

EXECUTIVE SUMMARY
Academic Program Review
Environmental Science
(Undergraduate and Graduate Programs)

EXTERNAL REVIEWERS

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CAMPUS VISIT:

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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 Dean 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 stated that the department "has the potential to be an exceptional academic asset to the University of San Francisco" and while not specifically comparing the department to top-tier liberal arts colleges and universities, the implication is that they rated the department and its programs as VERY GOOD.

2. **What are the most important general issues that emerged from the external review process?**
 - The reviewers praised the decision of the University to launch new environmental programs with the graduate MSEM program that filled a natural niche in the academic community. The graduate program is well established and the undergraduate program is well conceived.
 - There is genuine and widespread praise for the faculty who are described as having "incredible talents and dedication to both teaching and scholarly activities". However, the reviewers were concerned that overwork may lead to burnout.
 - The reviewers noted the 'under-supported' infrastructure necessary to conduct laboratory exercises in chemical and biological analyses, spatial data manipulation and data modeling. They were assured that the University is committed to the construction of a new science facility within the next few years.
 - The reviewers expressed some concern for the way in which Environmental Science was perceived as distinct and less rigorous by other sciences. They argued that while such "ingrained bias" is difficult to overcome, the study of the environment is "quintessentially interdisciplinary", requiring the application of physical, chemical and biological principles and knowledge to problems affecting natural resources, ecological systems and human beings. In their view, a "greater sense of connectivity among science departments will benefit all constituencies".
 - The reviewers noted the department's concern with the low numbers of Environmental Science majors and the consequent low enrollments in some classes and made some recommendations to help ameliorate this situation.

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

a) Faculty and Curriculum

- Future faculty hires need to address current gaps in the Environmental Science curriculum. The areas requiring immediate attention are Geology and Atmospheric Science though the reviewers strongly recommended that future hires also have expertise in emerging areas such as Environmental Medicine.
- More full-time faculty should be involved in teaching graduate students. This would develop the existing synergies between the undergraduate and graduate programs.
- The department should consider teaching more graduate courses in the evening thereby allowing undergraduates to enroll in these courses.
- To stimulate class enrollments and numbers of majors, the reviewers made a number of recommendations: developing and publicizing specific requirements, annual career days, special activities on Earth Day, panels on controversial environmental issues, etc.
- The reviewers urged the department to establish an alumni network for MSEM graduates and ENVS graduates with periodic surveys of graduates to ascertain the strengths and weaknesses of the environmental programs.

b) Facilities and Resources

- To sustain and improve the quality of the academic programs, the reviewers recommended that the Environmental Science department be given a new computational laboratory and a new teaching laboratory. In addition, minimal investments should be made to improve the existing greenhouse and there needs to be more student space for Environmental Science majors to interact with each other.
- The review team recommended that the department be provided with two full-time assistants - one dedicated to the graduate program and the other to the undergraduate program and general departmental business.

c) Increasing collaboration among Science departments

- The administration should provide a forum for increased collaboration among the science departments, e.g. periodic meetings between related departments to discuss long-range curricular cooperation and planning.
- Department chairs in the sciences should regularly discuss during the academic year course offerings, scheduling and other issues of common interest.
- The University should give full course credit to each of the teachers involved in course development and teaching if the course is team-taught.
- The Dean's Office should work to reduce the "traditional rigidities" between the sciences that are not conducive to cross-disciplinary study and the integration of scientific knowledge.

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 review team felt that "the greatest asset of the Department of Environmental Science is its faculty" who are highly committed to teaching and who convey enthusiasm for their academic subject and research.
- 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 reviewers noted that 60% of undergraduate students come from Hispanic, Asian or African-American backgrounds. They were impressed that the department provides students with “high quality, personalized instruction and easy access to faculty”.
- c. Providing the environment necessary to promote student learning in the program.
- The reviewers were impressed with the “positive interactions between students and faculty” and a real strength of the department was the “enthusiasm and energy of the faculty devoted to hands-on exposure to real world, local environmental problems”. They also noted the challenging nature of the classes, particularly the capstone experience.
- 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?**
- In the opinion of the reviewers, the Department of Environmental Science “is committed to helping students understand the natural world and human beings’ relationship to nature and is thereby providing the knowledge and tools for them to help society chose more sustainable paths towards development and social justice”.
- 6. What is the timetable for the response to the external review committee’s recommendations for program improvement? What can the AVP’s office do to appropriately respond to the review?**
- The University needs “to sustain and improve the infrastructure of the academic programs”.
 - Strengthening the academic component will need more full time faculty and the reviewers recommend hiring in the areas of Geology and Atmospheric Science.
 - Faculty should be given credit for mentoring, tutorials and independent studies and increased credit for laboratory and field-based courses.
 - The University should work to reduce “strict traditional rigidities” that do not facilitate cross-disciplinary collaboration. “Future educational programs”, they argue, “are likely to embrace integrated natural science, from both the theoretical and applied perspectives”.
- 7. What general comments or issues, if any, are crucial to understanding the reviewers report?**
- The reviewers stressed that the department “strongly supports and exemplifies well the core mission of the University” and it has the potential to be an exceptional academic asset to the University of San Francisco.