

Educational Program Institutional Effectiveness Report

Degree Program: Master of Science Biology

College/School: College of Arts and Sciences

Department: Biology and Marine Biology

Submission Date: January 4, 2010

Student Learning Outcomes

- 1a. A graduate student should be able to develop a research plan.
- 1b. A graduate student should be able to present and defend a research plan.
2. A graduate student should be able to independently answer questions regarding their research field.
3. A graduate student should be able to communicate his or her research to a broadly-trained public audience.
4. A graduate student should be able to write up his or her research in the form of a manuscript for publication in a scientific journal.

Assessment Methods

1. Prospectus – each student is assessed by members of his/her committee on development of the prospectus using an assessment form (SLO 1a); each student is assessed by all faculty attending presentation and defense using an assessment form (SLO 1b)
2. Oral preliminary exam – each student is assessed by members of his/her committee using an assessment form (SLO 2)
3. Seminar presentation of thesis research – each student is assessed by all faculty attending presentation using an assessment form (SLO 3)
4. Thesis – each student is assessed by members of his/her committee using an assessment form (SLO 4)

Summary of Assessment Results

Data on all SLOs except SLO 1a have been collected. Data on SLO 1a are being collected this academic year. Participation by faculty in assessing SLO 1b has been outstanding, with 20 faculty members assessing students in spring 2009. The faculty determined that 99% of the students were performing well in this SLO, with 45% of projects rated as “commendable,” 54% rated as “satisfactory,” and only 1% rated as unsatisfactory. The introduction of this SLO in 2008 – 2009 was an action taken to improve performance on SLO 2 (see below), and the faculty were heartened by the positive results.

Faculty have determined that students are still not performing as well as we would like them to on SLO 2. The 2008 – 2009 results show that only a little more than half of the students were assessed as performing well in their ability to articulate (57%), and on their breadth (57%) and depth (59%) of knowledge, although 72% of students demonstrated professional poise. None of

the students were assessed as performing “poorly;” rather more students were in the “adequate” category than we would like to see. Faculty therefore determined that further action must be taken to improve student learning in this area (see below).

Results of the assessment of SLO 3 were quite strong. Scores of high were given to the presentations as follows: organization – 94%; mastery of research – 86%; ability to field questions from the audience – 86%; and professional poise – 91%.

Faculty assessed performance on SLO 4 as high, with writing quality, mastery of research, and likelihood of publication being high for the majority of students (88%, 90%, and 83%, respectively).

Implemented Improvements Based on Assessment Results

Based on the results of SLOs 2 and 1b (which determined that oral communication itself was not a barrier in presentations, rather students need to strengthen the knowledge and understanding of material and their ability to convey this understanding), the Graduate Advisory Committee recommended and the faculty approved the following changes to the curriculum:

1. Beginning Fall 2009: BIO 501 syllabus enhanced to include a presentation on critical thinking and being scientifically critical, and how these processes influence the student’s graduate prospectus symposium presentation and oral preliminary exam. (We will be able to measure the effects of our targeted classroom presentations from faculty on the oral examination as early as Spring 2010.)
2. Beginning Fall 2009: The adoption of Non Course-Related Changes in Educational Practices that encourage both faculty- and student-led learning opportunities to practice defending points of view and critical thinking, and that outline specific steps for oral exam preparation. (We will be able to measure the effects of these changes through students taking their oral examinations in Spring 2010.)
3. Beginning Fall 2010: Use the weekly departmental seminar series to implement a culture of inquiry. BIO 501 syllabus enhanced to include two student exercises related to a number of speaker presentations. The first exercise will include reading a peer-reviewed paper by a presenter, or a paper related to the topic of that week’s seminar, followed by a student-led round-table discussion of the article. The second exercise will be a round-table discussion to critique the seminar on both its presentation and content. (We will be able to begin measuring the effects of initiating student discussions around the seminar series once this is completed – late Fall 2010).

Documentation of Implemented Improvements (attached)

BIO 501 Syllabus Fall 2009

Non Course-Related Changes in Educational Practices Addressing SLO 2

Faculty Meeting Minutes December 11, 2009