

Buffalo State's Earth Science Department: At the Intersection of Opportunity and Obstacles to Change

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Buffalo State College (BSC) is the largest comprehensive college in the State University of New York (SUNY) system (approximately 9,000 undergraduates and slightly over 2,000 graduate students) and is the only urban four-year campus in SUNY. Founded in 1871 as a Normal School to prepare teachers, it became a part of the State University of New York in 1948 and presently is a public, coeducational, liberal arts college. The college offers 79 undergraduate degree programs, 58 undergraduate minor programs and 40 graduate degree programs (many are in support of teacher certification and masters degrees in education). Nearly all of the students attending BSC are from New York State with more than 71% from the local Erie-Niagara county region. Most of the students commute and work at least part-time. Because of the combination of workload, less than full-time enrollment, and family responsibilities, students generally take five or more years to complete their undergraduate degree.

The Earth Sciences and Science Education Department is a combined department. The Science Education unit does not offer a degree program of its own, but is responsible for teaching a sequence of courses required for all secondary education majors seeking New York State certification in biology, chemistry, earth science and/or physics and for the supervision of these students in their semester-long student teaching placement. The Earth Sciences unit offers three undergraduate degree programs: B.A. Geology, B.S. Earth Sciences and B.S. Earth Science Education. Within the B.S. Earth Sciences program here are three tracks (environmental earth science, geology, and earth science education) designed to help students take a sequence of courses most appropriate to prepare them for either entry level employment (e.g., environmental consulting firm), secondary earth science certification, or pursue advanced degrees. There are approximately 100 students majoring in these programs, and more than half the students in the department are pursuing their earth science certification. The introductory courses offered by the department (geology, oceanography, astronomy, environmental earth science, geological hazards) are in high demand because they support the College's general education requirement.

The Earth Sciences half of the department recently conducted a thorough self-study and underwent an external review. Both strengths and challenges were uncovered and documented. The rest of this essay highlights some of these.

Among our greatest strengths are: accessibility of faculty to our students, easy access to a range of field areas, regular offering of required and elective courses, and faculty that consider teacher to be their primary responsibility. Faculty in the department engage in a variety of service activities at the campus level that include leadership positions on the curriculum committee and in the office of undergraduate research. Faculty are also visible in the community through their participation on environmental advisory boards and by their educational and outreach efforts at the K-12 level. The department has used retirements and faculty replacement opportunities to strategically strengthen the educational experience of our students by intentional hiring of junior faculty that demonstrate an interest and desire to engage our students in undergraduate research. This expectation is clearly articulated in our position descriptions and is reinforced in subsequent personnel actions (three and five year reviews and tenure/promotion). The increased emphasis on

providing high quality undergraduate research experiences for our students helps define our department and has contributed to the recognition of our department by our campus administration and other institutions.

There are some challenges that our department faces. Our small size makes it a constant challenge to provide our students with a solid grounding in the Earth sciences. For example, after the retirement of two hard rock geologists, only one faculty line was returned to our department. The impact of this reduction was the hiring of a geologist to teach mineralogy, petrology, structural geology, field geology, and tectonics. Unfortunately, this translates into our students taking many courses from the same person. While the faculty member is excellent, it is less than ideal for students. They are not benefiting from, and challenged by, multiple perspectives in both content and pedagogical methods.

The budget is certainly a reality we live with daily and certainly impacts our ability to restore lines, hire faculty, and fully fund field trips, but the budget is probably not our greatest issue. As many departments have dealt with in the past and will continue to deal with in the future, the department struggles with leadership issues, problems associated with at times strained faculty collegiality, and lack of a shared departmental vision. Rather than accepting the status quo, new and veteran faculty in the department see these challenges as opportunities to build strong initiatives to integrate education and research, to enhance ties to the community through addressing regional concerns, and to develop the kind of academic community that reflects our commitment to our students. Reflecting on nearly twenty years of experience as a faculty member at Buffalo State College, I feel that the defining characteristics of a strong department are frequent interactions among the faculty, a genuine appreciation and respect for different views on issues, and a shared vision for strengthening the department and providing students with the highest quality learning experience.