College of Science (CSCI)

North Science 135

See also attached curriculum map showing alignment of individual courses with Program Student Learning Outcomes.

competency with a spreadsheet program.

Possible ways to improve learning outcomes include:

1) a pre-assignment that gives students practice with necessary algebra skills,

2) a pre-assignment to develop skill with spreadsheets and graphing, and

3) further intensive work with data in groups, with the instructor present.

A similar assignment will be used in-class and for assessment again in the future, and some or all of these recommendations will be implemented in order to improve students' quantitative literacy.

GEOL 4320 Hydrogeology – Spring 2015

The assessment focused on data analysis in a laboratory exercise that replicates Henri Darcy's famous experiment in which key parameters are measured and their relationship to groundwater discharge is surmised.

The Quantitative Literacy rubric was used to evaluate student work. Out of 15 possible, overall scores ranged from 2 to 14 (for students who noted in the assignment while credit was still possible, with an average of 4.6 and standard deviation of 4.1 (including two scores of zero). Only nine of 20 students who completed the assignment displayed at least the basic level of competency (score of 1) in all five areas of quantitative literacy; only three of 20 displayed competency at the mastery level (score of 2) in all areas. One student displayed an exemplary level (score of 3) in four of five areas of quantitative literacy. A thorough mastery of basic algebra and graphing is an expected pre-requisite for the course, but some students lack the basic preparation and others have the necessary preparation but their quantitative skills are quite rusty.

Possible ways to improve learning outcomes for this assignment are:

1) a pre-assignment that gives students practice with advanced algebra skills,

2) recommendations for math tutoring at SAC for students who do not perform well on a math skills pre-test given on the first day of class,

3) an additional, optional, session where students work on problems with the instructor present.

In the future, similar assessment material will be assigned since a fundamental understanding of Darcy's Law is a key student learning outcome for this course.

Curriculum Map for Program Learning Outcomes
CSU East Bay, Dept. of Earth & Environmental Sciences
Degree: Environmental Science BS

Prefix	Course	Title	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5
ENSC	2210	Environmental Geology +		I	I	I	P
ENSC	2211	Environmental Geology Lab +			I	I	
ENSC	2400	Environmental Biology	I				
ENSC	2401	Environmental Biology Lab	P				
ENSC	2800	Environmental Problems of California	I	I	I	I	I
ENSC	2801	Global Environment Problems	I	I	I	I	I
ENSC	2802	Global Environmental Issues	I	I	I	I	I
ENSC	2900	Field Activity in Environmental Science	I	I	I	P	
ENSC	3500	Environmental Hydrology +			M	M	P
ENSC	3999	Issues in Environmental Science					P
ENSC	4140	Hazardous Waste Management +		P		M	P
ENSC	4200	Global Change					P
ENSC	4800	Seminar in Environmental Science	P	P	P	M	M
ENSC	4900	Independent Study				P	P
GEOL	2101	Physical Geology			I		
GEOL	2102	Earth and Life Through Time	I		I	I	
GEOL	2210	Environmental Geology +		I	I	I	P
GEOL	2211	Environmental Geology Lab +			I	I	P
GEOL	2600	Introduction to GIS			P	P	
GEOL	3500	Environmental Hydrology +		P	M	M	P
GEOL	4140	Hazardous Waste Management +		P		M	P
GEOL	4320	Hydrogeology			M	P	P

Notes:

See attached Program Learning Outcomes (PLOs)

+ This course cross listed, appears under both ENSC and GEOL

Levels: I = Introduced; P = Practiced; M = Mastered