M.S. in Agricultural and Biological Engineering Academic Assessment Plan 2012-13

College of Engineering
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Office of the Provost

University of Florida

Institutional Assessment

Continuous Quality Enhancement

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2012-13 Academic Assessment Plan M.S. in Agricultural and Biological Engineering

College of Engineering

A. 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.

B. 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 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 synthesizes content knowledge to solve problems 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 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 and during 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

C. Research

Students in the ABE Master's program are expected to apply advanced tools or techniques to a particular problem leading to a novel solution of an existing problem or question as part of a research program with ABE faculty and faculty in engineering, agriculture and other disciplines of science. The research serves as basis of the student's Master's thesis. Students are expected to master the discipline of their area of research by completing appropriate coursework, by surveying the literature of their research topic and by solving research problems. Students are expected to develop a research proposal and to present the proposal for approval of their Supervisory Committee. Students are responsible for conducting the research required for the Master's degree and then organizing their findings into a thesis and defending their thesis.

Master's students are prepared to become researchers by the knowledge they obtain from coursework and surveying 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 professional meetings are also important elements of a Master's student's education. Writing and defending a thesis and publishing results are the final essential element of a Master's student's preparation.

D. Assessment Timeline

Program M.S. 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

E. Assessment Cycle

Assessment Cycle for:
Program M.S. 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	12-13	13-14	14-15	15-16
Content Knowledge				
#1	X	X	X	X
Skills				
#2	X	X	X	X
Professional Behavior				
#3	X	X	X	X

F. 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 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, knowledge is assessed during the Masters student's Final Defense, when the student presents a seminar describing the thesis project, methods of analysis, results, conclusions and importance of results. The seminar is followed by questioning by each member of the student's Supervisory Committee. Each member of the student's Supervisory Committee asks questions based on the written material in the Student's thesis and on the student's oral presentation. After the period of questioning, the Supervisory Committee meets and discusses the student's thesis and the student's answers during the Final Examination and makes the decision to accept or reject the thesis.

Figure 1: Sample Rubric

Learning Outcomes Assessment - Evaluation by the Supervisory Committee

Student: _____ **Date:** _____

Degree: Agricultural and Biological Engineering

Milestone:

☐ **Master's Thesis Defense**

☐ **Non-Thesis Master's Final Exam**

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 thesis defense or non-thesis final exam.

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 the thesis defense or non-thesis final exam.

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)

G. 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, Department Chair	Agricultural and Biological Engineering	dhaman@ufl.edu	352-392-1864x120

Figure 2: 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.				

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				