FINAL REPORT ON THE COMPREHENSIVE PROGRAM REVIEW OF THE BACCALAUREATE DEGREES IN BIOLOGY

David J. Lanoue

Dean, College of Letters and Sciences

Major Findings of the Program's Quality and Productivity

I would rate the program as ***very strong*** in quality and ***above average*** in productivity, and I would generally agree with the assessment of the program detailed in the Department's self-study. The Department of Biology has a strong record of teaching, a growing list of research accomplishments, and a long tradition of exceptional service to the campus and community. Dr. Julie Ballenger's leadership has been exceptional and her efforts as chair have moved the Department significantly forward in all areas. After reviewing the materials from the Department and the CPR Committee, **it is my recommendation that the Biology program be targeted for enhanced support as resources become available**.

The External Review Committee was, not surprisingly, quite laudatory in its assessment of the Department. They provided the following recommendations, many of which I will address below:

1. Upgrade laboratory facilities including renovation and repurposing of space in LeNoir Hall
2. Allocate adequate funding to ensure that vital laboratory equipment is available and operational
3. Add two new tenure-track faculty members with expertise that complements that of existing faculty
4. Reduce teaching loads of tenure-track faculty to 9 contact hours per term
5. Split the core Principles of Biology course (BIOL 1215) into two separate courses (majors and non-majors) with different learning outcomes in each

6. Add two new full-time lecturer positions to assist in teaching the non-majors sections of BIOL 1215
7. Add an applied statistics / biostatistics course to the biology curriculum to replace the currently required STAT 1127
8. Consider changing the two foreign language course requirements for the BA degree to 1002 and 2001 level courses
9. Provide additional transportation resources to better serve students in upper-division biology lab courses
10. Develop a tracking system to better assess RPG
11. Proceed with development of the new MS biology program while ensuring that sufficient faculty, space, and resources are provided and that the new program is distinct from the MS program in environmental science
12. Increase funds dedicated for faculty travel to professional conferences
13. Communicate with the COEHP to develop a student advising guide which clarifies the requirements for the BA with teacher certification
14. Explore potential use of more hybrid courses, lecture capture technologies, and "reduced residency" lab scheduling as ways to reach a broader sample of students

To some extent, these are matters that face many, if not all, of the science departments in the College. Indeed, the fact that these problems appear to be the most serious issues facing the Department speaks well of its overall health and viability. As noted below, the Department is already addressing many of the recommendations made by the External Review Committee.

As the College sees it, the three major issues facing the Department of Biology are 1) enhancing RPG; 2) creating conditions that will foster greater scholarly productivity; and 3) expanding the Department's role in graduate education. The recommendations made by the External Review Committee clearly speak to each of these issues, and they will be the basis for the Department's Program Improvement Plan.

Program Improvement Plan

I. Retention, Progress, and Graduation

In their self-study, the Department directly addresses the issue of graduation rates (and, by implication, retention and progress):

The graduation rate for the Biology Program varies each year in a manner similar to the number of graduates per year. In 2008 the graduation rate was 27.3%, then increased to 36.7% in 2009 and then fell to 29.5% in 2010. However, the last two years showed an improvement from 37.6% to 39.8%, but that does not necessarily indicate a trend.

Despite having over 400 majors, the Department graduates only about 30-40 students annually. This is, of course, not altogether unusual in the sciences, where students often find the curriculum overly challenging, and retreat to supposedly easier majors. Many of the students who leave Biology do, in fact, go on to graduate from CSU in another field. Nevertheless, the Department recognizes the importance of holding on to as many majors as possible. To that end, they have already taken a number of laudable steps in that direction, many of which are detailed in their self-study.

Specific program improvements, along with a timetable for addressing them, appear below and are based on the recommendations of the Department and CPR Committee:

1. Split the core Principles of Biology course (BIOL 1215) into two separate courses (majors and non-majors) with different learning outcomes in each [**Timetable for completion: 2013-2014; the Department's curriculum committee will propose these changes for consideration in August 2013.**]

2. Add an applied statistics / biostatistics course to the biology curriculum to replace the currently required STAT 1127 [**Timetable for completion: 2013-2014; the Department is already working with the Department of Mathematics and Philosophy to modify the current STAT 1127 to reflect the request for an applied statistics course..**]

3. Change the two foreign language course requirements for the BA degree to 1002 and 2001 level courses [**Timetable for completion: 2013-2014; the Department's curriculum committee will propose these changes for consideration in August 2013.**]

4. Develop a tracking system to better assess RPG using CSU dashboard [**Timetable for completion: 2014**]

5. Communicate with the COEHP to develop a student advising guide which clarifies the requirements for the BA with teacher certification [**Timetable for completion: 2013-2014; the Department's communication with COEHP has recently been enhanced by their participation in the UTeach Columbus program.**]

6. Explore potential use of more hybrid courses, lecture capture technologies, and "reduced residency" lab scheduling as ways to reach a broader sample of students [**Timetable for completion: 2014; the Department is already implementing some of these ideas, and is considering others**]

7. Continue full funding of Peer leaders in large lecture sections to improve student success [**Timetable for completion: immediately**]

8. Secure full funding for the Competitive Premedical Studies Program to recruit well prepared students to CSU [**Timetable for completion: 2015**]

II. Enhancing Faculty Research Productivity

In their self-study, the Department addresses the issues of faculty scholarship:

Over the past five years faculty members have received over $130,000 in support for faculty development. This funding was received from the Provost/VPAA Faculty Development budget, the College of Letters and Sciences, the Center for International Education and the Department of Biology to support research (purchase of materials and equipment), travel to professional meetings, and international travel for site visits, as well as teaching international courses. In addition, faculty members have received over $220,582 from a variety of outside agencies (such as GA DNR, US Fish and Wildlife) have collaborated on over $20,000 in research funded grants and have over $1,000,000 in pending grant applications.

- faculty have published over 36 professional papers
- faculty have presented over 64 professional talks
- faculty have served as reviewers for professional journals and textbooks
- faculty are officers in professional organizations

This is a fine record, particularly given the constraints imposed on faculty by heavy teaching a service loads, as well as the inadequacy of research facilities. The College has strongly supported the Department in each of these areas. Through the Workload Equity Initiative, the College has encouraged Biology to reduce the teaching loads of its most productive scholars, and it has responded accordingly. In addition, COLS invested over $60,000 into improvements of lab space in LeNoir Hall during the last fiscal year. Nevertheless, these efforts, while helping to move the Department in the right direction, are far from sufficient.

Specific program improvements, along with a timetable for addressing them, appear below and are based on the recommendations of the Department and CPR Committee:

1. Upgrade laboratory facilities including renovation and repurposing of space in LeNoir Hall [**Timetable for completion: 2015-2016. As noted above, renovation and repurposing of LeNoir have already occurred. The most important changes, however, will take place with the proposed expansion of LeNoir Hall and the expansion of space for COLS when the College of Education and Health Professions moves to the downtown campus.**]

2. Allocate adequate funding to ensure that vital laboratory equipment is available and operational [**Timetable for completion: 2015-2016. Significant funds should be invested in lab equipment for the Department. This investment should be part of the expansion of LeNoir and any upcoming capital campaign**.]

3. Reduce teaching loads of tenure-track faculty to 9 contact hours per term [**Timetable for completion: 2014. As noted earlier, progress has been made in this area. In addition, the College believes that reduced teaching loads should be tied to evidence of research productivity. In any case, realization of this goal depends on increasing instructor support—see #4 below]**

4. Hire a full-time lecturer in Biology [**Timetable for completion: 2014. This person would teach the maximum number of labs and lectures, reducing the course load burden on tenured and tenure-track faculty.**]

5. Add two new tenure-track faculty members with expertise that complements that of existing faculty [**Timetable for completion: 2017. While this is a valid recommendation and a worthwhile goal, funds are not currently available for such an investment and other programs have equally compelling claims on future resources.**]

NOTE: The External Review Committee made one additional recommendation. This involved "[i]ncreas[ing] funds dedicated for faculty travel to professional conferences". The College believes that the funding level for faculty development has been more than adequate over the past four years. We would, however, recommend that funding remain at no less than its current level.

III. Increasing Departmental Participation in Graduate Education

Several members of the Department currently participate in the MS program in Environmental Science. It is critical, however, that the Department of Biology, the largest of all the science departments, play a more extensive role in graduate education. To that end, the College strongly supports the following program improvements:

1. Develop an MS track in the re-named degree program in Natural Sciences [**Timetable for completion: 2014. The program is currently undergoing review by the College and University Curriculum Committees, and should be operational no later than Fall 2014.**]

2. Create a reliable funding base for graduate teaching assistants, both for recruitment purposes and to serve as instructors for vitally needed lab courses [**Timetable for completion: 2014. The department has created a Biology Alumni Council, represented by alumni from the 1970's, 80's, 90's and 00's, who will work with the faculty and emeritus faculty to raise funds to support biology graduate students as well as fund undergraduate research scholarships.**]

In addition, several of the program improvement initiatives suggested above would also bolster the Department's capacity to teach graduate students, particularly enhancements in laboratory space and laboratory equipment. Further, the graduate program has the potential to increase RPG by enhancing productivity in the department; providing role models for undergraduate biology majors as well as providing mentoring opportunities for both graduate students as well as faculty members.