

# ASSESSMENT FOR GRADUATE PROGRAM IN BIOLOGICAL SCIENCES

## I) STATEMENT OF GOALS AND INTENDED OUTCOMES

The Department of Biological Sciences uses a tightly integrated series of assessment techniques to determine the progress of our graduate students during their Master's degree program. The goals of the assessment procedures are as follows:

- 1) Determine the presence of any serious academic deficiencies of the student as determined by a Preliminary Written Exam
- 2) Using a Preliminary Oral Examination, determine whether students (a) have remedied any deficiencies identified above, and (b) determine whether students are ready to proceed with independent research
- 3) Using a Final Comprehensive Oral Examination, determine (a) if all deficiencies have been remedied, and (b) the student's skills at conducting independent research in the biological sciences.

The intended outcome of these procedures is to produce well-qualified graduate students who are ready to either obtain positions in government or industry or who are ready to continue their education with a Ph.D.

## II) SUMMARY OF METHODS OF ASSESSMENT

### A) Preliminary Written Exam

1) Results Obtained-- The Preliminary Written Exam is a 100-question exam given to all incoming graduate students during their first two weeks of enrollment. The primary goal of the Preliminary Written Exam is to determine areas of deficiency in a student's background. However, the exam does require a passing grade of 70%. Students who do not achieve a passing score in their first attempt are allowed to repeat the exam two months later. If the student fails a second time, the student is dismissed from the Graduate Program at the end of the semester.

Since the exam was instituted in 1990, 32 students have taken the exam. Of these, about 40% have failed the exam on the first attempt. However, only one student has failed the exam on the second attempt.

2) Changes in the Program-- (a) The Graduate Coordinator meets with all students after the exam is graded to discuss areas of deficiency and how these weaknesses can be rectified. (b) The Graduate Coordinator contacts all incoming students well ahead of registration to discuss the Preliminary Written Exam, and insures that all students are

aware of the difficulty of the exam. (c) The Graduate Coordinator is available to recommend textbooks for study to help students prepare for the exam. (d) The Graduate Coordinator now schedules an Orientation Program with all incoming students to discuss the major steps in the evaluation process. (e) The department has written a Graduate Student Handbook to review all steps in the evaluation process.

3) Planned Changes in the Program-- (a) Based on student feedback, the Graduate Coordinator will review the questions on the exam each year for clarity and utility. (b) The Graduate Coordinator will obtain new questions every other year from the Graduate Faculty. (c) Based on student feedback, the Graduate Student Handbook will be updated yearly.

## **B) Preliminary Oral Examination**

1) Results Obtained-- The Preliminary Oral Examination was instituted in 1990 to (a) determine if deficiencies identified during the Preliminary Written Exam have been rectified, and (b) determine whether students have made sufficient progress to begin thesis research. The exam is held during the second or third semester of enrollment. The exam is supervised by the Graduate Coordinator, and is attended by the student's thesis committee and any interested Graduate Faculty.

Since 1991, 23 students have been tested in this manner. Results varied from early termination of the exam to allow better preparation (three cases) to complete satisfaction. In most cases, at least one major area of deficiency is identified, usually resulting in the student taking at least one additional graduate course.

2) Changes in the Program-- (a) Based on feedback from graduate students, the Department instituted a seminar course entitled "Professional Aspects of Biology", which addresses the need for effective oral communication as a key for professional success and trains graduate students in effective oral communication skills. (b) Students are strongly encouraged to conduct simulated oral exams to prepare for the actual event.

3) Planned Changes in the Program-- (a) Based on student feedback, all Graduate Faculty members are being encouraged to use oral exams in their graduate courses, to help prepare students for the Preliminary Oral Examination. The Graduate Faculty have discussed making this a requirement of some graduate classes.

## **C) Final Comprehensive Examination**

1) Results-- The Final Comprehensive Examination is given to all students at the end of their studies at SLU. This exam is in two parts; first, students are required to present a 30-40 minute seminar on their thesis topic, followed by questions for the general audience (any faculty or student is allowed to attend this exam). Second, the student and his/her Graduate Thesis Committee conducts a 1-2 hour oral examination.

This final exam is designed to (a) determine if all deficiencies have been rectified, and (b) determine the student's progress in oral communication skills. The Graduate Committee uses the results of the Preliminary Oral Examination as a guide to determine what areas need to be emphasized during this exam.

In the last three years, nine students have taken this exam. All have passed on the first attempt, although some have obviously done better than others. All students tested have shown considerable progress since the Preliminary Oral Examination.

2) Changes in the Program-- (a) As noted above, the Department instituted a seminar course entitled "Professional Aspects of Biology", which addresses the need for effective oral communication as a key for professional success and trains graduate students in effective oral communication skills. This has greatly enhanced the speaking skills of our students. (b) Students have been provided with better training in the use of computer-aided graphics to design their seminars.

3) Planned Changes in the Program-- (a) The Department is attempting to upgrade the quantity and quality of the computers available to graduate students to design their graphics, but has been unsuccessful in doing so. This is a high priority in FY 95.