

## **DEPARTMENT OF PLANT BIOLOGY EDUCATION/TRAINING PLAN FOR RESPONSIBLE CONDUCT OF RESEARCH AND SCHOLARSHIP FOR GRADUATE STUDENTS**

Training in the Responsible Conduct of Research is essential in the preparation of future scholars and professionals. An understanding of the issues concerning the conduct of research in an increasingly complex world has become critical in successfully navigating the research landscape. It is the Department's belief that this plan will provide a foundation for all graduate students, as well as others pursuing a career in research, and will offer the basic information to meet most, if not all, federal agency granting requirements.

Note that for some students additional training above the Department minimum may be necessary. Students who are supported by NSF, NIH, or USDA grants may be required to complete additional specific training; they must meet the timeline and content requirements of training for that grant. Students engaged in research involving human subjects or animal use must complete the Michigan State University training modules for those subjects before submitting IRB or IACUC approvals. These online modules may be completed as part of the CITI Modules Year 2 requirements below.

Compliance with these requirements will be monitored via the online SABA system (for online modules) and on annual reports of graduate students (for discussion-based training).

All students conducting research in the laboratories of Plant Biology faculty will receive training for Responsible Conduct of Research in the following areas:

1. Introduction to the Responsible Conduct of Research
2. Authorship
3. Plagiarism
4. Research Misconduct
5. Other topics deemed appropriate for individual students on a lab-by-lab basis, including topics such as Collaborative Research, Conflicts of Interest, Data Management, Mentoring, Peer Review, Financial Responsibility, Animal Care Training, Human Research Protection, and Rigor and Reproducibility.

### **Required training and certification:**

**Online CITI modules:** (access via <https://ora.msu.edu/CITI-RCR-registration>)

**Year 1** as required by the University:

- Introduction to the Responsible Conduct of Research
- Authorship
- Plagiarism
- Research Misconduct

**Year 2** any *three* additional CITI modules from the following list:

- Collaborative Research
- Conflicts of Interest
- Data Management
- Financial Responsibility
- Peer Review
- Mentoring
- Rigor and Reproducibility

Compliance with the requirements for online modules is automatically tracked in the SABA system.

**Discussion-based training:**

Each student will be required to participate in at least three hours of discussion-based training each year. This training may occur in one-on-one meetings with their faculty advisor, during lab meetings, during the Responsible Conduct of Research Workshop Series sponsored by the Graduate School, or a combination of these options. These discussions should focus on the topics listed in items 1-5 above.

*Every student* (Master's Plan A and Plan B and PhD students) must have completed at least 6 hours of discussion-based training by the end of their second year. Refresher training may also be comprised of online courses beyond those required in Year 1 and 2.

Compliance will be documented in the annual reports of graduate students. Each student will be required to submit an explanation of how they received their discussion-based training (one-on-one meetings with their faculty advisor, during lab meetings, or during the Responsible Conduct of Research Workshop Series), the amount of time spent in discussion, and the topics covered. This statement will be certified by their faculty advisor on the student's annual report. The annual report will be kept on file in the Department of Plant Biology office. For each student, the Graduate Secretary will record compliance into GradPlan, with the first two years' training recorded as "Initial Training" and later years' training recorded as "Annual Training."