

EXECUTIVE SUMMARY
Academic Program Review

DEPARTMENT/PROGRAM
Biology Department

EXTERNAL REVIEWERS
Marc-Jan Gubbels, Associate Professor of Biology, Boston College
Lee Kats, Professor of Biology, Pepperdine University
Curtis Loer, Professor of Biology, University of San Diego

CAMPUS VISIT:
March 2014

The review team read the self-study written by the faculty in the department; reviewed the curriculum, course syllabi and evaluations; conducted class visits; interviewed faculty, students and staff; and met with the Dean, Associate Deans and other relevant members of the campus community. Prior to their visit, the reviewers were provided with USF's Vision, Mission, Values Statement, the department's self-study and other university materials.

1. **How did the external review committee rate the quality of the program – excellent, very good, good, adequate, or poor? How does the program compare with benchmark top-tier programs nationally? Please provide a brief rationale for the external review committee's rating.**
 - Overall, the reviewers rated the Biology Department as 'Very Good' provided that they can address the significant assessment issues and were "impressed with the Department, the curriculum, the faculty, the students, the staff and the facilities." (page 1)

2. **What are the most important general issues that emerged from the external review process?**
 - Course offerings can be improved with greater emphasis on ecology and courses, research ethics, and modern biological approaches.
 - There is an immediate need to improve assessment.
 - Faculty members have too big of a teaching and advising load.
 - To stay competitive in student recruitment, the department should consider having a guaranteed stipend amount.
 - Resources are needed for faculty research space in Harney and additional teaching support staff.

3. **What specific recommendations for improving the program's quality has the external review committee made to the Dean?**
 - **General**
Recommendations:
"1. Offer more ecology-oriented classes and field classes; drop the requirement of microbiology for the ecology emphasis.
2. Offer courses in modern biological approaches (e.g. computational biology, genomics)
3. Substitute - to the extent possible - investigative and interactive ('active learning') courses for traditional 'cookbook' lab and lecture & exam-based courses.
4. Embed research ethics in the curriculum." (page 2)

 - **Undergraduate Program**
Recommendations:

- “1. Continue first-year group advising sessions which support students and reduce the advising load on faculty.
2. Work with administration to create more undergraduate research opportunities. Faculty and students need to be encouraged and incentivized to engage in these rich learning opportunities.
3. Work with administration / alumni relations to create a Biology alumni database. The Department needs to be able to communicate with alumni and contact alumni for feedback - such networking cannot all be accomplished by the Department.” (page 3)

- **Graduate program**

Recommendations:

- “1. Guarantee the annual stipend amount: fill TA slots with USF graduate students first before recruiting TAs from UCSF. Work to provide equitable support through the summer months.
2. Increase the size of the graduate program, if similar levels of graduate support can be provided for additional students.
3. Improve integration of undergraduate researchers into the research lines pursued by the graduate students.
4. Formalize TA training and provide feedback to graduate students (from professors and undergraduates) on performance and experience with the TA.
5. Diversify the program to also cover faculty research interests other than those working on the broad meaning of molecular biology.” (page 4)

- **Assessment:**

Recommendations:

- “1. Work with administration officials and faculty tasked with overseeing assessment to revise, strengthen and implement assessment plan, including direct evidence of student learning.
2. Remove grades and course completion as assessment methods. Fully implement regular, broad-based faculty analysis of student work from specific courses and assignments at different levels, with some forms of student ‘product’ being analyzed every year, particularly to assess ‘process-oriented’ learning outcomes via direct evidence. (Each type of work could be collected and analyzed once every 3 years.) Continue student surveys (indirect evidence).
3. Administer a standardized test to all seniors annually or biannually to assess knowledge outcomes, and adjust curricula accordingly based on results.” (page 6)

- **Faculty**

Recommendations:

- “1. Additional full-time faculty members are needed to meet the teaching and advising needs that have increased with significant enrollment increases in the Department.
2. The administration should resume the practice (apparently in place briefly) of returning a portion of indirect costs to the College and Departments in keeping with the purpose of such funding. Faculty may be encouraged to write additional grant proposals by this incentive; both students and faculty would both benefit by this small change and encouragement.
3. Faculty and the Department Chair need additional administrative support with assessment and program reviews. These important activities are being conducted but the completion of closing the loop seems to be absent.” (page 7)

- **Students**

Recommendations:

- “1. Improve tracking of Biology majors: where they come from, and where they go when leaving the major. Work to lower the attrition rate within the major.
2. Share advising of undeclared science majors with faculty in other Departments to reduce

overall advising load.

3. Obtain administrative and/or student worker support for the PPHC program.” (page 8)

Diversity

- Noting that this is a chronic issue in higher education, the department is encouraged to “seek and hire faculty candidates that would more closely match the ethnic diversity of the region and the student body” (page 8)

Resources

Recommendations:

- “1. Renovate Harney as soon as possible to create badly needed research laboratories for faculty, offices for faculty and staff, and community spaces for graduate and undergraduate students.
2. Hire more tenure-track and term faculty to rebalance the work load associated with 50% increase in student numbers.
3. Hire an additional teaching laboratory staff person (or, half-time or shared worker to start, with plans to expand to full time).
4. Expand and strengthen graduate program if possible, consistent with maintaining and improving resources for undergraduate teaching and opportunities for research, and other more pressing needs listed above.
5. Provide a graduate student space (lunch area) with food storage. Currently, research labs appear to serve this purpose, which is far from ideal.” (page 10)

4. In the opinion of the external review committee is the program following the University’s strategic initiative in that it is;

- Recruiting and retaining a diverse faculty of outstanding teachers and scholars.*
 - The review team were “struck by the deep concern faculty had for students (both biology majors and nonbiology majors) and for student learning” as well as the commitment for “fellow university citizens as well as the community in which the university is embedded.” (page 1)
 - Faculty members have publications in top journals in the world despite its small size and teaching/advising loads
- Enrolling, supporting and graduating a diverse student body that demonstrates high academic achievement, strong leadership capabilities, a concern for others, and a sense of responsibility for the weak and vulnerable.*
 - The number of majors has significantly grown in the past 6 years.
 - It is a quality major with a logical sequence, which students have benefited from a more interactive, and engaging revived senior capstone.
- Providing the environment necessary to promote student learning in the program.*
 - Some students felt that there was not an adequate opportunity for undergraduate research
 - Students are involved with many student organizations and events, including full day field trips to local habitats as well as using cutting –edge technology for teaching in laboratories. The team was impressed that “students in laboratory classes can capture microscope images and wirelessly transfer them to the faculty for later assessment and comment.” (page 2)
 - “Service activities in these classes range widely, i.e. from bake sales to directly helping underserved people.” (page 1)

5. In what way is the program contributing to the goal of making the University of San Francisco a premier Jesuit, Catholic urban university with a global perspective that educates leaders who will fashion a more humane and just world?

- The reviewer's felt the Department was aligned with the mission and values of the university, with the Jesuit mission well embedded.
- "The Department is committed to the service component of the institution's mission," which is impressive and an integral part of the courses, providing students with "rich, engaging experiences with organizations and people in the local community." (page 2)

6. What is the timetable for the response to the external review committee's recommendations for program improvement? What can the Office of the Provost do to appropriately respond to the review?

- Assessment: revise the evaluation criteria
- Resources: Hire more faculty and additional teaching support staff, create faculty research space in Harney
- Improve the interactions between the graduate and undergraduate students in research labs.
- Establish a guaranteed stipend for graduate students

7. What general comments or issues, if any, are crucial to understanding the reviewers report?

- The review team was in general praised for making great improvements since the last review.