INTERDISCIPLINARY & TEAM TAUGHT COURSES

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Based on previous versions by Josh Galster and Laura Rademacher

Overview
- What is interdisciplinary?
- Your motivation
- Examples
- Challenges & solutions
- Design your own

What is “Interdisciplinary?”
- Take a moment to think about how your research and teaching are / have been / will be interdisciplinary.
- What does interdisciplinary mean in the context of you?

Interdisciplinary → “Between Disciplines”
- … Within the Geosciences
- … Between Sciences
- … Beyond Science

Within the Geosciences


Between Sciences
Goals and Motivation for Interdisciplinary Teaching...

- Why do we, the scientist and professor, want to be more interdisciplinary in our teaching? How do we benefit?

- Why do we want to expose our students to more interdisciplinary learning? How do they benefit?

Motivation

- For our students:
  - Critical thinking
  - Ethical considerations
  - Prepare to solve problems
  - Appeal to student interest
  - New perspectives

- For the scientist / professor:
  - Geosciences are interdisciplinary
  - Increase enrollments
  - Staying relevant
  - Building networks / finding colleagues

Marine, Earth, & Atmospheric Science Seminar

- Seminar course designed to bring together undergraduates from all three sub-disciplines

- Team-taught by faculty from each sub-discipline

- Topics covered include research methods, careers, applying to graduate school, ethics in science and science communication

Investigative Science II

For Elementary Education majors
Future K-6 teachers

Covers MN Science Standards for:
- Geology
- Astronomy
- Meteorology
- Life Science

Geology & Biology Professors, but not together...

Beyond Science

Image: Elwha Dam (https://www.naturebridge.org/blog/research-brief-interdisciplinary-learning-environmental-education)
Making Interdisciplinary Connections: 
The Science of Time
A Gen Ed Dance course that explored the idea of Time in science and art...
- Calendar & Astronomy
- Big Bang
- History of the Earth
- Performance Art
- Visual Art

Team-taught by myself, Geologist, and my colleague, Sharon Mansur, Prof. of Dance
Lots of other possibilities...
- Science & Policy & History
- Environmental Science
- Watershed Science
- Life in the Universe
- Field Trips
- Linked Courses
- Learning Communities
- Whatever you can think of...

Think – Pair - Share
- What are some advantages of interdisciplinary teaching?
- What are some of the challenges of interdisciplinary teaching?

Challenges?
- What is the scope of the class? Where is “the edge?”
- Approaches: piecemeal vs. integrated sequential learning
- Teaching what you don’t know
- Finding collaborators
- Different expectations/language/styles/perspectives
  - Communication and planning
  - Attracting students & interpreting student feedback
  - Words of caution – institutional / department values, “ownership” of classes

Solutions
- Find common interests
- With a course, start with 1 or 2 collaborators as the complexity grows quickly
- Set expectations for colleagues & for students
- 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 are integrated?
  - Give one over-arching learning objective or outcome.
  - Approach?
  - Resources needed? (personnel, facility, other?)
- Post It note comments on peer posters...
  - Strengths?
  - Suggestions?
  - Other considerations?
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 & other depts.
- Partner with others outside your college/university

Thinking bigger
- Linked courses
- Learning communities
- Organize a symposia on important and/or local issues
- New courses: One time special seminar vs. new course integrated into curriculum
- New major/minor/program

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