

EDUCATION – POSTER #54

Training a Future Generation in Climate Change Science: Eastern New Mexico University's Paleoenvironmental Research Program

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In 2012 ENMU received an NSF NM EPSCoR Seed Grant to provide for undergraduates the kind of research opportunities that are typically afforded only to graduate students. Research goals included reconstructing past environmental conditions from biological, geological, and archaeological data collected and analyzed primarily by the students themselves. The program provided hands-on field and laboratory research experience to undergraduate students through two sequential 8-week courses offered for upper division credit in Anthropology, Biology, or Geology. Together, the courses consisted of four components – research design, data collection, analysis, and presentation of results – that exemplify the process of scientific investigation. In the first 8-week class students collected paleoenvironmental samples from four localities in eastern New Mexico that represent over 15,000 years of changing climate, and performed background research on microfossils as environmental indicators. In the second 8-week class students analyzed sediment samples and reviewed results from samples submitted to external labs that provided results for pollen, phytolith, diatom, mollusk, ostracod, and radiocarbon dating. Students compiled and synthesized these results and presented them in a public research symposium sponsored by the ENMU Department of Anthropology. The classes provided experience for over 20 undergraduate students from all three disciplines and generated meaningful results about past and future climate change. A contingent of these students is currently relating the results to ethnohistoric data on contemporary climate change adaptation in local ranching and industry. This model for undergraduate education through research proved successful with regard to both educational goals and research productivity, and may provide a useful framework for programs in other disciplines.