Ph.D. in Botany Academic Assessment Plan 2012-2013

College of Liberal Arts and Sciences
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Office of the Provost

University of Florida

Institutional Assessment

Continuous Quality Enhancement

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Academic Assessment Plan for Ph.D. in Botany

College of Liberal Arts and Sciences

A. Mission

Graduate Program
The Botany Graduate Program in the Department of Biology seeks to advance an understanding of life at all levels, from molecules to the biosphere to understand the evolution, structure, maintenance and dynamics of biological systems. Our graduate students learn the fundamentals of biology, how to advance the body of knowledge in biology by learning the skills to design research projects, collect, analyze and interpret data. They learn to communicate science through teaching, as well as to present the outcomes of that research in written and oral form. Our graduates go on to become professionals, scholars, educators and scientific leaders both nationally and internationally.

College
The College of Liberal Arts and Sciences constitutes the intellectual core of the university. Its principal mission is to lead the academic quest to understand our place in the universe, and to help shape our society and environment. The College pledges to ensure equitable access for all of its constituencies present, drawing strength from our rich heritage of racial, ethnic and gender diversity. Through teaching, research and service, the College continually expands our knowledge and practice in the most fundamental questions in the arts, humanities, social sciences, and natural and mathematical sciences. At the graduate level, students master a specialized body of knowledge and pursue original research under the guidance of outstanding faculty.

As a public institution, the College serves society through its research programs to advance our knowledge and capabilities, through its teaching to prepare tomorrow's leaders, and through its outreach programs to ensure dissemination of the state of the art in areas ranging from languages and literatures, to social behaviors, to the fundamental laws of nature.

Our graduate students participate in the research mission of the college by conducting research on all aspects of the living world around them. By requiring teaching experience, and training graduate students in teaching methods, we also contribute to providing undergraduates with the foundations in the biological sciences.

University
The University of Florida is a public land-grant, sea-grant and space-grant research university, one of the most comprehensive in the United States. The university encompasses virtually all academic and professional disciplines. Its faculty and staff are dedicated to the common pursuit of the university's threefold mission: teaching, research and service.

The university welcomes the full exploration of its intellectual boundaries and supports its faculty and students in the creation of new knowledge and the pursuit of new ideas.

- **Teaching** is a fundamental purpose of this university at both the undergraduate and graduate levels.
- **Research and scholarship** are integral to the educational process and to the expansion of our understanding of the natural world, the intellect and the senses.
- **Service** reflects the university's obligation to share the benefits of its research and knowledge for the public good. The university serves the nation's and the state's critical

needs by contributing to a well-qualified and broadly diverse citizenry, leadership and workforce.

These three interlocking elements — teaching, research and scholarship, and service — span all the university's academic disciplines and represent the university's commitment to lead and serve the state of Florida, the nation and the world by pursuing and disseminating new knowledge while building upon the experiences of the past. The university aspires to advance by strengthening the human condition and improving the quality of life.

Our graduate students participate in the research mission of the university by conducting cutting edge research on all aspects of the living world around them. Their research emphasis is primarily in basic science, and thus interfaces with other biologically-related programs on campus. They also contribute to the teaching mission, by contributing to the teaching of undergraduates. Further, our students are actively involved in service to the department, which provides professional training, and trained to meet the NSF's expectation of Broader Impacts thus contributing to the service mission of the College and the University as a whole.

B. Student Learning Outcomes and Assessment Measures

SLO Type	Student Learning Outcome	Assessment Method	Degree Delivery
Knowledge	Students will identify, define, and describe basic fundamentals of biology and a thorough understanding of the fundamentals of botany.	Students will demonstrate satisfactory ability to present the scientific foundation of their research by passing their qualifying exam. This will be assessed by their supervisory committee.	Campus
Skills	Students will design a research project, collect data, analyze and interpret the results. They will be able to present the results of original research in oral and written form.	Students will demonstrate the ability to conduct and present the results of their research and scholarship by completing their written thesis and passing an oral defense of their work. This will be assessed by their supervisory committee.	Campus
Skills	Students design a research project, collect data, analyze and interpret the results. They will be able to present the results of original research in oral and written form.	Students will have a peer-reviewed publication in press or published at the time of graduation.	Campus

Professional Behavior	Students will demonstrate ethical behaviors, professional conduct.	Students will attend the graduate orientation seminar that covers aspects of professional behavior, including ethics.	Campus
Professional Behavior	Students will be able to interact and communicate with professionals at scientific conferences.	Students will attend and give a presentation at a local, national or international conference at the time of graduation.	Campus

C. Research

We expect our doctoral students to produce at least three to four publications in peer-reviewed journals as part of their dissertation research. Presentation of research results at national and international conferences is also expected, and we provide a portion of the funds for travel to up to one conference a year.

To achieve this goal, students are admitted in to our program to work with a specific advisor with overlapping research interests. Students begin working with their advisor from their first semester to define research questions and approaches.

During their first semester, students take a required course (Integrated Principles in Biology, ZOO 6005) that focuses on critical thinking, approaching questions from different angles, and the development of integrative approaches to biological questions. As part of this course, students write a review paper of a relevant topic, focusing on new methods, integrative approaches, and critical questions that remain to be answered. This helps students think broadly to develop a cutting-edge research program for their doctoral research. Additionally, these papers are reviewed by members of the class, advance graduate students in our program, and a faculty in our program to give students an understanding of the peer review process and the revision of manuscripts in response to reviewers' comments.

In the second semester, students take two additional required courses. One of these is focused on grant writing (BOT 6935), and students write both a short-format (e.g., Sigma Xi GIAR) and a long-format (e.g., NSF DDIG) style grant. This provides them with experience in grant writing and also helps them develop their research questions. The second course taken in this semester is the Graduate Orientation Seminar (BOT 6935), which covers professional development issues such as responsible conduct in research, authorship, and collaboration. In addition, part of the course includes presentations by our faculty to introduce students to different research programs, expertise of our faculty, and the equipment and facilities in different labs that are available to graduate students.

The research focus in our department is quite broad, so there are no other required courses as the training required by different students is unique. However, we do offer a variety of other graduate courses to provide skills and training in specific areas in preparation for research.

D. Assessment Timeline

Use this Assessment Timeline template for your plan. Add or delete rows and columns to accommodate your SLOs and assessments.

Program Ph.D. in Botany College of Liberal Arts and Sciences

Assessment SLOs	Assessment 1
Knowledge	
SLO 1	Qualifying Exam
Skills	
SLO 2	Write and Defend Dissertation
SLO 3	Peer-Review Publication
Professional Behavior	
SLO 4	Completion of Graduate Orientation Seminar
SLO 5	Presentation at Conference by Graduation

E. Assessment Cycle

Use this Assessment Cycle template for your plan. Add or delete rows as needed to accommodate your SLOs.

Assessment Cycle for:
Program Ph.D. in Botany College of Liberal Arts and Sciences
Analysis and Interpretation: Completed by April 30
Program Modifications: Completed by November 30
Dissemination: Completed by December 31

Year SLOs	10-11	11-12	12-13	13-14	14-15	15-16
Content Knowledge						
SLO 1			X	X	X	X
Skills						
SLO 2			X	X	X	X
SLO 3			X	X	X	X
Professional Behavior						
SLO 4			X	X	X	X
SLO 5			X	X	X	X

F. Measurement Tools

The SLOs will be assessed through a combination of methods. The knowledge SLO is measured by the student's chair and dissertation committee during through the written and oral portions of the qualifying exam. This committee also performs the assessment for SLO 2 (completion and defense of the dissertation).

For SLO 3, a peer-reviewed publication, will be assessed by the Graduate Committee through the annual report submitted each year. Presentation at a conference (SLO 5) will also be assessed through this process. A copy of this is provided in Appendix A.

Successful completion of the Graduate Orientation Seminar (SLO 4) will be determined by the graduate coordinator.

Indirect assessments of all of these objectives will be done through a form in which faculty are asked annually to provide their opinion on their students' progress on many different fronts (including knowledge, communication, professional development, service, etc.). A copy of this is provided in Appendix B.

G. Assessment Oversight

Here, list the names and contact information of those who oversee the assessment process in your program. Add or delete rows as needed.

Name	Department Affiliation	Email Address	Phone Number
Rebecca T. Kimball	Biology	rkimball@ufl.edu	352-846-3737

H. Appendix A

Biology Department Graduate Student Annual Report Questions

1. Are you working towards an MS, PhD or MST?

2. What year did you begin working on your graduate degree at UF (if you did an MS here at UF and then moved to the PhD, give the year you began the PhD)?

3. What is the Month and Year of your most recent committee meeting (please use month abbreviation then year, e.g., Dec. 2011)

4. Did you turn in to the grad program assistant (currently Susan) a summary (~1 paragraph) of your last committee meeting that had been approved by your committee?

If you answered NO, please realized you are expected to do this and please do so in the future. This provides a record of what you and your committee agreed upon, and can help avoid problems later on (e.g., if they agreed you did not need to take a particular course, then you will have a record of that).

5. Total number of peer reviewed publications (all papers through 2012)?

6. Total number of first (or co-first) authored papers?

7. Number of peer-reviewed papers published in 2012 (please do not include in press papers)?

8. Provide citations for all papers published in 2012 (Authors, year, title, journal, volume and page numbers).

9. How many of your 2012 peer-reviewed papers were from research done for your MS or PhD thesis (so do not include publications from side projects or research done before you began graduate school)?

10. How many in press or submitted manuscripts do you currently have?

11. Please provide citations for any in press or submitted manuscripts.

12. Total number of presentations you have co-authored.

13. Total number of presentations you co-authored in 2012.

14. Number of 2012 presentations that you presented (e.g., you gave the talk or stood by the poster).

15. Please provide information for all presentations given in 2012 (Authors, year, title, conference).

16. Were any of your 2012 presentations invited? If yes, please give the number of invited presentations.

17. How many grants and fellowships have you applied for this year?

18. How much funding did you received in grants in 2012?

19. Please give the name of funding agencies that you received funds from in 2012.

20. What is the number of grants you have received prior to 2012?

21. What is the dollar amount of funding you have received prior to 2012?

22. Please provide a current CV.

I. Appendix B

Biology Department Graduate Student Evaluation

Please provide a yearly evaluation of your graduate students using this form and/or writing a letter that addresses these same points. The goal of this is to help graduate students in their professional development by guiding them to areas in which they may need to put additional effort while also indicating areas in which they are doing well.

After you have completed this form, you should set up a meeting with each of your students (individually) to discuss this information and help provide guidance your student can use to prepare themselves for the job they plan to seek when they graduate.

After that meeting, please sign this form and indicate the date of the meeting. Graduate students should also sign that the meeting occurred.

Student Name:

Please indicate where you feel the student fits on these various metrics considering the students year(s) stage in graduate school, career goals, etc. We realize that some metrics may not be relevant for some students, and/or that some may not be relevant at all career stages.

For each item, please note whether it is 1) Could use improvement, 2) The student is on track for their stage in graduate school, 3) The student exceeds expectations for their stage in graduate school, 4) It is too early to evaluate for this student, or 5) Not relevant for this student.

General knowledge of biology

Knowledge of specific subfield of study

Knowledge of research design in subfield of study

Knowledge of analytical methods in subfield of study

Oral presentation skills

Scientific writing skills

Grant writing skills

Networking and collaboration

Attendance and presentation at meetings

Publication of peer-reviewed papers

Teaching

Mentoring

Outreach

Time Management

Timeline to Graduation

Please sign below to indicate you met with your student to discuss this evaluation.

Signature: Date of Meeting:

Please sign below to indicate you met with your advisor to discuss this evaluation.

Signature:

Figure 1. University of Florida Graduate/Professional Program Assessment Plan Review Rubric

Related resources are found at http://www.aa.assessment.edu

Program: Year:

Component	Criterion	Rating			Comments
		Met	**Partially Met**	**Not Met**	
Mission Statement	Mission statement is articulated clearly.				
	The program mission clearly supports the College and University missions, and includes specific statements describing how it supports these missions.				
Student Learning Outcomes (SLOs) and Assessment Measures	SLOs are stated clearly.				
	SLOs focus on demonstration of student learning.				
	SLOs are measurable.				
	Measurements are appropriate for the SLO.				
Research	Research expectations for the program are clear, concise, and appropriate for the discipline.				
Assessment Map	The Assessment Map indicates the times in the program where the SLOs are assessed and measured.				
	The Assessment Map identifies the assessments used for each SLO.				
Assessment Cycle	The assessment cycle is clear.				
	All student learning outcomes are measured.				
	Data is collected at least once in the cycle.				
	The cycle includes a date or time period for data analysis and interpretation.				
	The cycle includes a date for planning improvement actions based on the data analysis.				
	The cycle includes a date for dissemination of results to the appropriate stakeholders.				

University of Florida Graduate/Professional Program Assessment Plan Review Rubric, continued

Component	Criterion	Rating			Comments
		Met	Partially Met	Not Met	
Measurement Tools	Measurement tools are described clearly and concisely.				
	Measurements are appropriate for the SLOs.				
	Methods and procedures reflect an appropriate balance of direct and indirect methods.				
	The report presents examples of at least one measurement tool.				
Assessment Oversight	Appropriate personnel (coordinator, committee, etc.) charged with assessment responsibilities are identified				