

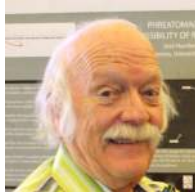
Team



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Focus

Washington Monthly has identified University of Texas at El Paso as #7 in their annual ranking of U.S. colleges and universities, and #1 for enabling upward mobility of our students. Our vision is to be on the cutting edge of this and world renowned for our expertise in science education and for producing high quality students with a 21st century demographic.



Our mission is to target key research areas that are being shown to improve student recruitment, retention, and graduation rates; develop first-rate research portfolios in these areas; and test our findings in real classes and outreach activities. These areas include K-16 pathways to success, minority education through travel and learning science, collaborative and networked learning, and broadening participation.



Science Learning and Education

The world is changing and future scientists must be well prepared to work with a broad range of scales, cross-disciplinary problems, and diverse settings.

Research on how students learn science is improving the preparation of our students and ensuring greater success in their pursuit of a geoscience degree. Our research on science education is widely recognized for developing new and better ways to teach science concepts and skills so that students learn more effectively.



Science Learning and Education

Current Areas of Research

A framework for teaching earth science

We are developing new methods for student engagement and retention in earth science classes, including research on what works in science education and how can it be incorporated in any size classroom. Problem-based learning, collaborative and networked learning, and team-based learning are emerging approaches that have demonstrated efficacy for teaching science, including in multi-disciplinary settings. Our research builds on and extends what is known about science education.

**K-16 Pathways to Success**

Bringing students into science and enabling their success depends on creating innovative approaches for engaging younger students in science; attracting students into introductory courses and stimulating their interest in those courses; recruiting early undergraduates into the field; and retaining students with an engaging curriculum. Many educational pathways can lead to success, yet research shows that purposeful actions by teachers, university faculty and affiliated scientists can improve outcomes. We are involved in student bridging programs from K-12, to community college, to university that facilitate these critical

Science Learning and Education

transitions and ensure continuity in science courses. For example, the Minority Education through Travel and Learning Science (METALS) program recently invited 10 high school Juniors and Seniors to spend two weeks traveling in the western United States learning about water resources and the environment.

**Broadening Access and Participation**

Research on minority education has revealed certain characteristics of minority students that commonly occur. We are involved in a variety of research projects targeted towards overcoming challenges specific to minorities. Additionally, we are very proactive in securing funding for Research Experiences for Undergraduates (REU) – a highly successful mechanism for recruiting and retaining undergraduates into science through involving them in real research with faculty mentors.

Geological Sciences

Future of Science Learning and Education

New technologies, online and blended learning environments, problem-based and collaborative learning – the field of learning sciences is rapidly innovating. Our research areas together with new curricula will position us as leaders in developing and testing new approaches to science learning.

Recent Publications and Presentations

Carrick T.L. et al. Pathways to the Geosciences Summer High School Program: A Ten Year Evaluation, submitted 2014.

Doser D.I. and Villalobos J.I. Mentoring to strengthen the 2-Yr to 4-Yr Pipeline of Geology Students, Proceedings 6th Annual Mentoring Conference, University of New Mexico, October 29-Nov. 1, 2013.

Gill T. et al. Buen Ambiente-Buena Salud: An Education-Based Program for Addressing Air Quality in a USA-Mexico Border Metropolis. American Meteorological Society Annual Meeting, 22nd Symposium on Education, Austin, TX, 2013.

Palsole S.V. and Serpa L. WebQuests, CSI Geology, and Virtual Field Trips. Developing an Active and Inquiry Based Classroom to Engage First Generation Students, GSA Abstracts with Programs, Volume 45, Issue 7, 2013.

Pennington D. et al. Knowledge synthesis in interdisciplinary research teams using model-based reasoning. Science of Team Science (SciTS) 2014, Austin, Texas, 2014.

Serpa L. et al. Analog Modeling of Earth Processes: A Case Study in Multidisciplinary, Guided Inquiry Science and Mathematics Education. NARST Annual International Conference. Orlando, Florida, 2011.

JOIN US!

Our department offers B.S. degrees in Geological Sciences and Environmental Science, M.S. degrees in Geological Sciences, Geophysics, and Environmental Science, and the Ph.D. in Geological Sciences.

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