



Graduate Program Review Response Plan: Biological Sciences Plan Years: 2007-2012

From: Dean Jane Winer, College of Arts and Sciences
John Zak, Chair Department of Biological Sciences

In response to the Graduate Program Review recommendations and subsequent discussions with Dean Winer, Dean Borrelli and Provost Marcy, the Department of Biological Sciences will begin to implement the following action plan to address specific aspects of the review. These actions should help encourage graduate recruitment and are further designed to strengthen our graduate program. The action plan is developed to provide goals for the first year and those to be accomplished over the next six years. This action plan was developed by the Advisory Committee within Biological Sciences in conjunction with the Dean of Arts and Sciences.

Item 1: Reduction in Number of Graduate Piggy-Back Classes

Year 1

Goal: Reduce number of Piggy Backed Classes by 30%

The number of Piggy-Backed graduate/undergraduate classes offered in Biological Sciences reflects a history of heavy faculty involvement in undergraduate teaching combined with the need to provide graduate classes. Unlike other departments, Biological Sciences has always employed tenured and tenure track-faculty to teach at all levels of our undergraduate programs. While this approach has resulted in a very effective and highly competitive undergraduate program in Biological Sciences at TTU, the ability to offer some graduate courses has suffered. To address this concern, the Department and faculty will initiate a series of changes to our undergraduate and graduate curricula that will allow faculty time to provide stand-alone graduate courses.

Action Plan 1: We will have each faculty member examine their teaching schedule of their upper division and graduate classes and begin to make a portion of these class offerings every other year. By alternating graduate and undergraduate classes that have a similar subject matter, we can provide separate undergraduate and graduate classes. The Department will provide each faculty member with an example of how to alternate their undergraduate and graduate course offerings. This will also allow us to teach graduate course that we have not been able to provide for several years.

Action Plan 2: A portion of our upper division undergraduate and graduate classes must be taught every year to allow for orderly progress of our students through their respective

curriculum. Many of these classes are taught only by one faculty member, which reduces the options for offering these classes. Many of these courses are used as leveling for incoming graduate students as well as to provide for increased exposure to additional concepts. To provide for greater separation of the undergraduate and graduate components of these courses while maintaining the introductory components for new graduate students, we will implement the following: graduate students who require leveling will be expected to attend the undergraduate course lecture and show basic mastery of subject materials. In addition, they will enroll in the graduate component, which will build upon the materials discussed and presented in the undergraduate section. Grades for the graduate section will reflect mastery of basic information as well as synthesis of additional concepts in the separate graduate course.

Action Plan 3: To help provide stand alone graduate classes without overly increasing teaching workloads across the department and to provide for greater flexibility to faculty teaching in our core undergraduate program, we will begin to implement the following curriculum plan in the second year. We will implement a sequential course schedule for three of our core courses. These courses include, BIOL 3309 (Ecology), BIOL 3320 (Cell Biology) and BIOL 4305 (Organic Evolution). Under this program Ecology and Cell Biology would be taught only in the Fall semester, and Organic Evolution would be taught only in the Spring. Ecology and Organic Evolution would continue to be offered in the Summer. We currently offer our introductory biology year-long class (BIOL 1403 and 1404) in this format. This arrangement will allow faculty that participate in these classes the opportunity to teach graduate courses during those semesters when they are not teaching the above mentioned undergraduate classes. Each of the above mentioned classes is currently taught each semester. We anticipate a Fall, 2008 initiation of this part of the program to allow time to coordinate larger classroom space to teach these undergraduate courses only once a year.

Year 2-6

Goal: To reduce our Piggy-Backed Classes by 50%

Through a combination of the above designated Action Plans we will work to increase the number of stand alone graduate classes provided by the Department.

Item 2: Increase Research Funding and Graduate Student Support

Several approaches will be initiated to help faculty secure research funding to support graduate student research with increased RA numbers in the Department. Increased research funding will help us recruit of highly competitive PhD. students by making RA support available to these students.

Year 1

Goal: To Increase the number of RAs available from faculty to 20%

There are currently 21 RAs in the Department out of a total number of 118 graduate students (17.8). We would like to see the number increased to 20% of our total graduate student enrollment. To help us increase the number of successful grants submitted, the department will initiate a series of programs that are designed to facilitate research opportunities among our faculty. We realize that one approach applied to all of our faculty will not be sufficient to help increase faculty success due to the differences in faculty research areas and funding opportunities. We envision a series of opportunities developed that should provide both incentive and support that will allow them to successfully compete for research funding.

Action Plan 1: A procedure will be established in the Department to provide the lead PI of a collaborative proposal the ability to request reduced teaching load during the period of proposal development. By providing for reduced teaching loads to lead PIs during collaborative proposal development, faculty should be able to more effectively respond to funding opportunities.

Action Plan 2: Networking and collaborations are critical for successful grants proposals in all areas of Biological Sciences. To help foster the development of new collaborations with faculty at other institutions, a portion of the F&A return funds will be used to bring in colleagues for idea generation and proposal development.

Action Plan 3: The Departmental Post-Doc Teaching Fellows Program will be revamped to more effectively encourage proposal development by individuals in the program. In addition, new Post-Doc Teaching Fellows entering the program will be assigned to faculty for whom a Post-Doc would substantially increase the success of their research efforts to acquire research funding.

Action Plan 4: Research faculty require a multifaceted approach by the Department for encouraging increased proposal submissions and providing the support necessary to increase success in developing proposals that will support an RA. To better assess what will be needed to help our research faculty increase the number of RAs available through extramural funding, the department will request input from each faculty member on what they see as necessary for them to achieve increased research support. This information will subsequently be used to develop further actions during years 2-6.

Action Plan 5: Meet with College Development Officer to develop a plan that will bring an Endowed Chair position to Biological Sciences.

Years 2-6

Goal: to increase RA support of Graduate Students to 30% of our Total

Action Plan 1: Over the next five years, we will work through a combination of the above Action Plans to help increase faculty success in obtaining research funding. We believe that responses to individual faculty needs to be the best approach for helping them

achieve success as well as manage the curriculum for our graduate and undergraduate teaching missions.

Action Plan 2: Develop the necessary funds for a staff position that will assist faculty with developing and submitting research grants. This individual will help faculty with proposal format, content, budgets and submission procedures, thus freeing up faculty to concentrate on the science aspect of the proposal writing process.

Action Plan 3: Secure funds to pay outside reviewers to critically review specific grants from faculty and provide feedback. This external review process can potentially help increase funding success by highlighting weaknesses of the proposal that are subsequently addressed before submission to the funding agency.

Action Plan 4: Develop a strategic plan emphasizing key areas of research based on input from the junior faculty. Input would be collected from the junior faculty and recent hires that asks the following questions: 1) What areas of research do you feel will be critical for our department to invest in now; 2) What areas of research will be critical to your future success, and 3) what types of faculty hires should we target that will promote departmental research initiatives and foster collaboration?

Goal 2: To increase the proportion of PhD to MS students in our program to 60%.

Action Plan 1: To achieve this goal we will need to be successful in achieving increased RA support.

Action Plan 2: We have begun an initiative with the Fulbright Program in India to target and recruit the top students at Indian universities to consider pursuing a PhD in our Department. We are attempting to secure permanent support for this effort.

Goal 3: To increase the number of domestic graduate students pursuing a PhD in Biological Sciences

Action Plan 1: Effective recruiting and increased financial support are necessary to achieve this goal. We will develop a program to visit regional schools and actively recruit students into our programs.

Action Plan 2: Develop financial support for faculty to attend national meetings with the goal of graduate recruitment.