Summer 2010 Diversity Seminar Summary

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Course
GEOL 101: Planet Earth
Class size: 100 students

Course Objectives
1. To transmit my deep interest and excitement about the Earth to all of you.
2. To recognize the Earth as a complex system where the interaction of physical, chemical, and biological processes create living space on the planet, and that these interrelationships have changed drastically over geologic time.
3. To evaluate the impact of the human population on the resources and environment of the Earth.
4. To foster critical thinking about Earth problems. We as citizens of our country and the planet must be well-informed and able to separate fact from fallacy concerning the issues that face our species.

In the Geosciences, it is difficult to directly include topics that address the different types of diversity when concentrating only on Objective 2. Previously, I tried to introduce Objectives 3 and 4 through a term project: The Everyday Geology Scrapbook. The problems with this particular assignment are two-fold: 1) most students only worked on it at the end of the semester, not throughout the semester, and 2) the grading requires a huge amount of time.

However, I can address diversity in Objectives 3 and 4 throughout the semester if I illustrate how humans impact the environment and how the environment impacts humans through discrete exercises throughout the semester. The exercises will help the students to "chunk" the information by relating geology to familiar topics.

Students are more motivated to learn when they understand what they are learning and how the topics impact others. A series of exercises based on familiar topics and real situations, such as the earthquakes in Haiti and Chile, will be developed. Beside the geology, the human dimensions (housing standards, economies, etc.) would be included and may motivate a variety of students. If possible, situations that directly affect the students, such as issues in Indiana, will be used.

Student Backgrounds
Students enroll in "Rocks for Jocks" because they need to take a general education science class. Geology is perceived to be "easier" than chemistry or biology. These students are often afraid of math, graphs, and figures, and do not know (or don't want to know) how to use math or read graphs and figures. To address some of these common problems, I use basic diagrams and basic equations.

There are several general diagrams and figures that I use throughout the entire semester, and I begin with very basic questions. As the semester continues and the students learn more information, I use the same diagrams but the questions get more complicated and interrelate the new information with the previous chapters. This method helps student to relate and chunk the information together.

There is an intrinsic motivation for the students to read these assignments in that students are typically interested in familiar topics. Extrinsic incentives will be through online inQsit quizzes and Clicker in-class questions.

To further motivate students, I do not use power point or lecture at them. Instead of standing at the lectern, students are given handouts, and I will walk around the classroom to discuss the handouts with the groups.

Exercises

These exercises (a variety of different topics with a concentration on Indiana) will be designed to be impact as many students from various backgrounds (race, ethnicity, orientation, gender, body image, etc.) as possible.

Possible Topics

First week of semester: Food, confined feeding operations, corn ethanol, trash
Minerals: Blood diamonds, gold mining, coal mining
(maybe salt tasting—iodinized salt, kosher salt, sea salt, low-sodium salt)
Plate Tectonics: Overview of volcanoes and earthquakes in the US
Metamorphic Rx: Slate Roofs—give examples at and around BSU; how is slate mined?
Igneous Rx: Everyday Items—pumice for feet and granite for countertops
Sedimentary Rx: Limestone—use a walking tour of Muncie downtown area
Soil: Trash, composting, Brita filter (soil filters similar to a Brita Filter)
Volcanoes: Mt. St. Helens, Hawaii, relate fertile farming soils to volcanic activity
Earthquake: Haiti/Chile/earthquakes, Indonesia/tsunami
Streams and Flooding: Nashville's May 2010 flood
(maybe water tasting—bottled water, tap water, Brita filter water)
Water Resources: Earth Report on the Aral Sea
(video £35; http://www.tve.org/earthreport/archive/doc.cfm?aid=1855)
Energy: Oil spill in the Gulf of Mexico, coal mining in Indiana
Glaciers/Climate: Glacial melting, sea level rise (it will affect areas where the students go to spring break), climate change

Feedback

Students receive rapid feedback to their performance through online inQsit quizzes, Clicker in-class questions, in-class hand-outs, and tiered testing,

Recommended Reading

Bransford, J. D., A. L. Brown, and Rodney R. Cocking, 2000, *How People Learn: Brain, Mind, Experience, and School*, National Academy Press.