

EXECUTIVE SUMMARY
Academic Program Review

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Chemistry

EXTERNAL REVIEWERS

Dr. Tim Strein, *Department Chair, Analytical Chemistry Professor,*
Bucknell University

Dr. Regina Frey, *Director of The Teaching Center, Professor in the Practice of Chemistry,*
Washington University

Dr. Joshua Farrell, *Thomas D'Ambra Associate Professor of Chemistry,*
College of the Holy Cross

CAMPUS VISIT:
April 18-20, 2012

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.

The review rated the program as GOOD to VERY GOOD “with the potential to quickly improve” with support. The reviewers were “very impressed with the level of commitment and passion that the Chemistry Department has to teaching and research” at the undergraduate and graduate levels. The “department's curricular and instructional programs are of high quality” and in line with the latest national recommendations in STEM education. The department is also an “excellent university citizen” through its service to non-majors. However, “to be viewed as excellent, they will need to have a vigorous research program with broad faculty participation.” The reviewers outlined ways the administration can support these efforts and indicated that the “growing excitement” about CSI will help the department.

2. What are the most important general issues that emerged from the external review process?

- The reviewer stated that the “compensation offered to the graduate students is problematic from a social justice standpoint”. While the reviewers understand that the program is not revenue building, the students in the masters program are essential for the teaching mission of the Chemistry Department.
- There is a lack of undergraduate research experiences for all students. The relatively small number of chemistry faculty who are currently actively taking research students limits the ability of the department to fully realize their mission.
- More departmental, college or campus-wide mechanisms of support for collaborative student-faculty work in the summer are needed.

- The current number of faculty is not large enough to teach the current number of service courses.
- There are not enough upper-level course electives for the majors.
- The research laboratory spaces and the stock room are in need of renovation.
- There is no mid to long-term replacement/maintenance plan for the scientific equipment.
- The department budget has not kept up with the price of chemicals.

3. What specific recommendations for improving the program's quality has the external review committee made to the Dean?

Undergraduate Program:

- Emphasize group supplemental instruction more.
- Encourage minimizing undue scheduling stress for undergraduate students, while being supportive of students' growth.
- Add some seminars from professionals at local companies or alumni.
- Develop systematic ways of tracking of the students after they leave USF.
- Establish and implement twice-a-year undergraduate symposia and student recruitment weekend(s).

Graduate Program:

- Strongly recommend at least a modest increase in the masters-student stipend/compensation and that it be done through summer research stipends.
- Carefully consider the possibility of adding some formal course requirements to the graduate program.
- More focus on the TA training of the graduate students.

Faculty:

- Hire more junior research-active faculty members.
- Consider designing new approaches to fulfill the need for student-research positions until new hires of research-active faculty can be made.
- Consider having senior faculty members adopt teaching schedules and loads that allow for the appropriate development of junior faculty.

Other Resources:

- Develop formal mechanisms to support faculty who get grants and conduct research.
- Establish an undergraduate research office.
- Re-examine design of older classrooms with a focus of using active-learning techniques.
- Develop a ten-year replacement and maintenance plan for instrumentation and faculty replacements.

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

- a. *Recruiting and retaining a diverse faculty of outstanding teachers and scholars.*

The undergraduate majors and graduate students think very highly of the faculty and reviewers commented repeatedly in the report about how impressed they were with the commitment of the faculty to teaching and research. The reviewers were "universally

impressed with the junior faculty.” The review team, however, was also concerned about the level of research across the entire faculty and the continued productivity of the junior faculty if they are not given more support.

- b. *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 diversity of student population in the Chemistry Department, and USF, is a departmental strength. The population is also becoming more diverse in terms of economic background. The students uniformly praised the faculty for their commitment to teaching and supportive and encouraging atmosphere. The department is to be commended for actively evaluating its curricular goals and seeking to maintain a high level of rigor.

- c. *Providing the environment necessary to promote student learning in the program.*

The undergraduate and graduate students were pleased with the technical content of their program and quality of instruction. Undergraduate students discussed the excellent advising/mentoring and upper-level classes. The graduate students were happy with the opportunities the research-based program had to offer. Thanks to a grant to the department, it has “an excellent set of instruments” and they are able to give the undergraduate hands-on experience with a broad range of laboratory techniques. The review team did suggest addressing the “sophomore crunch” during undergraduate experience and adding some coursework to the master’s program.

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 reviewers stated that the department is fulfilling the University and Department missions in most areas. They noted the “genuine sense of ownership of these goals by most faculty and staff members” and that “the quality and performance in fostering community, values, and social responsibility are universally strong”.

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?

The next step is for the Dean and Associate Deans to meet with the department and discuss the Action Plan based on the self-study and reviewers’ report. Based on the reviewers’ suggestions, there are three ways the Office of the Provost can assist the program: 1) support hiring new research-active, junior faculty; 2) help support summer research for undergraduate and graduate students; 3) assist with increasing funding for the master students.

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

The department was praised for their teaching methods, curriculum development, assessment of student learning, and student advising/support. The reviewers were very concerned, however, about

the compensation for the graduate students and the small number of research-active faculty in the department.