



Geosciences at California State University, Long Beach (CSULB): Synergistic Earth System Science/Community-Research Based Education Partnerships

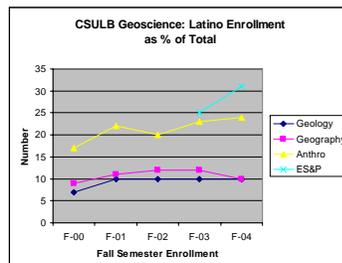
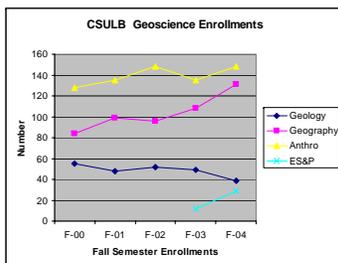


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Abstract

Geosciences at CSULB includes the Geological Sciences department, but also comprises elements of the Geography, Anthropology, and a new, and fast-growing Environmental Sciences and Policy (ES&P) program. Although these programs are instituted as separate entities, they collaborate in new and exciting ways, firmly seated in an Earth System Science framework. These collaborations are characterized by attention to three important elements: (1) community-based partnerships and research, (2) outreach and continuity within educational pipeline transitions of high school, to community college, to university, and, (3) synergistic – *not forced* – sharing of resources. Three recent collaborations: (1) creation of the ES&P, (2) the NSF-funded GDEP, and, (3) the IIRMES Institute, are powerful illustrations of how these collaborations can work to foster geosciences, particularly at institutions with limited resources.

Geosciences at CSULB



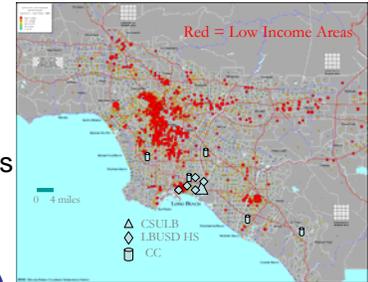
Observe flat to declining enrollments in Geology, growing enrollments in interdisciplinary fields such as ES&P; student diversity increasing, especially in Anthropology* and ES&P
 (*note: archaeology as geoscience discipline is part Of Anthropology major; graph may overestimate Archaeology enrollments)

(ES&P) Environmental Sciences & Policy

- Collaboration between Natural Sciences and Liberal Arts
- Main leaders are a geologist and an economist
- B.A. and B.S. degrees
- Formally began Fall 2003 after 5 years of planning
- More than 50 undergraduate majors already
- Emphasis on project-based learning: e.g. – assessment of wetlands recovery in urban Long Beach; environmental justice aspects
- <http://www.csulb.edu/programs/es-p/>

GDEP (Geoscience Diversity Enhancement Program)

- NSF Funded (GEO 01-19891)
- Began in 2001
- Brings community college (CC) and high school (HS) faculty and students on campus for summer research programs in archaeology, geography, and geology
- Emphasis on engaging underrepresented students in geosciences
- Highly successful – 25 to 40 people involved each summer
- Emphasis on community-based, highly urban research, e.g. geologic mapping at local parks, informative websites, subsurface mapping of archaeological features for interpretive center
- <http://www.csulb.edu/depts/geography/gdep/>



CSULB's urban service area and key partners



GDEP 2003

IIRMES (Institute for Integrated Research in Materials, Environments, and Society)

- Linkage between faculty in Natural Sciences and Liberal Arts
- Main leaders are biology, archaeology, and geology faculty
- Formally began in Fall 2004
- Successful in garnering NSF and institutional support for research equipment
- Emphasis on cutting-edge chemical analyses and geophysical equipment – designated as CSU system Core Facility for Micro-Chemical Elemental Analysis (FEMCA)
- <http://www.csulb.edu/programs/iirmes/>



IIRMES lab

Summary

- Geological Sciences at CSULB will continue as separate department, offering B.S., M.S. degrees
- Diversification/collaboration essential
- Will continue to develop partnerships (“rocks plus” concept) with other CSULB departments, community colleges, high schools, community agencies



Urban field trip



“rocks plus”