Geog 360: Watershed Science and Policy

Winter 2009; Prof. Patricia McDowell
TR 2:00-3:20pm, 41 Knight Library

Course content:

- Physical and ecological processes in rivers and watersheds
- Water pollutants and water quality, and how the Clean Water Act works
- Water supply and water rights
- Endangered fish and how the Endangered Species Act works

Course goals:

- To combine scientific understanding of river and watershed processes with study of policies and laws to address water problems.
- To serve as a bridge between broad introductory science courses and narrower 400-level courses where science and social science are compartmentalized.

Format:

- Meet twice a week for 1.5 to 2 hours, with lecture, discussion and labs interwoven.
- Use the wireless notebook computer lab (Knight 41) to do on-line research during class periods.

Requirements:

- No textbook; required readings available on Blackboard as pdfs, or on the web.
- Complete a term paper that is a report on water problems in a watershed of your choice.
- Grading based on 100 course points.
  - 5 assignments that are research components of the term paper (5 points each; 25 points total)
  - Term paper (30 points)
  - 2 tests (test 1 = 25 points; test 2 = 20 points; 45 points total)
- Optional field trips. A field trip report can be substituted for one assignment.
  - EWEB drinking water treatment facility and Eugene-Springfield Wastewater Treatment facility. Date to be determined.
  - McKenzie River: natural resources and how we use them. Date to be determined.

This schedule is preliminary – dates and topics may change!

Schedule for GEOG 360		
Week	**Lecture topic**	**In-class activity**
1	Introduction to the course; watersheds and river systems	Assignment 1: Finding a watershed
	Hydrology: precipitation to streamflow	
2	Water use, water availability and water law	Assignment 2: Streamflow data
	Channels, sediment and land use	Assignment 1 due
3	Physical and chemical characteristics of water in rivers	Streamflow regimes
	Riverine aquatic ecosystems	
4	Water pollutants 1: pathogens, oxygen-demanding wastes, sediment	Assignment 2 due; start Assignment 3: Physical and social information
	Water pollutants 2: nutrients, toxics	
5	Dams: history and impacts	Finding dams in your watershed
	Test 1 (in class)	
6	Concepts of environmental policy and regulations	Assignment 3 due; start Assignment 4: Water quality criteria and impaired waters
	Clean Water Act 1: history of the act, effluent standards, water quality standards	
7	Fish life cycles and habitat needs	Water quality information
	Salmon in the Pacific Northwest	
8	Endangered Species Act 1: history, definitions, listing process, 4(d) rules	Assignment 4 due; start Assignment 5: Info on Endangered species
	Endangered Species Act 2: recovery planning, Hogan decision, recent events	
9	Sustainable watersheds	Term project work
	Klamath Basin water crisis; new trends in watershed management	
10	To be announced	
	Test 2 (in class)	
	Term project due at 5:00 pm	