

***What strategies have you or your program used to meet one or two of the challenging aspects of teaching at a two-year college?***

- *Challenge #1 – Networking among community college geoscience educators:*

A major challenge for community college geoscience education is that instructors tend to lack the professional development support available to many university educators. A key part of this problem is that community college geoscience instructors often receive minimal support from their colleges for attending conferences, workshops, or engaging in other professional development activities. In part this is based on budget limitations, but it is also a product of our teaching assignments. We generally teach a broader range of topics and have heavier full-time teaching loads than do our university colleagues. Engaging in professional development is often “extra-curricular activity” we do on our own time and pay for from our own funds. This is particularly true for the increasing percentage of our workforce made up of part-time faculty. Added to this is a general lack of professional opportunities targeted at community college earth science educators. All this creates a situation in which there is little opportunity for community college geoscience educators to interact or collaborate.

To address this issue, I was involved in two efforts involving the Geological Society of America. One of these was to help organize a session on teaching community college earth science at the National Geological Society of America (GSA) 2009 annual conference. I co-chaired this session with Eric Baer of Highline Community College (Des Moines, WA). The second effort was to secure funding from the National Science Foundation (NSF) to provide financial support for 21 community college educators and 7 community college students to attend the national conference and present during the session. One positive benefit of these efforts is that they attracted the attention of both the National Association of Geoscience Teachers (NAGT) and the GSA Geoscience Education Division. As a result, for the first time in the history of GSA, sessions and receptions specifically targeted for two-year college geoscience teachers appeared in a national conference venue. Furthermore, several NSF staff attended the session as well as a follow-up focus group to gather information about how they could better support community college geoscience.

Though the session and the accompanying funding were one-time events they did seem to provide a catalyst for several follow-up events. First, another similar session is scheduled for the 2010 GSA conference in Denver CO, and second, many of the same people who were involved in this session are now involved in the Geo2YC planning workshop scheduled for June 2010 in Annandale VA.

- *Challenge #2 – Supporting new and part-time faculty.*

For many community colleges, part-time instructors teach most or all of the earth science courses being offered by the colleges. In our own district, our geoscience faculty consists of two full-time and nine part-time instructors, with part-time instructors teaching well over half of our offerings. This is for a district having four “full-service” campuses. Though many of our part-time faculty have been with the district for several years and teach one or more courses every quarter, they traditionally receive little or no support in terms of professional development. This means that mentoring of new faculty is provided by either the two full-time instructors or by veteran part-time faculty volunteering their time. The result of this is that until recently new part-time faculty have received very little oversight and mentoring.

Surprisingly, one means of addressing this problem could come from our distance course development. For three years two instructors in the district have been developing and teaching on-line earth science courses. Like many colleges, ours has been seeking to increase on-line offerings. To help provide these additional offerings we expanded our general science (aka earth science for non-science majors) courses from one to two sections a term. To do so we recruited some of our new part-time instructors to teach the additional sections. This allowed us to pair an experienced part-time instructor with a new part-time instructor. The result of this was that the new instructors were able to work with a more experienced colleague, and both were compensated for their time.

Another benefit of our distance course development is that we have been given ready access to the video production capabilities of the distance-learning department. Using their resources we have produced a series of video lectures and laboratory introductions that we use for the on-line courses. This process is a benefit for two reasons. First, both instructors work together to produce the recording, increasing the interaction between the veteran and the new instructor. Second, because we have used the recordings to familiarize other new instructors with labs and other course activities. In talking with our distance education staff about these benefits, we have found them very open to the idea of producing on-line resources (e.g. laboratory demonstrations, topic introductions, etc.) that could be assembled into a web-based professional development “kit” for new instructors.

- *Challenge #3 – Addressing the needs of the “average” student now taking our courses.*

Many of the students taking earth science courses at our college are doing so to fulfill a general education requirement rather than to prepare for a career in the geosciences. Consequently, much of what we do involves helping students develop geoscience literacy. This frequently means working with students who are intimidated by science and may not see the relevance of the geoscience to their lives. We addressed this issue in four ways.

1. We often bring local geology, geohazards, and environmental issues into lectures, labs, and other course activities. Not surprisingly, students seem more interested in geology that they can easily go out and see for themselves, and geologic processes that impact where they live or what they do for a living.
  2. We include as much field experience in the curriculum as possible. Many students in our field programs report an increased interest in geology as a result of seeing the geology firsthand.
  3. We collaborate with other disciplines to develop and teach cross-disciplinary courses. This is particularly true of some of our field offerings, where we cross-list three and four day field experiences with biology.
  4. By utilizing “advanced” students as tutors and mentors. For more detail see challenge #4.
- *Challenge #4 – Encouraging students interested in careers in the geosciences.*

Though many of our students are not geoscience majors, a significant number do express an interest in becoming geologists or some other type of geoscientists. The dilemma here has been to provide additional opportunities that challenge these students given limited resources for doing so. One avenue being developed in our district are honors course that feature additional content and activities oriented towards the needs and interests of such students. While these courses do exist in other disciplines in our district, they are still in the planning stages in the geoscience program.

An alternate strategy which has been successful involves community college / university collaboration. Beginning four years ago, the staff of a program called UCORE (Undergraduate Catalytic Outreach and Research Experience) approached PCC seeking to recruit our students in their program. UCORE is a collaborative effort between the University of Oregon and four Oregon community colleges. A typical UCORE fellow’s experience consists of a summer research institute for community college students followed by a year of paid service at their home institution. While the summer institute is meant to encourage interest in STEM (Science Technology Engineering and Math) careers by giving each fellow a taste of what it is to do research, the year of paid service is intended to increase the impact of the program by engaging the fellows in catalytic activities. These activities include tutoring, forming science clubs, doing science outreach activities with local schools, presenting at local science conferences, and talking with other college students about their summer experience.

Though many of the students involved in UCORE are interested in careers in chemistry, medicine, engineering, or material science, the program has impacted PCC’s geoscience program in two ways. First, a significant percentage of the research experiences available to students during the summer institute have consistently been in geology. Second, both the present and past UCORE coordinators for our campus have been geoscience instructors. I am the past coordinator. PCC instructor Jill Betts is the present coordinator. Since the

coordinator's responsibilities include recruiting new fellows each year and coordinating the activities of these fellows once they return to campus, we are in a position to direct students having an interest in the geosciences into the program, and help those students be an asset to students in our earth science courses.