

## Plan for Meeting the Ethics and Integrity Requirements in Graduate Education

*Department of Forest Resources and Environmental Conservation*

### **Introduction**

In response to Commission on Graduate Studies and Policies (CGS&P) Resolution 2012-13B to include a scholarly ethics and integrity component in graduate education, the Department of Forest Resources and Environmental Conservation implemented a plan beginning with graduate students admitted in Fall 2014. The plan has been revised to include a new graduate course offered in the department on research ethics and integrity. The scholarly ethics and integrity component is intended to apply to all departmental graduate degrees, including the Master of Forestry (M.F.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.) degrees.

### **Required Topics**

As defined by the Graduate School, graduate students must receive instruction in all of the following:

1. Plagiarism and other violations of the Graduate Honor Code;
2. Proper use of professional conventions in citation of existing research and scholarship, accurate reporting and ownership of findings, and acknowledgement of contributions to the work;
3. Ethical standards in teaching, mentoring, and professional activities; and
4. Available avenues for reporting alleged misconduct.

### **Optional Topics**

In the disciplines represented within the Department of Forest Resources and Environmental Conservation, the following optional topics, as identified by the Graduate School, are relevant to some students:

1. Appropriate lab procedures and maintenance of lab notebooks and other research documentation;
2. Fair use of publications, software, and equipment;
3. Appropriate research protocols involving human and animal subjects; Institutional Review Board; and
4. Guidelines for determination of authorship.

## **Method of Addressing these Requirements**

The Department of Forest Resources and Environmental Conservation has two options, detailed below, to implement a scholarly ethics and integrity component in graduate education. Students can either enroll in a 1-credit graduate course in ethics and integrity or complete a set of self-guided activities.

### **I. Course Option**

#### **FREC 5014 Research Ethics and Integrity in Forest Resources and Environmental Conservation**

FREC 5014 was created to provide an integrated, formalized, and comprehensive course for researchers that meets and exceeds the requirements of the CGS&P Resolution 2012-13B. This course examines scholarly ethics and integrity in the responsible conduct of research in forest resources and environmental conservation. It includes the following topics: professional standards of science, mentoring, authorship and peer review, citation practice, research misconduct, managing conflicting interests, collaborative research, data sharing and ownership, and scientific record keeping. The course is one-credit and will be offered on an annual basis.

Relevant Topics: Required #1-4; Optional #1-4

### **II. Self-guided Option**

**A. Departmental New Student Orientation.** All graduate students attend a required departmental orientation in the semester in which they begin their graduate program (offered fall and spring semester). At this orientation, the logistics of life as a graduate student are covered and the graduate program coordinator and the faculty chair of the Graduate Affairs Committee (GAC) present information on expectations for completing a working plan, a plan of study, and selecting a committee. The graduate coordinator and GAC chair also will present information on the Graduate Honor Code and available avenues for reporting alleged misconduct by fellow students and faculty as well as how to address conflict with advisors or committee members appropriately. Lastly, each student will be briefed on the ethics and integrity requirement and will be informed of the timeline for satisfying the requirements. Attendance will be taken at this orientation and will be recorded in each student's departmental record.

Relevant Topics: Required #1, #4

**B. GTA Workshop taught by the Virginia Tech Graduate School.** All funded graduate students in the department are required to register for this workshop for credit (GRAD 5004 (P/F; 1C) during the first fall semester of their graduate program. Students beginning their studies during the spring semester will take the workshop during the following fall semester. This workshop offers a variety of topics by experienced faculty and GTA's on professional ethics associated with teaching. Attendance is monitored and a specified number of sessions on certain topics is required for a passing grade.

Relevant Topics: Required #1, #3, #4

**C. Complete the NSF Responsible Conduct of Research (RCR)** Students may choose to complete a set of online modules created and maintained by the Collaborative Institutional Training Initiative (CITI) during the first semester of their graduate program.

Virginia Tech is a subscribing organization to CITI so the modules are available at no cost to all faculty and graduate students. VT Office of Sponsored Programs requires faculty to engage in training from CITI modules when extramural funding is received, and, increasingly, research sponsors are requiring that all graduate students working on projects also take certain CITI modules. The basic RCR set of modules is estimated to take 4-6 hours of effort and all modules contain a quiz after completion. The minimum passing aggregate score for the RCR module is 80%. On completion of this course, students are awarded a certificate of completion. This certification must be submitted to the department's graduate coordinator within the first semester of graduate enrollment and will be recorded in the student's departmental record.

Relevant Topics: Required #1-3; Optional #1, #4

**D. Completion of Working Plan for Research within 1 year of enrollment.** In the first year of graduate studies, before the beginning of any fieldwork, students are required to complete a detailed working plan for approval by their research committee. In this working plan, students conduct a detailed literature review of relevant, up-to-date research (following accepted conventions in citations) as well as provide detail on appropriate lab procedures, research documentation, and a timeline for completion.

Relevant Topics: Required #1, #2; Optional #1, #2, and #3 (where appropriate)

### **III. Additional Training Opportunities in Ethics and Integrity**

**A. Human Subjects Training.** Some graduate students in the Department of Forest Resources and Environmental Conservation use human subjects in their research. Students working with a protocol approved by the Virginia Tech Institutional Review Board and are required to complete online training through the VT-IRB tutorial, which includes assessment via an online quiz.

Relevant Topics: Optional #3

**B. Biosafety Training.** Some graduate students in the Department of Forest Resources and Environmental Conservation use biohazardous materials in their research. Those that do are required to have their protocols approved by the Virginia Tech Institutional Biosafety Committee. They are also required to obtain training through online CITI training modules, which include assessment quizzes to pass the courses.

Relevant Topics: Optional #1, #3

### **IV. Implementation**

All of the listed activities and the course FREC 5014 are currently in place and the requirements as outlined will be added to the departmental Graduate Handbook. The Department of Forest Resources and Environmental Conservation will, effective immediately, document completion of these requirements via new fields in the graduate student evaluation form completed annually by each student's graduate committee and signed by all committee members.

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