Katryn Wiese – City College of San Francisco – Earth Sciences – Teaching Sustainability

Currently the primary classes in which I teach about Sustainability are Oceanography, Environmental Geology, and Physical Geology. Oceanography is my primary class, and it is the perfect example of interdisciplinary, as it covers physics, biology, geology, chemistry, engineering, energy, ecology, and human impacts. Because of my audience (mostly students who will take no other science class than mine), I find an interdisciplinary nature to the class to be essential to ensuring students' one foray into science teaches them about a wide range of scientific concepts. Although I have a few majors and work to ensure they are successful as they move forward in their education, most of my students will use concepts from my class to help make better personal and political and lifestyle choices. Hence, embedding sustainability into my class is essential.

Strategies:

- Relevant reading/lecture case studies from the local environment, such as San Francisco Bay, Sewage Treatment centers, Runoff (storm drains), and Pacific Coastal surf
- Labs and activities that incorporate data from local environmental issues, such as San Francisco Bay baseline chemistry – salinity, temperature, etc. – overlain by introduced species and ecological effects as well as the 1849 Gold Rush mercury-contamination legacy.
- Special homework assignments that give students an opportunity to take specific topics further in directed research projects (ocean pollution or a particular fishing industry)
- Basic science concepts – applying each to a relevant part of their life (to help them think for themselves)

Pedagogic approaches:

- Labs
- Homework assignments: quantitative, reading, and research projects
- Field trips
- Group work in which they share ideas and experiences while solving problems together
- In-class iClicker responses, including affective domain and gathering data on lifestyles (students can see what each other is thinking)

Successes: (the items below seem to be the most effective ways my students engage with the material)

- Group work
- iClickers
- Self-directed research

Challenges:

- Time – can't cover everything I want! I teach only one course to these students. I have to pick a few things and leave others to other courses.
- Ensuring that sustainability concern and commitment is self developed (they buy into it)
- Getting beyond initial discouragement and directing students to see what they can do to be a part of the solution

Future plans:

- Book reports on specific books/chapters (Limits to Growth – The 30-Year Update, Meadows, Meadows, and Randers)
- Discuss population issues at the beginning of the course

Ideas for integrating geoscience and sustainability:

- Working closely with faculty in other programs (ecology, engineering, etc.) to create some shared activities/exercises
- Bringing sustainability into all my classes more fully