# INTERDISCIPLINARY & TEAM TAUGHT COURSES

Josh Galster & Laura Rademacher

# Overview

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

Image: http://socialsciences.cornell.edu/wp-content/uploads/2015/04/Interdisciplinary-Learning.png

# What is Interdisciplinary Teaching?

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

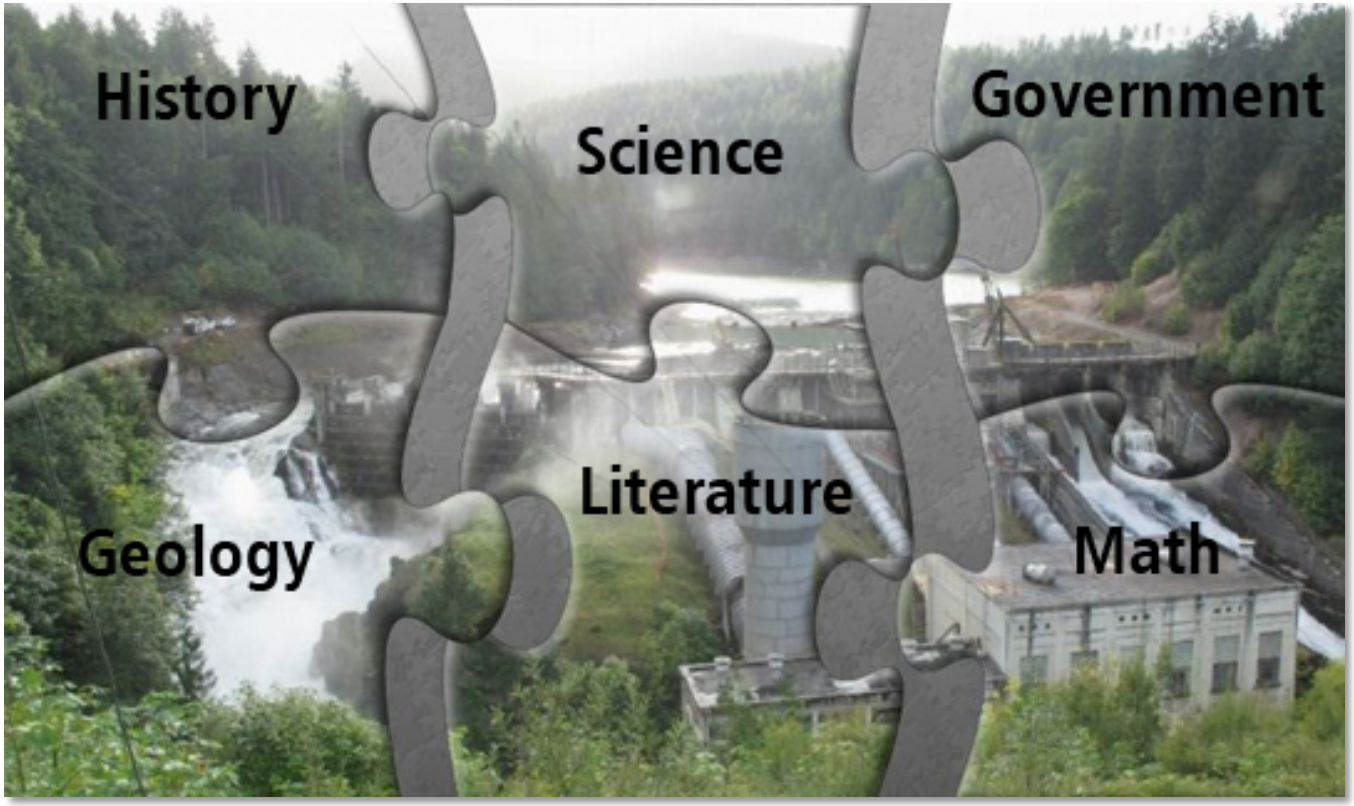



Image: Elwha Dam (https://www.naturebridge.org/blog/research-brief-interdisciplinary-learning-environmental-education)

# 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

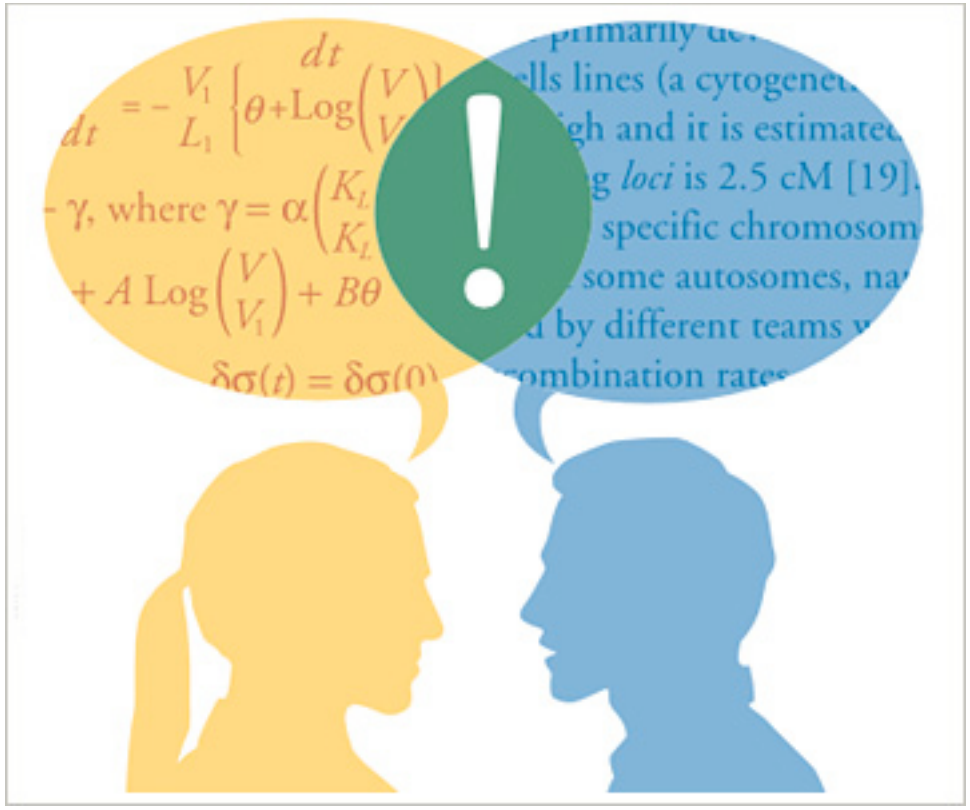
- What do you want students to gain from the interdisciplinary experience?

# 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