# External Review Report

7th Cycle Program Review

**Department of Geography and Environment**

College of Science and Engineering

San Francisco State University

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# 1 GENERAL OVERVIEW OF THE PROGRAM

Our expertise spans the major subfields of the discipline including human and physical geography and geographic information science (GIScience). We come from doctoral-granting institutions, have both served as department chairs, and both have conducted departmental or research program reviews before.

During the review we met with the provost, several deans, department chair, departmental program advisors, most tenure and tenure-track (T/TT) Geography and Environment (G&E) faculty members, the department administrative assistant, four technical staff and seven geography major students (three undergraduate and four graduate). We toured the department's laboratories, classrooms and office facilities.

The self-study report prepared by the department was used as the starting point for discussions with faculty and students. It presented a comprehensive appraisal of the current state of the department and is generally consistent with the input that we received from the administration, faculty, students, and staff with whom we met. In addition, we asked each group to reflect on the strengths and challenges of the department and on opportunities for improvement and change.

We benefited from the hospitality and openness offered during our recent visit to San Francisco State University. Our interviews provided an extremely informative window into the department, its context, its successes, and its opportunities. That the various constituencies were so forthcoming made our job easier and holds promise for the department's continuing success. The department chair was particularly accommodating by responding immediately to questions or data requests that arose during our visit, and by

making sure that all stakeholders were able to express their viewpoints in public or private.

Currently the department offers a B.A. degree in Geography and a B.S. in Environmental Sciences, together with a M.A. in Geography, an M.A. in Geography with a Concentration in Resource Management & Environmental Planning, and an M.S. in Geographic Information Science. Since the last program review, the department has made changes to enhance the quality of its program and added the B.S. degree in Environmental Sciences in 2015. The faculty and students conduct research across a range of areas that are consistent with both the current trends in the discipline of geography and environmental science, and its position within the College of Science and Engineering (CES).

The faculty have worked hard in recent years to develop high-quality undergraduate and master's degree programs that reflect these priorities, to attract strong students, and to prepare its students for a wide range of professional positions and for graduate study. The department's record of student placement appears to be successful and broad in scope, as documented in the alumni survey results presented in the self-study report.

Given these opportunities, the department faces a number of choices which will allow it to capitalize on its success, transition in directions that will build on the department's momentum, and build connections and collaborations within the college, university and discipline. In entering this stage of its evolution, the department will need to evaluate how best to position itself for continued excellence.

# 2 EVALUATION OF PROGRAM QUALITY

## 2.1 Program Planning

The department seems to have made substantial advances since its last review in terms of its academic programs. The department has created a curriculum which has grown its undergraduate program in numbers and in diversity. Through the addition of the B.S. in Environmental Sciences in 2015, the total number of undergraduate majors has expanded from 104 to 178. At the same time, the diversity of the students has increased with underrepresented minorities accounting for 37% of enrolled Environmental Science students relative to their 29% share students pursuing the Geography B.A. These are reasonable numbers for a department with 13 tenure and tenure-track faculty members.

Given levels of current staffing and plans for the future, the department's program is sustainable in its present form. But, if the department wants to change direction, for example to increase faculty research productivity, further enhance the undergraduate program (for example, by increasing the number of internship, research, field study or honors opportunities), then the department will need to engage more in strategic planning about its future.

## 2.2 Student Learning and Achievement

The department's self-study report contains detailed information on learning outcomes for its programs. The department's learning outcomes are fairly comprehensive and well-formulated, and stated to be collected regularly through various forms of assessment. The assessment activities and measures have mostly been coordinated by the primary graduate advisor (Prof. Wilkinson) through various forms, such as associated with multiple assessment reports in the recent past and others listed below.

Undergraduate program

- Acceptance into MA/professional programs
- Alumni feedback re: job placement & preparedness
- Geographers At Work events held one to two times per semester (how well their studies prepared them for their careers, additional preparation that would have been useful, etc.)
- Recruitment of alumni by agencies and organizations
- Networking via Friends of SFSU Geography Facebook Group, LinkedIn, email listserve, annual picnic, etc.

Graduate programs

- External awards received/juried presentations
- Admission to PhD programs (and completion)
- Feedback from students/their PhD advisors on preparedness for doctoral studies
- Acceptance of MA thesis-based papers for publication in refereed journals
- Alumni feedback re: job placement & preparedness
- Geographers At Work events held 1-2x per semester (how well their studies prepared them for their careers, additional preparation they wish they'd had)
- Continued recruitment of alumni by agencies and organizations
- Networking via Friends of SFSU Geography social media, email listserve, annual picnic, etc.

Numerous specific and key findings stemming from these assessments are reported in the self-study document. Of primary importance are identification of "bottleneck courses"

that impede progress towards timely graduation – GEOG 160, 205, 500, 603 and 690. The department has made good progress in addressing action items from the 5th Cycle Review, with the exceptions of increasing extramural research funding, diversity of student majors, and library journal support. We are not in the position to comment on time to degree and graduate rates of G&E majors, without having context from figures for the rest of the CES and SFSU.

## 2.3 The Curriculum

The department makes important contributions to the college and university in terms of general education, student credit hours, and majors. The degree programs are well-structured and current. The students are enthusiastic about the classes and faculty. Several spoke of discovering geography after pursuing other majors, but some became majors early in their programs. Many of the students had taken advantage of internships and research opportunities with faculty members, and all hoped that such opportunities would continue to expand and that opportunities were more broadly publicized.

Growth in the undergraduate programs will require expansion of the offerings of a number of courses that are currently recognized as bottleneck classes. In particular, GEOG 205 Geographic Techniques and GEOG 500 GWAR are both required for the BA GEOG and BS Environmental Science students and are currently offered in two sections each per year. The department is aware of the need to increase the capacity of these courses, either through holding existing sections in larger classrooms or adding additional offerings in the evening and/or online. The current undergraduate curriculum is sustainable, as mentioned

above, but it limits to some degree the department's ability to innovate and respond to changes in the college, university and discipline.

The graduate program encompasses an MA in Geography, an MA with Concentration in Resource Management and Environmental Planning, and an MS in Geographic Information Science. Enrollment in the three programs has fluctuated and has recently been low, averaging 2, 5, and 3 students in each of the programs on an annual basis over the review period. These numbers are reflective of a broader trend facing the university in the form of declining graduate enrollment, itself in large part due to increasing cost of living in the region. In response to these numbers, the department has made a number of changes in the graduate curriculum, including a consolidation of graduate seminars.

Secular declines in university graduate enrollment will increase the competition the department faces in attempting to grow its graduate program. The department is aware of this competition and seeks to recruit from its undergraduate program, particularly the popular B.S. in Environmental Sciences. To strengthen this pathway into the graduate program, the department has proposed a new MS in Environmental Sciences. This strategic move leverages existing resources in creative ways since all faculty currently teach in the graduate program, and many of the existing courses will be drawn upon to construct the new MS, as further discussed in Section 4.

## 2.4 Faculty

The department benefits from a solid record of faculty research, as evidenced in the self-study document and on-line CVs. Faculty have established strengths in key subfields of geography. Overall, the geography program has a reasonable annual productivity of peer-reviewed publications in middle- to high-level disciplinary and interdisciplinary journals.

Grant activity among faculty is recognized and encouraged, although the level of extramural funding for research activities is fairly modest. Several faculty members mentioned that support from the university's sponsored research office could be more substantial, particularly for identifying funding opportunities and for developing and submitting proposals.

Faculty productivity is somewhat uneven across the department roster. The chair and faculty are aware of this and have taken many steps (as noted in the self-study report) to try to encourage all professors to develop and sustain an active program of research and publication. These mentoring efforts have had some effect, but discrepancies in research performance remain. Differences in research performance are common within departments and there are ways in which differential workloads, responsibilities, and expectations can be set so that all faculty contribute equitably to a department's mission and performance.

## 2.5 Resources

The faculty felt that it has had good internal support to conduct their research and were pleased with the support they received from the department, college and university, particularly for student teaching and research assistance, travel and equipment.
The department has inadequate office and adequate lab space for current needs and for the immediate future. The department makes good use of this space, but office space availability may be inhibiting achievement of the department's goals.

The department is served by a very efficient and dedicated department academic office coordinator, Alisha Huajardo. She supports most of the curricular, scheduling, fiscal and personnel activities of the department, with some assistance from student office

students. Alisha and her student assistants are very supportive of and work well with each other, and all spoke highly of their interactions with the geography faculty.

Technical staff serve faculty, student, university, and system-wide needs. Anna Studwell is the Associate Director of the SFSU Institute for Geographic Information Science and provides campus support for software installation and licensing, data management, technical assistant with web mapping projects, and consultation on software and hardware recommendations. Quentin Clark serves as the CSU GIS Specialty Center site license administrator and supports the Center's mission of promoting GIS and spatial analysis within the CSU system. The Department's Map Librarian is Kevin Physioc who works half-time in this capacity and is a graduate student in the program. We get the strong sense that they work very well together, and support both the GIScience and overall missions of the department.

Staff were unanimous in their view that they are supported by the chair, and that their contributions are highly valued by faculty and students. The department has been resourceful in leveraging the Institute and Center in support of its teaching, research, and service missions, and the staff work in a highly collaborative fashion. At the same time, all three technical staff positions are part-time in the department, with the majority of the staff appointments being associated with the Center or Institute, and our discussion revealed that the demands on these positions often exceed their time allocations.

## 2.6 The Program's Conclusions, Goals and Plans

The self-study document outlines a plan for moving the department forward in a number of directions that are well justified based on our review of program resources, challenges, and ambitions. Several of these build on the momentum that current initiatives are generating,

such as targeting stronger recruitment from the undergraduate program to grow the graduate program, which now becomes feasible given the growth in the enrollment in the new BS in Environmental Science. Further, the proposed MS in Environmental Sciences, which has the support of two Deans, would enhance this pathway to future program growth, without incurring significant cost increases.

While the included goals are laudable, we feel there are areas that the department should focus additional attention on. To increase the research profile of the department further initiatives will be needed beyond course release for junior faculty. Existing administrative support for proposal development and post-award management are insufficient to support a top-tier research program. Faculty mentoring should be formalized and include research activities that encompass collaboration between senior faculty mentors and junior faculty on proposal development, and guidance on the integration of research into teaching and advising.

## 3 COMMENDATIONS OF STRENGTHS AND ACHIEVEMENTS

The Geography and Environment Department is strong and vital in terms of faculty research, undergraduate education, and its contributions to the College of Science and Engineering and the San Francisco State University. It has benefited from strong leadership from its current chair. Geography and Environment addresses some of the fundamental research challenges of the 21st century involving the environment, space, natural resources, sustainability, and planning. The GIScience program and department in general have attained top 2-3 status in the CSU system, and strategic alignment of institutional support with the goals and recommendations of this review has significant potential to

further develop the department's programs and advance its standing in the discipline and university.

One of a department's greatest assets is a strong sense of dedication to students and to the Bay Area region. The department makes substantial contributions to the region's economic base, having trained generations of students in geospatial technologies who then have entered a wide array of fields from local, state, and federal governmental agencies, to private section giants such as Apple. This broad and deep human-capital footprint reflects the importance of these skill sets and knowledge in addressing the challenges facing our cities, regions, and planet, together with the department's impressive record of providing state-of-the art training and education in these domains.

The department has made judicious use of general funds from the university to support its undergraduate and graduate teaching mission. Bolstering these resources is support for GIS and GPS technology provided through funds generated by contract research carried out by the Institute for Geographic Information Science. These resources serve to enhance the teaching of geospatial technologies throughout the undergraduate and graduate program, and would likely not be possible without this form of external support.

Although space constrained relative to other units in the College, the department uses its space in creative and effective ways. Of particular note is the use made of the Map Library which, in addition to supporting graduate seminars, theses defenses, and faculty meetings, provides a meeting space for undergraduate majors that nurtures and supports a sense of community and belonging which is rare on a campus with a large share of commuter students.

The department has core strengths in its physical, environmental and GIScience programs, each on its own, but also there are important synergies between these programs that have been fostered through strategic hiring of faculty with complementary teaching and research interests. The portfolio of courses offered in these programs positions the department as uniquely qualified in the broader region to train students in geospatial technologies, grounding in physical geography, and their application to environmental policy and resource management. At the same time, the department is admirably working to improve its research profile. Given the challenges faculty face with regard to teaching loads, shared office space, and limited support for proposal development and grant administration, the current degree of research productivity, while modest, reflects a faculty succeeding in the face of substantial challenges.

In pursuing its plans, it is clear that the department has benefited from highly effective and dedicated leadership. Good communication channels seem to have been established and maintained among the chair, faculty, staff and students. Interaction between colleagues can inform researchers and facilitate large multi-researcher projects that are typically on the leading edge of scientific research. The department is aware of the need to continue to enhance these forms of interaction and build on the momentum begun under the current leadership. The current chair, Jerry Davis, should be commended for his contributions to the program.

# 4 RECOMMENDATIONS AND STRATEGIES FOR PROGRAM IMPROVEMENT

As with all academic program, there is always potential for improving their effectiveness and the manner in which they run. Here we provide some recommendations.

Fluctuating and somewhat declining numbers of majors and enrollments in the master's degree programs are worthy of continuing attention. While residential rental costs and myriad of job opportunities for students with GIScience and environmental science/management skills are likely key factors behind this trend, two strategies that could be effective for mitigation are to (1) put a greater emphasis on securing external funding for graduate student support, and (2) offer a M.S. in Environmental Science (MSES). The former requires an expanded effort to reach out to businesses and organizations who could and may already be benefiting from hiring SFSU graduate students, often before they graduate. It also requires seeking extramural research and STEM training grant support. Increasing extramural funding for graduate students could be enhanced by encouraging faculty to emphasize graduate assistantship funding in their grant proposals, with incentives of course releases provided by the university in lieu of or in addition to faculty summer salary or course buyouts. Graduate research assistants tend to be the lifeblood of a successful academic enterprise and funding more of them would enhance the already impressive record of placement in top doctoral programs. While recommending the addition of an MSES degree might seem odd given the fluctuating and slightly declining trend in master's degree majors, the rationale is sound. G&E already has the faculty expertise, facilities and curriculum to service a MSES program. Adding MSES majors would help to increase the size/efficiency and effectiveness of the extant graduate

seminars that would mostly meet the needs of MSES majors. Few if any additional courses would need to be staffed. Top students from the recent BSES program could be readily recruited into the MSES, and BSES students would benefit from the course and research interactions with MSES students. An MSES would complement the other master's programs and fill an important regional need for Bay Area and California organizations involved with environmental compliance and monitoring.

Our other major recommendation pertains to departmental policy and governance. While these are not items that are directly specified to be emphasized in the program review guidelines, they are critical to the success of academic programs. The department and university have benefited from very strong and dedicated leadership by its chair and major program advisors, and from what we could glean during our visit, by the college and university administrators as well. However, departmental leadership has been fairly centralized, and policies and mentoring fairly informal. Participation in and contributions to departmental functions and governance could be broader amongst all members of the faculty.

The following steps are recommended to improve upon this situation by adopting a greater degree of formalism, systematics, and shared governance.

- Establish an elected Policy Advisory Committee (PAC) that consults regularly with the department chair and leads the department in developing and updating a department policy file.
- Once the first PAC is elected, it should work with the department chair to establish a draft department policy file, that is shared with, discussed and approved (by vote) by T/TT faculty.

- A component of the policy file should include guidelines for the election and term lengths of PAC members, program advisors, and personnel (RTP) committee members.
- The department chair, in consultation with the PAC, should identify faculty mentors, develop mentoring procedures, and provide standardized advice about expectations for tenure and promotion, for each new TT faculty member who joins the department.

Our other recommendations are listed below.

- More formal planning and discussion of future faculty hires would be useful, such as a development and continual updating of a 5-year strategic plan.
- The involvement of the department in SFSU's General Education is notable, though adding a course or two that highlights some the exciting work geographers and environmental scientists are doing across science and the many professions it intersects could be an effective recruiting tool.
- For the moment, it seems more useful for the department to focus its energy on refinements for improving the quality of its undergraduate programs (e.g. honors courses, research projects, enhanced internship program) rather than recruiting potential new majors.
- University administration should provide additional technical staff and tutoring support for the GIScience and physical/environmental laboratories.