

# GRADUATE (GRD)

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## **GRD 700. Independent Study. (1-9 h)**

This course allows an interested student to pursue a topic covered in another class in greater depth under the guidance of a faculty member. The faculty member will work with the student to clarify the expectations; usually the course requires a combination of extensive reading, tutorial sessions, and a written paper. May be repeated.

## **GRD 701. Special Topics. (1-9 h)**

This course allows an interested student or students to pursue a topic covered in another class in greater depth under the guidance of a faculty member. The faculty member will work with the student or students to clarify the expectations; usually the course requires a combination of extensive reading, tutorial sessions, and a written paper. May be repeated for different topics.

## **GRD 702. Internship. (1-9 h)**

The objective of this experiential course is to prepare graduate students to practice their biomedical science expertise within one of a variety of career settings. The course is appropriate for those seeking either a Master's or PhD in biomedical sciences, preparing the student for roles in pharmaceutical/biotech (research, safety, marketing), law and regulatory agencies, medical writing, science policy, and grants management, among others. Students should register for this course if their internship placement is located within the Wake Forest umbrella. Students with placement outside of the Wake Forest umbrella should register for GRAD 703. Credit hours may be adjusted based on the length of the internship. May be repeated. Satisfactory/Unsatisfactory.

## **GRD 703. Internship. (1-9 h)**

The objective of this experiential course is to prepare graduate students to practice their biomedical science expertise within one of a variety of career settings. The course is appropriate for those seeking either a Master's or PhD in biomedical sciences, preparing the student for roles in pharmaceutical/biotech (research, safety, marketing), law and regulatory agencies, medical writing, science policy, and grants management, among others. Students should register for this course if their internship placement is located outside the Wake Forest umbrella. Students with placement inside of the Wake Forest umbrella should register for GRAD 702. Credit hours may be adjusted based on the length of the internship. May be repeated. Satisfactory/Unsatisfactory.

## **GRD 704. Principles of Intellectual Property Development. (2 h)**

This course is specifically designed for late stage graduate students to supplement their scientific background with a greater understanding of intellectual property protection, commercialization, and start-up company formation. Numerous aspects of our knowledge-based economy will be covered including an overview of the diverse types of intellectual property protection available to protect inventions (with a focus on patents,) the technology transfer process in an academic setting, a primer of company formation and organization, and an analysis of the different agreements (including Confidential Disclosure Agreements, Material Transfer Agreements and License Agreements) necessary to move a technology from the bench to the bedside.

## **GRD 705. Commercializing Innovation. (3 h)**

This course will explore the processes that are involved from taking an interesting and innovative idea through successful commercial or organizational application - in going from why something is a promising innovation on to how to develop a potentially successful business. It will look at product and process innovation, as well as the increasingly important area of business model innovation. There will be strong emphasis on practical application, group work and learning from experience. Guest lecturers will be used to illuminate some of the key issues in the commercialization process. Typically offered in spring terms.

## **GRD 706. Regulation and Reimbursement of Novel Drugs, Biologics, and Medical Devices. (3 h)**

This course is an overview of the key areas of strategic clinical development, Regulatory Affairs and the FDA-imposed regulations pertinent to the product lifecycle in the pharmaceutical, biologics, and medical device industries. The course also explores the basics of market access and reimbursement as a "second approval" prior to the product entering the market. The implications for available scientific and clinical evidence in light of market access issues will be discussed and linked back to the design of successful clinical development programs. Students will gain insight into the key elements of the regulatory process and market access in various health sector industries, governmental agencies and consultancies.

## **GRD 707. Professional Responsibilities & Conduct I. (1 h)**

Students learn to identify general and discipline-specific professional norms and obligations for the responsible practice of science. Emphasizes development of professional decision-making skills. This course or equivalent is required for Reynolda campus Master's students who will be supported on federal grants. Pass/Fail.

## **GRD 708. Communicating Science. (2 h)**

This course is meant to train students in the best practices of taking highly technically scientific content and translating into formats that can be more easily comprehended by non-scientists and laypersons. The course will rely heavily on student presentations, often of their own research, followed by constructive critique from other class members. Typically offered in the summer term.

## **GRD 709. Scientific Outreach. (1 h)**

This course provides hands-on engagement with teaching and educational opportunities directed at the lay public or other, non-university groups. Planning outreach events and communicating scientific concepts to the lay public are essential skills for any scientist-in-training, especially those who may be involved in academic lecturing or public policy. The scope of such activities will derive from the scientific disciplines of the students involved, but will include activities involving the informal teaching of basic and translational science concepts in the biomedical sciences and other STEM-related disciplines. Examples of such engagement include K-12 school visits, involvement in public symposia related to science for lay audiences, or any similar activity performed under faculty guidance. May be repeated for credit not to exceed 6 hours each. Satisfactory/Unsatisfactory.

**GRD 710. Scientific Outreach. (1 h)**

This course provides hands-on engagement with teaching and educational opportunities directed at the lay public or other, non-university groups. Planning outreach events and communicating scientific concepts to the lay public are essential skills for any scientist-in-training, especially those who may be involved in academic lecturing or public policy. The scope of such activities will derive from the scientific disciplines of the students involved, but will include activities involving the informal teaching of basic and translational science concepts in the biomedical sciences and other STEM-related disciplines. Examples of such engagement include K-12 school visits, involvement in public symposia related to science for lay audiences, or any similar activity performed under faculty guidance. May be repeated for credit not to exceed 6 hours each. Satisfactory/Unsatisfactory.

**GRD 711. Introduction to College Teaching. (1 h)**

Prepares graduate teaching assistants for teaching roles. Coursework includes a 1-2 day orientation introducing students to the role and responsibility of being a teaching assistant, departmental orientation to teaching in the discipline, a series of educational workshops conducted by the Teaching and Learning Center, and classroom observation. Satisfactory/Unsatisfactory.

**GRD 712. Clinical Integrity and Professionalism. (2 h)**

This course offers foundational ethics and integrity training to Bowman Gray graduate students focused in pre-clinical studies. This course will utilize a combination of didactic presentations and small group, problem-based learning experiences to teach students methodology for addressing future ethical concerns in clinical and research practice. The course will provide an overview of the historical context and theoretical frameworks of biomedical ethics. Emphasis will be placed on the use of case studies to discuss topics including but not limited to: the doctor-patient relationship, professionalism, the principles of biomedical ethics, informed consent, privacy and confidentiality, medical research, social factors in healthcare, and ethical issues at the beginning and end of life. This course satisfies graduation requirements for ethics training for Bowman Gray students. Satisfactory/Unsatisfactory.

**GRD 713. Foundations of Scientific Integrity and Professionalism. (1 h)**

A short-course designed to offer foundational ethics and integrity training to incoming Bowman Gray graduate students. Key concepts will include introduction to key professional norms in science, including, but not limited to, responsible conduct of research, new professional expectations, as well as student life. An introduction to topics, that will be further explored using case-studies in GRAD 714, will include: plagiarism, animal & human subject research, record keeping, data management, grant writing, the student and advisor relationship, laboratory dynamics, and managing conflicts of interest. Typically offered immediately following fall orientation. Satisfactory/Unsatisfactory.

**GRD 714. Scientific Integrity and Professionalism. (1 h)**

A small-group, problem-based learning formatted course designed to teach discipline-specific and broad, professional norms and obligations for the ethical practice of science, primarily for first-year graduate students on the Bowman Gray campus. The content will present ethical dilemmas and promote professional behavior on, but not limited to, the responsible conduct of research and the current regulatory climate with emphasis on the underlying principles that shape these concepts. Topics will include plagiarism, animal & human subject research, record keeping, data management, grant writing, the student and advisor relationship, laboratory dynamics, and managing conflicts of interest. Typically offered weekly at 2-hour discussion sections during the spring term. This course satisfies graduation requirements for ethics training for Bowman Gray students. Satisfactory/Unsatisfactory.

**GRD 715. Career Planning in Biomedical Sciences. (1.5 h)**

A weekly seminar course, primarily for first-year graduate students on the Bowman Gray campus, in which invited alumni panelists share details on career options in the biomedical sciences, typically grouped by industry, highlighting a wide range of career paths. Speakers will share details from their own experiences in preparing for their chosen career paths, and may include: undergraduate college teaching, pharmaceutical research, law careers, medical writing, science policy, and grants management, among other careers. In addition to the panel discussions, students will have the opportunity to complete self-assessment exercises to help narrow their career focus, will begin to discuss best practices in resume, curriculum vitae, cover letter writing, and interviewing skills. Recommended for all students on the Bowman Gray campus. Typically offered in fall terms.

**GRD 716. Seminars in Professional Development. (1 h)**

A weekly seminar course, primarily for first-year graduate students on the Bowman Gray campus, in which invited speakers give presentations organized around offering students best practices in professional behaviors on topics, including: animal and human subjects research, record keeping, authorship, grant writing, preparing talks and posters, and managing conflicts of interest. Required for PhD students on the Bowman Gray campus; recommended for MS students on the Bowman Gray campus. Typically offered in spring terms.

**GRD 717. Career Planning for Graduate Students. (1 h)**

This course is designed to provide graduate students with experience in all three components of the career planning process: 1) self-assessment of work related values, interests, skills; 2) exploration and research of career options 3) development of job search materials including resumes, cover letters, and other relevant materials. Recommended for all students in the Reynolda Campus programs preferably in their first year. This will be offered in online format over half a semester to allow for self-guided investment in their own career plans. Satisfactory/Unsatisfactory.

**GRD 720. Topics in College-Level Teaching. (1-3 h)**

Students participate in the preparation and delivery of one or more lectures, homework assignments, and examinations, and facilitate small group learning sessions. Students attend at least two professional development workshops on a variety of aspects of the educational process. P-Successful completion of the first year of coursework in a biomedical graduate training program and POI. Satisfactory/Unsatisfactory.

**GRD 722. Teaching Skills and Strategies Seminar. (2 h)**

Designed to provide students with formal training and development in teaching strategies and teaching scholarship. A variety of theories and pedagogies are reviewed and discussed. Students receive some practical experience in developing and delivering instructional materials and assessment tools. Meets weekly for two hours throughout the spring semester.

**GRD 724. Biosafety in Research Laboratories. (3 h)**

This one-term course provides an overview of the types of biohazards that may be encountered while conducting scientific research, with emphasis on laboratories, and effective methods to minimize the risks associated with those hazards. P-At least one microbiology course and laboratory experience.

**GRD 725. Speaking with Confidence. (3 h)**

Introduction to logic and rhetoric as well as grammar, comprehension, idioms, pronunciation, and vocabulary. Focuses on increasing self-confidence to improve speaking abilities as well as future employment opportunities.

**GRD 726. Written English for the Professional Graduate. (3 h)**

Field-based seminar compares the barriers to market participation experienced by independent entrepreneurs cross-culturally. Free trade policies are contrasted with fair trade practices to determine why so many independent producers have trouble succeeding in a globalizing world.