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