

Increasing Participation in the Geosciences at El Paso Community College

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Community Colleges currently serve 44% of all undergraduate students and 45% of all of all first time freshmen in the US¹. The combined low cost and flexibility of community colleges has also meant that they accommodate a large percentage of minorities entering higher education. Hispanics now constitute 15% of the general population and 19% of college population in the US₁. This increase has led to more Institutions being designated HSI (Hispanic Serving Institutions) by the federal government, where at least 25 percent of the full-time-equivalent students are Latino.

These facts illustrate the potential community colleges hold to encourage STEM (Science Technology Engineering and Math) majors to minorities as well as non-minorities. But the reality is the number of STEM degrees awarded at CC has not followed the same trends in enrollment₁. Student research is the key to having students participate in STEM fields. This, unfortunately, is a simple task with a complex solution.

Having students involved in hands on research is fundamental in having them understand the potential of what a particular STEM field can provide. Regrettably, unlike our university counterparts, community colleges do not have the financial, administrative, or infrastructure support needed for research.

Like many community colleges, El Paso Community College (EPCC) is experiencing a stage of rapid and exciting growth. EPCC currently enrolls 27,000 students with 85% of the student body being Hispanic. More than 130 programs of study are offered including an Associate of Science degree in Geological Sciences. In our effort to increase majors in Geology at EPCC, we have taken several small steps over the past three years.

El Paso Community College is often used as a “stepping stone” for students to prepare for a four-year college (primarily the University of Texas at El Paso or New Mexico State University), gain credit, or to test the waters of higher education. Many times, our students leave EPCC and start a four-year institution without ever receiving their Associates. Many of these students do not realize they have either earned enough credit to receive their Associates, earned enough to get multiple Associates, or are simply lacking one or two classes to complete their Associates.

State funding in Texas, as in most states, is based on graduation rates, not class enrollment. Therefore, once a student leaves EPCC without receiving their Associates and transfers to a four-year institution, EPCC receives no credit for federal aid from the State of Texas for that student. Therefore, the four-year institution will receive state recognition once the student receives their Bachelor Degree, even though EPCC is responsible for up to half of the college credit the student earned.

In order to increase the number of students receiving their A.S. in Geological Sciences at EPCC, we implemented a “2+2” program. Working closely with the Curriculum Offices at EPCC and UTEP and the Geology Department at UTEP, we developed a Degree plan that would:

- Allow a student to complete their basics (up to 65 credit hours) and therefore complete the first two years of a four-year degree while getting their AS degree at EPCC.
- Allow the student to then spend the last two years of their BS taking upper level courses at UTEP and only pay the higher tuition rates for these last two years.
- Ensure all courses taken in the AS degree plan for Geological Sciences at EPCC would count for credit in the BS Geological Sciences Degree plan for UTEP.
- The format and style of both the EPCC and UTEP degree plans were identical to minimize confusion, redundancy, and anxiety of transferring students.

The simplicity of the degree plans allows EPCC geology instructors to easily mentor students interested in becoming geology majors at EPCC and illustrates a path for a BS degree at UTEP. Since the introduction of the 2+2 program, we have gained over 65 geology majors at EPCC. The large majority of or students who are in our geology program at EPCC continue their education at UTEP with great success. Based on feedback from students attending UTEP from EPCC they felt that the skills they learned by taking “Capstone Courses” in their AS degree prepared them for courses at UTEP. The course we offer as “Capstone Courses” for geology majors at EPCC are:

GEOL2407 Geological Field Methods- Collection of field data, interpretation and construction of geologic and topographic maps, and examination of petrologic systems in a field setting.

GEOL2411 Mineralogy and Petrology- Study of mineral crystallography, chemistry, classification, identification, and occurrence. Includes the genesis, classification, and identification of igneous, sedimentary, and metamorphic rocks.

GEOL 2389 Research Techniques in Geology-An instructional program designed to integrate on-campus study with practical hands-on work experience in the physical sciences. In conjunction with class seminars, the individual students will set specific goals and objectives in the scientific study of inanimate objects, processes of matter and energy, and associated phenomena.

GEOL 1305- Environmental Geology- The earth as a habitat. Interrelationships between humans and the environment. Geologic factors in urban and regional land use planning.

¹Quality Education for Minority (QEM) Network Follow-up Workshop to HSI-STEM Outreach Forum Overview of NSF Programs and Proposal Opportunities. Las Vegas, NV. 2009.