Office of the Provost

University of Florida

Institutional Assessment

Continuous Quality Enhancement

2012-2013 Master's Program in Biochemistry and Molecular Biology Academic Assessment Plan

College of Medicine
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Academic Assessment Plan for Master's Level in Biochemistry and Molecular Biology
College of Medicine

A. Mission

Master's Program in Biochemistry and Molecular Biology

The target audience for this degree is the group of students currently enrolled in undergraduate research programs at the University of Florida. Our mission is to educate scientists and scholars to prepare them to be successful in a professional and/or academic environment.

Our educational program is based on adult learning principles and outcomes based assessments to ensure achievement of educational goals.

Students will be educated at the highest level of didactic courses taught, and trained in the latest research methods and discovery in the field of Biochemistry and Molecular Biology at the University of Florida.

The delivery "model" of this program is in the form of the 4/1 model as supported by the Office of the Provost.

Mission of the College of Medicine
The College of Medicine strives to improve health care in Florida, our nation, and the world through excellence and consistently superior leadership in education, biomedical research, and clinical care.
The Master's progam in Biochemistry and Molecular Biology works towards these goals by educating and inspiring the next generation of leaders in biomedical sciences to seek, provide and sustain unparalleled achievements in research, teaching, and service.

University of Florida

It is the mission of the University of Florida to offer broad-based, exclusive public education, leading-edge research and service to the citizens of Florida, the nation and the world. The fusion of these three endeavors stimulates a remarkable intellectual vitality and generates a synthesis that promises to be the university's greatest strength.

The university maintains its dedication to excellent teaching and researching by creating a strong and flexible foundation for higher education in the 21st century. The university welcomes the full exploration of our intellectual boundaries and supports our 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 education 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.

B. Student Learning Outcomes and Assessment Measures

SLO Type	Learning Outcomes	Assessments	Delivery Mode
Overall	Graduate Master's level students prepared to become leaders and scholars who are committed to excellence in research and education and adhere to the highest professional standards.	Evaluation of the general professional education program is done yearly through didactic course assessment and the individual Master's Supervisory Committees. Evaluation includes: 1. Performance examinations in didactic courses, 2. Evaluation of performance by the supervisory committee twice a year, 3. Evaluation of the thesis and of performance at the final examination.	Campus
1)Knowledge: Competency: Knowledge in Biochemistry & Molecular Biology	Possess foundational knowledge of didactic course material and discipline-related information necessary to be an effective in a professional and/or researcher in an academic environment	1. Examinations, performance based assessments, 2. Assessment of discipline-related knowledge in supervisory committee meetings, 3. Evaluation of written thesis and final examination.	Campus
2) Attitude/ behavior: Competency: Professionalism	Demonstrate appropriate professional conduct in oral presentations and performing research, and demonstrate ethical conduct in research	Evaluation by faculty in supervisory committee meetings, in journal club and departmental presentations, and in laboratory settings.	Campus
3) Skill: Competency: Application of knowledge	Demonstrate knowledge of didactic course material and discipline-related information and apply this knowledge to research problems	Examinations, performance based assessments, evaluation by the supervisory committee	Campus
4) Skill: Competency: Research	Independently follow experimental protocols, troubleshoot protocols, and to analyze and critically evaluate experimental results.	Evaluation by faculty in supervisory committee meetings, by the student's advisor in the laboratory setting, and by faculty at the final	Campus

		examination.	
5) Skill: Competency: Dissemination of scientific findings	Effectively present scientific findings in both written and oral formants	Evaluation by faculty in supervisory committee meetings, and at departmental, college and university research symposia, evaluation of the written thesis	Campus
6) Skill: Competency: Independent study	Independently read, interpret, and critically evaluate published work in discipline-related fields	Evaluation by faculty in Journal Clubs and in supervisory committee meetings	Campus

C. Research

Our Master's students are exposed to quantitative and qualitative research methods including research design, experimental procedures, assessment of the literature, and analysis and critical evaluation of research results. All students are engaged in active cutting-edge research programs within a faculty member's laboratory for the entirety of their Master's program. Students are assigned an individual research project related to the main theme in the advisor's research program. At the end of their studies, students are expected to write a thesis describing their research goals and results, and orally present their research findings to the supervisory committee as well as other faculty, students, and postdoctoral associates in the Department.

Students must have taken at least one semester of a 4905 course (or similar research course) to demonstrate interest and be accepted into the program. Students are required to identify a research mentor before starting the admissions process.

D. Assessment Timeline

Program: M.Sc. in Biochemistry and Molecular Biology College of Medicine

Assessment SLOs	Assessment 1	Assessment 2	Assessment 3
Knowledge			
Subject Material	Course examinations and assignments each semester in years 1 & 2	Supervisory committee meetings every 6 months	Final oral examination and written thesis in year 2
Research	Supervisory committee meetings every 6 months	Final oral examination and written thesis in year 2	

Skills			
Ability to Apply Knowledge	Course examinations and assignments each semester in years 1 & 2	Supervisory committee meetings every 6 months	Final oral examination in year 2
Oral and Written Communication	Journal Club presentations every fall & spring semester	Supervisory committee meetings every 6 months	Final oral examination and written thesis in year 2
Research	Supervisory committee meetings every 6 months	Final oral examination and written thesis in year 2	
Critical thinking	Journal Club presentations every fall & spring semester	Supervisory committee meetings every 6 months	Final oral examination in year 2
Professional Behavior			
Professional Conduct and Ethics	Assessed in all educational activities		

E. Assessment Cycle

Assessment Cycle for:

Program: M.Sc. in Biochemistry and Molecular Biology College of Medicine

Analysis and Interpretation:	Program assessment is on-going throughout the year with comprehensive reviews by the Curriculum Committee occurring in June and July.
Program Modifications:	Completed by August 1
Dissemination:	Completed by August 1

A comprehensive view by the Graduate Studies Committee in the Department of Biochemistry and Molecular Biology committee occurs every year. Last review was in 2013.

Year SLOs	10-11	11-12	12-13
Content Knowledge			
Subject material	x	x	x
Research	x	x	x
Skills			
Ability to Apply Knowledge	x	x	x
Oral and Written	x	x	x

Communication			
Research	x	x	x
Critical thinking	x	x	x
Professional Behavior			
Professional conduct and ethics	x	x	x

F. Measurement Tools

Biochemistry and molecular biology knowledge will be assessed by written examinations and assignments in each course and during the final oral examination. Knowledge in the student's field of research will be assessed in supervisory committee meetings every 6 months and in the final oral examination. Research skills will be assessed in Journal Club presentations in the fall and spring semesters, in supervisory committee meetings every 6 months, and by the final oral examination and written thesis. Professional behavior will be monitored by faculty throughout the student's career by faculty attending journal clubs, by the research supervisor, and by the supervisory committee. Evaluation of professional behavior will be given during supervisory committee meetings every 6 months.

An example of the rubric used in Supervisory Committee meetings to assess a student's research progress (SLO #4) is attached on the following page.

G. Assessment Oversight

Names and contact information of those who oversee the assessment process in the Combined Bachelor's/Master's Program in Biochemistry and Molecular Biology program.

Name	Department Affiliation	Email Address	Phone Number
Robert McKenna, Ph.D.	Biochemistry and Molecular Biology	rmkenna@ufl.edu	392-5696
Linda B. Bloom, Ph.D.	Biochemistry and Molecular Biology	lbloom@ufl.edu	392-8708
James B. Flanegan, Ph.D.	Biochemistry and Molecular Biology	flanegan@ufl.edu	392-0688

H. Example Rubric

MS PROGRAM IN BIOCHEMISTRY AND MOLECULAR BIOLOGY
GRADUATE SUPERVISORY COMMITTEE REPORT

STUDENT _____ DATE _____

Graduate Supervisory Committee Members:

	Name	Signature (if present)
Advisor	_____	_____
Member	_____	_____
Member	_____	_____
Member	_____	_____

Date Entered Program _____

Date Supervisory Committee Established _____

Date of Biannual Committee Meetings _____

Date of Pre-final Exam Meeting _____

THESIS TOPIC _____

_____

PROGRESS: ☐ **ADEQUATE** ☐ **INADEQUATE**

A written memo outlining the outcome of the Supervisory Committee meeting and specific recommendations must be provided to the student and a copy included with this form. If inadequate progress is indicated, specific details must be provided.

In the memo, highlight accomplishments/milestones and future goals and expectations. In addition to providing these comments on the student's research progress/bench work, provide comments on the student's overall academic progress including presentation skills (written and oral), critical thinking, command of the scientific literature, and professionalism where appropriate.

Reviewed & Approved by
Graduate Coordinator: _____ _____
Signature Date

Reviewed & Approved by
Department Chair: _____ _____
Signature Date

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				