

Geog 360: Watershed Science and Policy

Fall 2016; Prof. Patricia McDowell

Course content and learning goals: This course combines scientific understanding of river and watershed processes with study of policies and laws to address water problems. We will focus on the U.S., with an emphasis on the Pacific Northwest.

Learning goals: After completing this course, you will be able to:

- *Science:* Demonstrate understanding of environmental and human factors that drive freshwater water quantity and availability, water quality, and health of aquatic ecosystems.
- *Policies:* Demonstrate understanding of U.S. policies and management governing freshwater resources.
- *Skills:* Find and apply information on water quantity, water quality, and aquatic ecosystems; use U.S. government environmental databases; and evaluate the quality of different information sources.
- *Critical thinking:* Assess information and positions on water issues, and formulate and defend your position.
- *Communicating:* Present information and positions effectively orally and in writing.

Instructional staff:

Prof. Pat McDowell, office at 152 Condon Hall, office hours Wed. 1:30-2:30 pm, Thurs. 2:30-3:30 pm; other times by appointment, pmcd@uoregon.edu, 541-346-4567

GTF: Matthew Goslin; office at 246 Columbia; office hours Tues. 10-11 am; other times by appointment; goslin@uoregon.edu

Course format: Class meets twice a week, with lecture, discussion, in-class activities, and work on assignments interwoven. For most days, lectures will NOT be given in class; they will be available on as videos you will watch before the class meeting. Class time will be devoted to 1) discussing the lecture material (bring your questions) and additional topics not in the recorded lecture, 2) in-class activities, and 3) work on assignments and the term project. You will use computers in class for web research. Please bring a computer or tablet to class if you can.

Course materials: There is no textbook. The required “readings” include lecture videos, readings and other electronic material posted on the course web page, and external web sites. Expect 1.5 hours of required reading or viewing per class typically. *All viewings and readings should be completed before the class meeting so that you can participate in discussion.*

Course grading: Grades will be determined from the components below. Points will be deducted for late papers and assignments. Scores for each assignment, activity and test will be posted on Blackboard.

- Tests: Test 1 = 20 pts., Test 2 = 20 pts.
- Assignments: 6 assignments at 4 pts each for a total of 20 pts. (Drop lowest assignment score.)
- Term project: group report on a watershed or a course-related topic, 20 pts.
- In-class activities: short essays, quizzes, etc. 20 pts.

Term paper and assignments: You will do your term paper and assignments in a team of three members. The term paper will be 1) assessment of water status and issues in a U.S. watershed of your choice, or 2) a critical review of a water issue or problem directly related to this course. The papers typically have about 12-15 pages of text (double-spaced), plus graphics. The paper will be graded on writing as well as content. There will be time for group collaboration during class. The six assignments involve finding and interpreting information on several water issues.

In-class activities: You will participate in discussions, quizzes, 3-minute essays, and other in-class activities that count toward your in-class activities score. Most or all of these will be by individual, not a team.

Classroom etiquette: Avoid behavior that might distract the other students or teacher. Turn off all cell phones. Don't do anything unrelated to the class on your computer or other device. Don't wander in and

out of the classroom during lecture and discussion. If you must leave early for a valid reason, sit close to the back door and leave as quietly as possible. Thanks in advance for your cooperation.

Schedule: This schedule may change. Class topics may expand or shrink a bit. Dates for assignments may shift. *All assignments are due at the beginning of class unless otherwise noted.*

Week	Date	Class #	Lecture topic	Assignments
1	9/26	1	Introduction to the course; watersheds and river systems	
	9/28	2	Hydrology: precipitation to streamflow to groundwater	Start 1: Water agencies and NGOs
2	10/3	3	River water characteristics	
	10/5	4	Aquatic ecosystems	
3	10/10	5	Water pollutants 1: pathogens, oxygen-demanding wastes, sediment	Start 2: Term paper proposal; 1 due
	10/12	6	Water pollutants 2: nutrients	
4	10/17	7	Water Pollutants 3: toxics	Start 3: Water quality
	10/19	8	Clean Water Act 1: history of the act, regulation of point sources	2 due
5	10/24	9	Clean Water Act 2: reporting and listing; non-point sources; TMDLs	
	10/26	10	Drinking water	3 due
6	10/31		Test 1 (in class)	
	11/2	11	Water use and water availability	Start 4: Term paper outline
7	11/7	12	Water law (surface and ground)	Start 5: Water use
	11/9	13	Climate change and water resources	4 due
8	11/14	14	Dams: history and impacts	
	11/16	15	Fish and their habitat; Salmon in the Pacific Northwest	5 due
9	11/21	16	Endangered Species Act 1: history of the act, processes under the act	Start 6: Aquatic species
	11/23	17	Endangered Species Act 2: recovery planning, recent ESA controversies	
10	11/28	18	Klamath Basin water crisis	6 due
	11/30	19	Managing river basins	
11	12/6		2:45pm, Test 2	
	12/7		4:00pm, Term paper due	

Academic honesty: All the work (tests, assignments, term paper, in-class activities) that you turn in for a grade must be your own work, in your own words, and produced exclusively for this course. Violations of academic integrity, such as cheating and plagiarism, will not be tolerated. Violators may receive an F or N, and violations or suspected violations will be reported to the Director of Student Conduct. For the consequences of academic misconduct, or if you are in doubt regarding what constitutes academic misconduct, please consult the Student Conduct Code at conduct.uoregon.edu, or ask the instructor or GTF.

Special accommodation: If you anticipate needing accommodations in this course, please let the instructor know soon. Please bring a notification letter from the Accessible Education center or discuss your needs with the instructor.