructor are required.

GRD 764. CIRTL Individualized Teaching Experience I. 1-5 Hour.
This CIRTL individualized course provides students with opportunities to teach and reflect on these experiences in a variety of teaching contexts. Co-instructor students serve as “Teaching Fellows”. Individual plans approved by the instructor are required.

GRD 765. CIRTL Individualized Teaching Experience II. 1-5 Hour.
This CIRTL individualized course provides students with opportunities to teach for more extended periods and to reflect on these experiences in a variety of teaching contexts. Individual plans approved by the instructor are required.

GRD 766. Introduction to Online Teaching. 1 Hour.
Learn basics of developing and teaching an online course including how to structure content, effective interaction and communication, active online engagement techniques and assessments.

GRD 770. Intro to Biostats. 2-3 Hours.
This course is intended to provide graduate students with an introduction to biostatistics. The emphasis in this course will be upon understanding statistical concepts and applying and interpreting tests of statistical inference. Content will include but not be limited to: choosing the correct test for a given research design, data and data files, data screening, scaling, visual representations of data, descriptive statistics, correlation and simple regression, sampling distributions, and the assumptions associated with and the application of selected inferential statistical procedures (including t-tests, Chi-square, and ANOVA). Computer software (SPSS) will be employed to assist in the analysis of data for this course. Students should have access to a computer, SPSS software, and the Internet.

GRD 771. ePortfolio Workshop. 1 Hour.
Learn how to Build a personalized website to host your Teaching and/or Mentoring Portfolio or for personal branding/promotion.

GRD 772. Emotionally Intelligent Leadership. 1-2 Hour.
This course provides students with opportunities to explore the relationships among emotional intelligence (EI), leadership, and professional development.

GRD 773. Research Lab Management. 3 Hours.
By successfully completing this course, enrolled participants should be able to i) construct a start-up budget; ii) design a safe research laboratory environment; iii) hire, mentor and manage research lab staff and trainees; and iv) develop and implement a research lab management plan. Submission of a completed research lab management plan will be used to measure attainment of learning objectives.
GRD 774. Introduction to Regulatory Compliance. 1 Hour.
Enrolled participants will examine regulatory compliance issues related to basic research needs, including but not limited to animal use, human subjects and export control. Completion of in-class activities will be used to measure attainment of learning objectives.

GRD 775. Research Lab Safety. 1 Hour.
Enrolled participants will examine general laboratory safety practices and should be able to i) design a safe laboratory plan; and ii) develop lab safety-related standard operating procedures. Completion of in-class activities will be used to measure attainment of learning objectives.

GRD 790. Research/Lab Rotation. 1-10 Hour.
Graduate Lab Rotation Used by MD/PhD Students first summer semester.

LEAD-Leadership Courses

LEAD 500. Introduction to Leadership Behaviors, Characteristics and Theories. 3 Hours.
This course introduces students to the study of leadership and behaviors associated with core career readiness and advancement. Students will identify personal strengths and areas for growth relative to employer expectations.

LEAD 501. Professional Writing for Leadership. 1 Hour.
This course provides students with opportunities to comprehend professional writing expectations as well as practice writing various documents critical to success within professional settings.

LEAD 502. Professional Presentations for Leaders. 1 Hour.
This course provides students with opportunities to apply skills associated with developing and delivering professional presentations.

LEAD 503. Professional Interview and Interviewing Skills for Leaders. 1 Hour.
This course provides students with opportunities to apply skills associated with engaging in professional interviews as well as developing and conducting interviews.

LEAD 504. Introduction to Organizational Change Processes. 1-2 Hour.
This course provides students with opportunities to gain knowledge and competencies related to understanding, navigating, and supporting others during organizational change.

LEAD 505. Prioritization and Decision Making for Leadership. 1 Hour.
This course provides students with opportunities to apply skills associated with evaluating and prioritization processes in order to efficiently make effective and purpose-informed decisions.

LEAD 506. Emotionally Intelligent Leadership. 1 Hour.
This course provides students with opportunities to explore the relationships among emotional intelligence (EI), leadership, and professional development.

LEAD 520. Ethics in the Workplace. 2 Hours.
This course introduces students to ethical leadership and work ethics. Skills discussed and practiced include but are not limited to decision making, prioritization, reasoning, and values clarification.

LEAD 521. Servant Leadership. 1-2 Hour.
This course provides students with opportunities to gain knowledge and competencies related to Servant Leadership philosophies and approaches.

LEAD 522. Followership. 1-2 Hour.
This course provides students with opportunities to gain knowledge and competencies related to followership philosophies and approaches.

LEAD 523. Gender Dynamics and Leadership. 1-2 Hour.
This course provides students with opportunities to gain knowledge related to the influence that gender and gender dynamics have relative to leadership and professional development opportunities.

LEAD 524. Inter-generational Leadership. 1-2 Hour.
This course provides students with opportunities to comprehend, articulate and apply skills related to generational dynamics within leadership and professional development opportunities.

LEAD 525. The Resilient Leader - Self and Others. 1-2 Hour.
This course provides students with opportunities to comprehend, articulate and apply skills related to resilience in leadership and professional development.

LEAD 526. Goal Setting for Leaders. 1 Hour.
This course provides students with opportunities to learn about and practice goal setting strategies associated with personal and professional success.

LEAD 540. Team Development and Dynamics. 2 Hours.
This course introduces students to the benefits of teams and teamwork. Students will practice leadership competencies associated with developing productive teams, and assessing team dynamics.

LEAD 541. Building Effective Teams. 1-2 Hour.
This course provides students with opportunities to comprehend, articulate and apply skills related to building effective and professional teams.

LEAD 543. Planning and Leading a Meeting for Leaders. 1 Hour.
This course provides students with opportunities to apply skills associated with planning and facilitating a meeting for a team or group of individuals in a professional or leadership setting.

LEAD 544. Conflict Negotiation in Leadership. 1 Hour.
This course provides students with opportunities to apply skills associated with managing conflict and facilitating productive conversations in professional and/or leadership settings.

LEAD 545. Planning and Facilitating a Retreat. 1-2 Hour.
This course provides students with opportunities to comprehend, articulate and apply skills related to planning and facilitate a leadership and/or professional development retreat.

LEAD 560. Leadership and Professional Development Workshop. 1-2 Hour.
Subject matter in this course will vary to in order to promote workshop specific leadership skill acquisition not addressed in other LEAD courses based upon assessed needs.

LEAD 570. Leadership Development Seminar. 1-2 Hour.
Subject matter in this course will vary to in order to promote seminar specific leadership skill acquisition not addressed in other LEAD courses based upon assessed needs.

LEAD 590. Leadership by Design. 2 Hours.
This course provides students with an opportunity to learn about and apply the Designed Thinking process to propose a solution for an industry specific issue. Students choose the industry for which they design a solution. This is the capstone course for the LEAD graduate certificate program.

Prerequisites: LEAD 500 [Min Grade: C] and LEAD 520 [Min Grade: C] and LEAD 540 [Min Grade: C]
**MBS- Multidisc Biomedical Sci Courses**

**MBS 601. Molecular and Cell Biology. 4 Hours.**
This course will provide a broad but rigorous overview of molecular biology. Cell structure between prokaryotes and eukaryotes will be compared and contrasted. DNA structure/organization will be discussed with respect to replication and repair mechanisms. Mendelian, non-Mendelian and chromosomal bases of genetics will also be discussed. Transcription and translation will be discussed in detail, along with their respective regulatory mechanisms. Throughout this course there will be a focus on intracellular organelles that contribute to the generation and regulation of DNA, RNA and protein. Finally, when possible, relevance to human disease will be presented and discussed.
Prerequisites: BY 124 and BY 124L

**MBS 602. Biochemistry and Cell Biology. 4 Hours.**
This course will cover the structure, function and metabolism of biological macromolecules including proteins, carbohydrates, lipids and nucleotides. A rigorous overview of pathways will be discussed that are important for the effective metabolism of macromolecules (e.g. glycolysis, citric acid cycle) and generation of energy for cells. The last part of this course will discuss membrane structure and function, and will provide an overview of eukaryotic cell signaling.

**MBS 603. General Human Physiology. 4 Hours.**
This course begins with the study of basic cell function, then proceeds to a rigorous overview of specific human organ systems.

**MBS 611. Foundations of Pharmacology & Toxicology. 3 Hours.**
This course will provide students with an overview of the discipline of Pharmacology or the science of the mechanism and regulation of drug action. Processes will be discussed that affect most drugs and xenobiotics including absorption, distribution, metabolism and elimination. The course will provide students with concepts that will be applicable to understanding the activity and regulation of drugs discussed in the Systems Pharmacology courses. Concepts presented in the course will be advantageous to all students in understanding therapeutic drug use or in appreciating drug use and action in many different research settings.

**MBS 612. Systems Pharmacology I. 3 Hours.**
This course will introduce the student to the use, mechanism of action and physiological properties of major families of drugs that affect the cardiovascular system, autonomic nervous system (ANS) and central nervous system (CNS). Lectures will provide an overview of nerves/ cardiovascular system physiology as well as pathophysiology that results from various diseases, disorders and injuries. Drugs used to treat these conditions and their mechanisms of action will be described in detail. Both classical drugs and newer classes of drugs will be discussed for both their therapeutic value and also their use in different research settings. This course will be taught using a combination of traditional didactic lectures and student participation through discussion of seminal research papers and presentations. This course is a companion course to MBS 613 (Systems Pharmacology II).

**MBS 613. Systems Pharmacology II. 3 Hours.**
This course will introduce drug use, mechanism of action and physiological properties of major drug families, with a focus on specific organ systems (endocrine, gastrointestinal and renal systems). In addition, this course will also cover specific classes of drugs for cancer treatment specifically related to the organ systems covered in the course. This course is divided into three “modules”. Each module has its own exam. In addition, there are graded student presentations at the end of the semester, topics of discussion to be determined. This course is a companion course to MBS 612 (Systems Pharmacology I).

**MBS 614. Toxicology and Drug Development. 3 Hours.**
This course is designed to provide students with an introduction to the field of toxicology and its association with pharmacology. This course will also provide an overview of the thought processes associated with defining drug targets and developing drug candidates. The course is separated into two modules: 1) introduction to toxicological issues associated with the drug and xenobiotic exposure; 2) introduction to the process of identifying a drug target, and developing and validating a drug that pharmacologically interacts with the target.

**MBS 696. Special Topics. 1-3 Hour.**
To be determined by the Program Director and prospective Course Directors.

**MBS 697. Colloquium in Biomedical Science. 1 Hour.**
This required colloquium course will be taught using a journal club format. Students will be taught to critically review scientific literature, while gaining effective written and oral scientific communication skills. Students working in small groups will be responsible for choosing a current biomedical research article and sharing their review of this article in a Power Point (PPT) presentation. Student audience members will be responsible for asking questions during the presentation and for submitting a review of each article in abstract form. The Course Director will provide initial instruction in the critical review, presentation and written summary of scientific literature. Topics to be covered include: critical review (background and rationale for study; identification of hypothesis; description of methods used; presentation of results and their interpretation; indicate significance of study and describe next step experiments), effective communication of research articles via Power Point presentations; and writing assignments based on articles discussed in class. When possible, scientific integrity in research will be a focus of in-class discussions.

**MBS 698. Non-Thesis Research. 1-6 Hour.**
Students may perform independent study in a research laboratory setting. This work may contribute toward concentration credits subject to Program Director approval.

**MBS 699. Thesis Research. 1-6 Hour.**
Supervised independent research.