

Department of Geological Sciences, California State University, Fullerton
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The Department of Geological Sciences at Cal State Fullerton is undergoing something of a renaissance: we have a young faculty (6 untenured; 4 tenured; 1 on-going hire; 1 planned hire), a 4-year-old master's program that's steadily expanding, and a relatively new science lab building. About 5 years ago, we decided on a theme that guides our faculty hires and curriculum design: Quaternary Geology. But despite recent changes, we're holding on to some ideals we hold dear. We're in a University that has always revered teaching excellence and teacher education; hires are made with the understanding that tenure requires excellent teaching. And we're in a college that has as its motto the fostering undergraduate research; in fact, we occupy a special place in the college as the one department that *requires* an undergraduate thesis...and we've done so for 30+ years. Finally, the new faculty continues the original commitment to field-based education: I estimate that a typical major spends a minimum of 22 weekends in the field, plus one-month of field camp. Virtually all faculty members conduct field-based research, though many are also engaged in lab- or computer-based research.

The students have a wonderful camaraderie. While this is, of course, their own accomplishment, there are a number of ways the department supports their solidarity. The field- and lab-intensive curriculum provides lots of time for student interaction. In particular, the Introduction to Field Techniques—the third class taken by most students—requires 5 weekend trips. By mid-semester the students have bonded, and they'll take most of their remaining coursework together. We provide a student lounge equipped with lockers, networked computers and printers; the club has provided a sofa, refrigerator, and runs an honor snack bar that benefits the entire department. Also, every three years we start a nighttime core sequence—in addition to enabling nontraditional students to earn degrees, the nighttime students appear to bond very strongly. Finally, whenever possible, we pay for students to attend and present at professional meetings and field trips, and encourage their grant writing efforts.

Unlike other departments in our college, we have no problems with retention of majors. This may be due to the field-intensive curriculum (with concomitant student bonding), required advisement each semester, and the intense, one-on-one mentoring that accompanies the required student-faculty research. Students know that local employment opportunities abound—in 14 years, I've never known a student to be unsuccessful in finding a career-track geoscience job. Moreover, students, faculty and staff seem to be happy in the department; this seemingly trivial characteristic seems to be a key to our success. But we do have a significant problem with the recruitment of majors: in the early 90's we had 80+ majors, and this number dropped below 30 a few years ago. We're crossing our fingers that an upswing is happening, with the latest count of undergraduate majors at 49. This year we're beginning a substantial recruitment effort that targets CSUF freshman. We developed a series of general-education, lecture-lab courses that we feel are high interest (e.g., Earthquakes and Volcanoes, Dinosaur World) and will be offered in ways that permit freshman first enrollment rights. Important aspects in course design include class size (60 seat lectures—half the size of our Physical Geology lectures—coupled with a required, 30-seat lab; freshman have difficulty getting seats in our impacted Physical Geology lab), a service-learning component (required by Freshman Programs and purported to improve student success in college), and a completely subsidized, weekend field trip.

Last month we received final approval for a redesigned undergraduate curriculum that requires fewer units (a University goal), addresses recruitment, and modernizes the content of the major:

- At two faculty retreats, we identified curricular problems and brainstormed about solutions.
- We surveyed our alumni regarding their perspectives of the program and industry needs.

- We drafted a list of learning objectives for the geology major.
- We scrutinized geology and related fields courses, and made appropriate changes, including
 - the addition of new portals into the major, as *substitutes* for Physical Geology (Earth's Oceans and Atmospheres, Earthquakes and Volcanoes, Dinosaur World), each of which meets the 100-level learning objectives that the faculty deemed necessary for future geology majors [all majors will still take Physical Geology Lab];
 - the addition of a course in hydrology and surface processes to the core;
 - a redistribution (but not diminishment) the field-time and writing practice;
 - and the option of alternate pathways through the related fields courses, which will enable students to tailor their science/math coursework to their particular interests in the geosciences, while not compromising rigor.
- We constructed (and continue to update) a 5-year course rotation scheme for the undergraduate and graduate curriculum that meets student, curricular and staffing needs, and allows for students (and faculty!) to plan their courses and activities with confidence.

Some additional strengths of the department include

1. Dollar-based budgeting: as long as we meet our teaching target within our budget, the Dean doesn't micromanage our course offerings or how we use our resources, putting the department more in control of its activities and future plans.
2. Committee design: Each tenure-track faculty is responsible for overseeing one subset of department community: everyone occupies a seat on either the Personnel Committee (tenured only), the Graduate Committee, the Undergraduate Committee, or the General Education Committee (which oversees the lecturers and GE students).
3. Lecturers: we currently have 13 M.S.- and Ph.D.-level lecturers with whom we're exceptionally pleased. In recent years, the GE coordinator has worked to provide them increased support on campus, in the form of offices, computers, and opportunities for professional growth. A few lecturers are participating in pedagogical research and creating a 100-level laboratory manual tailored to our university.
4. Department Personnel Document: working together over the course of a year, the faculty wrote a very detailed document that lays out the specific requirements for tenure and promotion. Though this 2-year-old document is slated for revision, it certainly has helped the untenured faculty design their personal pathway to successful tenure.
5. Earth Science week activities: over the last three years we've hosted a series of activities (including career forums, dinner speakers and overnight field trips), which we use to reach out to alumni and employers (as well as bring together students and faculty). These informal gatherings also have served to introduce alumni to the new faculty, and as a result many alumni have chosen to return to earn master's degrees.
6. Seminar series: during the past 4 years we have hosted a regular, bi-weekly seminar followed by a department-supported dinner that serves both scientific and socialization goals. Attendance is typically >40. Graduate students are required to attend for a minimum of two semesters. A contingent of biologists regularly attends the more environmental talks.

In addition to undergraduate recruitment, the major challenges to our department include faculty recruitment (due primarily to astronomical housing prices), limited space, budgetary uncertainty, and the challenges of fostering camaraderie and out-of-class interactions in a predominantly nighttime masters program.