**Ph.D. in Agricultural and Biological Engineering Academic Assessment Plan 2012-13**

**Office of the Provost**

**University of Florida**

**Institutional Assessment**

*Continuous Quality Enhancement*

College of Engineering

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Table of Contents

[2012-13 Academic Assessment Plan Ph.D. in Agricultural and Biological Engineering 3](#_Toc365532593)

[A. Mission 3](#_Toc365532594)

[B. Student Learning Outcomes and Assessment Measures 4](#_Toc365532595)

[C. Research 5](#_Toc365532596)

[D. Assessment Timeline 5](#_Toc365532597)

[E. Assessment Cycle 6](#_Toc365532598)

[F. Measurement Tools 6](#_Toc365532599)

[Figure 1: Sample Rubric 7](#_Toc365532600)

[G. Assessment Oversight 9](#_Toc365532601)

[Figure 2: University of Florida Graduate/Professional Program Assessment Plan Review Rubric 10](#_Toc365532602)

# 2012-13 Academic Assessment Plan Ph.D. in Agricultural and Biological Engineering

College of Engineering

## Mission

The mission of the Agricultural and Biological Engineering Department is to develop professionals, create and disseminate knowledge, and promote the application of engineering, science and management principles to meet societal needs with respect to agricultural, biological and land and water resource systems.

The graduate program in Agricultural and Biological Engineering supports the missions of the college and university to serve the nation’s and state’s critical needs by contributing to a well-qualified and broadly diverse citizenry, leadership and workforce through graduate education and to expand our understanding of the natural world, the intellect and the senses through graduate student research.

## Student Learning Outcomes and Assessment Measures

|  |  |  |  |
| --- | --- | --- | --- |
| **SLO Type** | **Student Learning Outcome** | **Assessment Method** | **Degree Delivery** |
| Knowledge | Identifies, describes, explains, and applies the mathematics, science and engineering principles of the discipline of Agricultural and Biological Engineering | Departmental review of Plans of Study utilizing a faculty-developed rubric.  Examination during qualifying exams and during final defenses using a faculty-developed rubric using the criteria at <http://abe.ufl.edu/academics/graduate/graduate-manuals/index.shtml> | Campus |
| Skills | Applies, analyzes, and syntheses content knowledge to plan and conduct scholarly activities that make original contributions to the knowledge base in the field of study by identifying components or processes of agricultural and/or biological systems to meet desired needs within realistic economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability constraints. | Examination during qualifying exams and during final defenses by the supervisory committee using a faculty-developed rubric using the criteria at <http://abe.ufl.edu/academics/graduate/graduate-manuals/index.shtml> | Campus |
| Professional Behavior | Displays ethical behaviors, cultural sensitivity , teamwork, professional conduct and communication | Observation during departmental seminars, qualifying exams and final defenses. Observation of participation in professional societies. Contacts with employers. These observations will be shared with the supervisory committee and evaluated utilizing a faculty-developed rubric using the criteria at <http://abe.ufl.edu/academics/graduate/graduate-manuals/index.shtml> | Campus |

## Research

Students in the Agricultural and Biological Engineering (ABE) Ph.D. program are expected to conduct original research with ABE faculty and faculty in engineering, agriculture and other disciplines of science. The research serves as the basis for the student’s Ph.D. dissertation. Students are expected to master the discipline of their area of research by completing appropriate coursework and by surveying the literature of their research topic. Students are expected to develop a research proposal and present the proposal for the approval of their supervisory committee. Students are responsible for conducting the independent research required for the Ph.D. degree and then organizing their findings into a dissertation and defending their dissertation.

Ph.D. students are prepared to become independent researchers by the knowledge they obtain from coursework and surveying the literature, developing a proposal under the guidance of their supervisory committee, and solving research problems. The experience of conducting a research program under the guidance of faculty and in cooperation with other graduate students and staff is the most important element in their preparation. Attending and making presentations at seminars and professional meetings are also important elements of a Ph.D. student’s education. Writing and defending a dissertation and publishing results in refereed journals are the final essential elements of a Ph.D. student’s preparation.

## Assessment Timeline

Program Ph.D. in Agricultural and Biological Engineering College of Engineering

|  |  |  |  |
| --- | --- | --- | --- |
| **Assessment**  **SLOs** | **Review of Plan of Study** | **Qualifying Exam & Final Defense** | **Student Observation** |
| **Knowledge** |  |  |  |
| #1 | X | X |  |
| **Skills** |  |  |  |
| #2 |  | X |  |
| **Professional Behavior** |  |  |  |
| #3 |  |  | X |

## Assessment Cycle

Assessment Cycle for:

Program Ph.D. in Agricultural and Biological Engineering College of Engineering

Analysis and Interpretation: May-June annually

Program Modifications: Completed by September 1 of each year

Dissemination: Completed by September 1 of each year

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Year**  **SLOs** | **10-11** | **11-12** | **12-13** | **13-14** | **14-15** | **15-16** |
| **Content Knowledge** |  |  |  |  |  |  |
| #1 | X | X | X | X | X | X |
| **Skills** |  |  |  |  |  |  |
| #2 | X | X | X | X | X | X |
| **Professional Behavior** |  |  |  |  |  |  |
| #3 | X | X | X | X | X | X |

## Measurement Tools

SLOs are formally assessed by the ABE Graduate Committee when Plans of Study are evaluated and by the student’s Supervisory Committee during the student’s Qualifying Exam and Final Exam. Each graduate student is evaluated annually by their faculty advisor based upon performance of assigned duties; compliance with department requirements such as maintenance of office hours, regular visits with faculty advisor, academic progress; and meeting the requirements of the supervisory committee, department, college, and graduate school relating to the timely execution of required documents such as plan of study, supervisory committee appointment form, etc.

For example, the written qualifying exam is coordinated and administered by the student's Major Professor. A set of examination questions is developed by each member of the student’s Supervisory Committee within the guidelines that a competent PhD student can successfully complete the set of examination questions in approximately 24 hours. The student’s Major Professor administers the sets of examination questions and returns the completed examinations to the faculty member who developed the questions to evaluate the student’s answers and determine if they are satisfactory. The written portion must be passed prior to taking the oral portion of the qualifying exam.

## Figure 1: Sample Rubric

**Learning Outcomes Assessment - Evaluation by the Supervisory Committee**

**Student: Date:**

**Degree: Agricultural and Biological Engineering**

**Milestone:**

**□ Doctoral Qualifying Examination**

**□ Doctoral Dissertation Defense**

**Knowledge Outcome:**Employ mathematics, science and engineering principles to solve problems in the discipline of Agricultural and Biological Engineering

Has the student achieved this outcome at a level commensurate with the degree?

|  |  |
| --- | --- |
| **□** Yes  **□** No  **□** Partially | Basis: Evaluation by the Supervisory Committee of (1) the student’s Program of Study and (2) his or her performance during the qualifying examination and dissertation defense. |

Comment

**Skills Outcome:**Apply, analyze, and synthesize content knowledge to plan and conduct scholarly activities that make original contributions to the knowledge base in the field of study by identifying components or processes of agricultural and/or biological systems to meet desired needs within realistic economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability constraints.

Has the student achieved this outcome at a level commensurate with the degree?

|  |  |
| --- | --- |
| **□** Yes  **□** No  **□** Partially | Basis: Evaluation by the Supervisory Committee of (1) the student’s Program of Study and (2) his or her performance during qualifying examination and dissertation defense. |

Comment

**Professional Behavior Outcome:**Display ethical behavior, cultural sensitivity, teamwork, professional conduct and effective communication.

Has the student achieved this outcome at a level commensurate with the degree?

|  |  |
| --- | --- |
| **□** Yes  **□** No  **□** Partially | Basis: Observation during departmental seminars, qualifying exams and final defenses. Observation of participation in professional societies. Contacts with employers. |

Comment

***Signatures of Supervisory Committee Members:***

Committee Chair (Type or print name legibly)  (Sign) (Date)

Co-Chair (**optional**, Type or print name legibly) (Sign) (Date)

Committee Member (Type or print name legibly) (Sign) (Date)

Committee Member (Type or print name legibly) (Sign) (Date)

Committee Member (Type or print name legibly) (Sign) (Date)

Committee Member (Type or print name legibly) (Sign) (Date)

Committee Member (Type or print name legibly) (Sign) (Date)

## Assessment Oversight

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Department Affiliation | Email Address | Phone Number |
| Ray Bucklin, Graduate Coordinator | Agricultural and Biological Engineering | bucklin@ufl.edu | 352-392-1864x169 |
| Dorota Haman, Chair | Agricultural and Biological Engineering | dhaman@ufl.edu | 352-3921864x120 |

## Figure 2: University of Florida Graduate/Professional Program Assessment Plan Review Rubric

*Related resources are found at* [*http://www.aa.assessment.edu*](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. |  |  |  |  |

**Figure 2: 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 |  |  |  |  |