

**EXECUTIVE SUMMARY**  
**Academic Program Review**

**DEPARTMENT/PROGRAM**  
Physics and Astronomy

**EXTERNAL REVIEWERS**  
David Ernst, Vanderbilt University  
Philip Kesten, Santa Clara University  
Alma Zook, Pomona College

**CAMPUS VISIT:**  
March 23-25, 2011

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 reviewers state that the Department is a "solid, leaning-toward-strong program" and give it a rating of GOOD. They also indicate that "for the department to become a leader in its field, though, it needs to regularize the curriculum and upgrade its physical facilities significantly" and recognize that curriculum issues are linked to understaffing and a heavy service load. Reviewers praise the faculty commitment to the students, program, and Jesuit Mission and note that the "level of faculty research is reasonable and of high quality" and "morale seems very high." They also comment on the fact that the number of majors in the Department is rising, possibly at a faster rate than enrollment overall at USF, the College, and the other sciences.

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

The reviewers focus primarily on three main issues:

- The resources are merely adequate, with "serviceable, but old" equipment and no social community-building space for majors.
- The Department is understaffed and needs a replacement for a retiring faculty member and an additional hire that would assist with teaching in the upper-level curriculum.
- The curriculum needs to be reviewed, with particular attention to the upper-level course offerings.

- 3. What specific recommendations for improving the program's quality has the External Review Committee made to the Dean?**

*Curriculum:*

- The Department should review the curriculum, particularly the upper-level curriculum, focusing on issues concerning the streamlining of the major and the timing of course offerings.

- The Department should consider using the ETS Major Field Test for Physics as an assessment instrument.
- The Department should provide more incentives to students that encourage the writing of a thesis.

*Staffing/Hiring:*

- The University should expand the faculty by one tenure-track hire and replace a retiring faculty member.
- Faculty teaching across the curriculum needs to be reviewed.
- If the University cannot provide better start-up funds “consistent with expectations of significant research,” then faculty need support in writing and administering grants, and more dedicated time for scholarship in general.

*Student Research:*

- The Department should make sure that students are aware of local physics conferences and provide more opportunities for students to attend them.
- The Department should provide more assistance and incentives to students who intend to take the Physics GRE.
- The faculty should increase efforts to bring students into their research programs.

*Other:*

- The Department should take a fresh look at what space in the department might be repurposed.
- The Department should maintain up-to-date CVs for all faculty.
- The Department should craft a departmental academic integrity policy.
- The Department should examine student retention and develop a relationship with the Admissions Office to help recruit students into the major.

**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.*

As indicated above, the reviewers praise faculty scholarship and note that diversity “does not really seem to be a problem in this department”. There is significant mentoring of junior faculty. The reviewers encourage the Department, however, to “be cognizant of national organizations that provide support [to] minority students” because the Department diversity does not fully match the ethnic diversity in the student population.

- 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 Physics and Astronomy Department has doubled the number of majors in the last few years, but the reviewers suggest reviewing retention data. While some students are “clearly bright,” the reviewers suggest that Admissions Office could assist with recruiting more students that could benefit from the program.

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

The reviewers repeatedly discuss and praise faculty dedication to the students, which the students recognize and appreciate. They also note that faculty evaluations are high.

- 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?**

According to the reviewers:

*The department's mission is well aligned with the University's mission. The department has declared its mission to provide an integrated education aimed at educating the whole person, which is very much in the Catholic, Jesuit tradition. The faculty understand and are committed to the vision of providing an education that, as declared in the department's mission, 'blends the ideals of a rigorous foundational physics and astronomy curriculum with the principles of Jesuit higher education.'*

- 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 Dean to meet with the Department and discuss the report. Based on the reviewers' suggestions, three concrete ways the Provost can assist are to secure funding for faculty positions, assist with bridges to the Admission Office and Office of Contracts and Grants, and provide resources for better equipment and student research.

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

The reviewers note that over the last 15 years the Department moved itself, with help from administration, from a department with problems to one "that produces a healthy number of majors and, based on what they do after graduation, does a good job educating them." They also state the goals the reviewers suggest "appear to be well within the reach of the department, given the proposed new space being planned for the sciences."