INTERDISCIPLINARY & TEAM TAUGHT COURSES

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Overview

• What is interdisciplinary?
• Your motivation
• Integration by design
• Examples
• Challenges & solutions
• Design your own

What is Interdisciplinary Teaching?

- Integration of analytical frameworks from multiple disciplines to examine a question or topic (*Pedagogy in Action, SERC*)

Image: Elwha Dam (https://www.naturebridge.org/blog/research-brief-interdisciplinary-learning-environmental-education)
Motivation

For you:
- Geosciences are interdisciplinary
- Increase enrollments
- Staying relevant
- Building networks / finding colleagues
- Flexible scheduling

For your students:
- Critical thinking
- Ethical considerations
- Prepare to solve problems
- Appeal to student interest
- New perspectives
Goals for Interdisciplinary Courses

• What do you want students to gain from the interdisciplinary experience?
Think – Pair - Share

• What are some advantages of interdisciplinary teaching?
• What are some disadvantages of interdisciplinary teaching?
Integration by Design

- Identify points of intersection
- Capitalize on strengths of others
- Provide meaningful context

Adapted from InTeGrate: Interdisciplinary Teaching – Designing for Success
Start Small

- Identify & talk with faculty and community partners
- Guest speakers in your class and other classes
- Field trips
- Partner with faculty from your department
- Partner with faculty from other departments
- Partner with others outside your college/university
Thinking bigger

• Linked courses
• Organize a symposia on important and/or local issues
• Learning communities
• Team teaching
• New courses: One time special seminar vs. new course integrated into curriculum
• New major/minor/program
Examples: Field trips

- Geology & History of Colorado Plateau
- Geology & Environmental Ethics in California
- Western Water Resources & Photo-journaling
- Geology & Oceanography of Hawaii
- Fluvial Geomorphology & Fluid Dynamics
Examples: Linked Courses

- Geology and Culture of Chilean Patagonia
  - Concurrent courses, option to enroll in both
  - Shared readings, assignments, field trip

- Environmental Science & Cultural Anthropology – campus landscaping
  - Concurrent courses, option to enroll in both
  - Shared readings, (some) class meetings, research project
Examples: Learning Communities

- Residence for Earth and Environmental Living and Learning (REELL)
  - Freshmen & sophomores
  - All majors, co-curricular
Examples: Team Teaching

• Undergraduate class Life in the Universe
  • Physics, Geoscience, and Biology Faculty
  • Systems Thinking; Influence of life on planets and vice versa
  • ~1/4 of lectures per faculty member and ~1/4 for all three instructors
  • Integrated final projects and exams

• Graduate class Water Resources Management
  • Two members of same department
  • One geoscientist & one social scientist
  • ~1/4 of lectures were joint and alternated the rest individually
  • Comprehensive assignments and paper
Challenges?

- Approaches: piecemeal vs. integrated sequential learning
- Teaching what you don’t know
- Different expectations/language/styles/perspectives
- Finding partners
- Words of caution – institutional / department values, “ownership” of classes
Solutions

- Find common interests
- With a course, start with 1 or 2 people as the complexity grows quickly
- Communication
- Planning
- Flexibility
- Embrace the unexpected
Develop Your Own Course/Module

• On your poster…
  • What course / module do you propose?
  • Audience for course / module?
  • What disciplines integrated?
  • Approach?
  • Resources needed? (personnel, facility, other?)

• Post It note comments on peer posters…
  • Strengths?
  • Suggestions?
  • Other considerations?
Resources

• Interdisciplinary Approaches to Teaching:  
  http://serc.carleton.edu/sp/library/interdisciplinary/index.html

• Interdisciplinary Teaching: Designing for Success:  
  http://serc.carleton.edu/integrate/teaching_materials/interdisciplinary.html