

# **GEOGRAPHY 335: WATER POLICY**

~ The University of Montana, Fall 2016 ~  
Tuesdays & Thursdays 9:30-10:50 a.m., Liberal Arts 302

## **Instructor:**

Sarah J. Halvorson

Office: Stone Hall 211

Phone: (406) 243-2793

E-mail: sarah.halvorson@umontana.edu

Office Hours: Tuesdays and Thursdays 11-12:30 or by appointment

## **Teaching Assistant:**

Andrew Nemecek

Office: Stone Hall 304B

E-mail: andrew.nemecek@umontana.edu

Office Hours: Tuesdays 3-5pm and Friday 3-5pm

## **COURSE DESCRIPTION**

The purpose of this course is to provide an overview of the concepts, issues, and regulatory frameworks that shape water resource policy and management in the American West. Building upon a geographical perspective, the course will explore what it means to pursue sustainable water management. We will evaluate water-related issues, problems, and solutions as they have evolved over time in the West; study the scales of water control and influence (e.g., household, local, state, regional, tribal, national, and international); and establish spatial linkages between actions in places and impacts in others.

I have long-standing association with the American West and the startling array of issues and challenges of this arid region. The spectacular past and present alterations in western hydrology reflect an immensely complex story of human settlement, large-scale water diversions, the evolution of water policy and law, and expanding frameworks of water management. I have been engaged for a number of years in research and teaching on western water and related natural resource issues—always emphasizing the real-world policy implications of my findings and recommendations. My hope is that you will be challenged to think creatively about the issues, to look critically at diverse sources of information, and to develop an informed perspective to guide current and future learning and involvement in water policy and management.

## **OBJECTIVES & LEARNING OUTCOMES**

A major objective of this course is to develop a framework for understanding and analyzing water-related goods and services, patterns of water-related problems, and policy challenges in the arid western landscape. Through this effort, you will develop skills in identifying a range of governance structures and behavioral choices/alternatives that might result in more fair, equitable, and sustainable uses of scarce resources such as water. I expect that you will come away from this course seeing water policy as more complex and multi-layered than you thought previously, but

also—I hope—a topic you are eager to explore further. A major objective of the course is providing experience in scientific research, writing and communication through the composition of a range of high-quality written works and through in-class discussion and presentation.

### **Thematic Learning Outcomes**

In completing this course, the student should learn and be able to demonstrate the following:

- ✓ Describe the hydrologic cycle in terms of its components and linkages.
- ✓ Describe the manner in which different physical factors (i.e., climate, topography, landforms) shape the distribution of water resources in time and space.
- ✓ List and describe the various water-related goods and services desired by humans, and the manner in which they are provided by water resource managers.
- ✓ Discuss how the cultural, social, and economic characteristics of different places affects the demand for water related goods and services.
- ✓ Discuss the manner in which different human groups have modified the workings of the hydrologic cycle in order to produce water related goods and services.
- ✓ Discuss the ways in which western states have established policies and institutional arrangements, and the nature of these, to aid in the creation and delivery of water-related goods and services.
- ✓ Discuss how different levels of government have authority for water resources management, describe their management activities, and explain key features of Montana’s system for allocating and enforcing water rights.
- ✓ Discuss how “water agreements” are made between states, states and tribes, and between federal agencies and states.
- ✓ Describe how interstate and international waters are managed by the U.S. and its neighbors.
- ✓ Discuss how structural economic change and demographic shifts influence water policy.
- ✓ Describe the elements of integrated water management.
- ✓ Identify a range of governance structures and behavioral choices/alternatives that might result in more fair, equitable, and sustainable uses of scarce resources such as water.

### **Advanced Writing Course Learning Outcomes**

This is an approved advanced upper-division writing course, and upon its completion students should be more active, confident, and effective contributors to the body of knowledge and should understand geographical dimensions of inquiry. The course provides opportunities for engaging in frequent and regularly scheduled writing of reflections of/on assigned readings, and in the development of a research paper on a theme or topic germane to the course.

- ✓ Identify and pursue sophisticated questions for academic inquiry.
- ✓ Find, evaluate, analyze, and synthesize information effectively from diverse sources.
- ✓ Manage multiple perspectives as appropriate.
- ✓ Recognize the purposes and needs of discipline-specific audiences and adopt the academic voice necessary for the chosen discipline.
- ✓ Use multiple drafts, revision, and editing in conducting inquiry and preparing written work.
- ✓ Follow the conventions of citation, documentation, and formal presentation appropriate to that discipline.
- ✓ Develop competence in information technology and digital literacy.

## READINGS AND RESOURCES

### *Required Texts:*

Cech, Thomas V. 2009. *Principles of Water Resources: History, Development, Management and Policy, third edition*. Hoboken, New Jersey: John Wiley & Sons. This is also available as an e-book from the publisher's website.

Turabian, Kate L. 2014. *A Manual for Writers of Research Papers, Theses, and Dissertations, 8<sup>th</sup> Edition*. Chicago: The University of Chicago Press.

**Note:** These texts have been ordered from the University Bookstore. You might find used copies through a website. You may use a previous edition of the Cech text, but be sure to purchase the 8<sup>th</sup> edition of the Turabian manual. If you do use the older Cech book, be aware that the chapter titles are not the same, so be sure to keep track of which chapters are assigned.

### *Supplemental Texts and Resources:*

In addition to the above texts, supplemental readings and handouts will be placed throughout the semester on the course's Moodle site. I will be announcing the dates of these readings in class; some of the links to supplemental readings are included in the Course Schedule below.

### *Resources for Background and Paper Research:*

Clark Fork Coalition <http://www.clarkfork.org/>

Clark Fork River Basin Task Force <http://clarkforktaskforce.com>

High Country News – water archives <http://www.hcn.org/>

Montana Department of Natural Resources and Conservation – Water Resources Division  
<http://dnrc.mt.gov/wrd/default.asp>

Montana Water Center <http://water.montana.edu/default.asp>

Mountain West News – regular coverage of water issues <http://mountainwestnews.org/Index.aspx>

Transboundary Freshwater Dispute Database <http://www.transboundarywaters.orst.edu/database/>

Universities Partnership for Transboundary Waters <http://waterpartners.geo.orst.edu/>

The Water Channel <http://www.thewaterchannel.tv/index.php>

Water Culture Institute <http://www.waterculture.org/>

Water Culture Institute Online Newsletter <http://waterethicsnetwork.blogspot.com>

*The Water Report* – back issues available in full text <http://www.thewaterreport.com/>

WaterWired <http://aquadoc.typepad.com/waterwired/>

World Water Forum's Platform of Solutions <http://solutions.worldwaterforum6.org/>

## COURSE REQUIREMENTS & ASSESSMENT

### *Attendance and Participation:*

In short: Read the assigned material and come to class prepared.

Students are expected to attend each scheduled class session since the lectures, presentations, films, and guest speakers will often cover material that is not found in the assigned readings. If you are unable to attend a class session, then you are responsible for contacting your fellow classmates to get the notes on the material covered during that session.

One of the objectives of the class sessions is to stimulate a meaningful exchange of ideas and thoughtful discussion; therefore, active involvement of students is expected. Class sessions should be regarded as opportunities for you to share your ideas and views on key issues raised by course material. I expect you to take responsibility by showing up every class period prepared to learn and engage. Taking notes in class is strongly urged to supplement the readings and to assist in the preparation of assignments.

### *Examinations:*

There will be two exams, which will cover the assigned readings, lecture material, films, and class discussions, including guest lectures. The exams will require written essay responses to short and long essay questions.

### *Reflective Essays:*

You will have the opportunity to practice your essay writing skills in conjunction with your reading of selected items so that you may engage in more personal reflection. We will discuss each assignment, and I will post specific guidelines on Moodle approximately a week before each paper's due date; please submit hard copies with double-spaced text on the due date. Because these are intended as reflection essays, they should articulate your own **informed** opinions, views, and ideas—not simply a summary of the assigned readings. For each essay, you should develop and defend a central thesis or view that concerns or follows from the material you have digested. Cite material as appropriate using the Turabian author-date style (see Chapter 18 and 19).

### *Research Paper and Presentation:*

**Research Paper:** This is an approved writing course at UM, which implies that it is a writing-intensive course and the bulk of your grade is based on written work. As such, you are required to devote considerable energy to the preparation of a paper and will be provided with considerable feedback on a draft of the paper prior to your submitting a final version for a grade. In keeping with these expectations, we will devote some attention to the general topic of writing, you will be directed to the Writing Center for assistance in the mechanics and organization, and we will have an orientation to the library's resources for research.

As explained in more detail in the Research Paper Guidelines posted on Moodle, your term paper should be 2,000-2,500 words in length, carefully composed, printed in double-spaced 12-point font, and fully referenced using Turabian author-date style. At the beginning of the semester you will be requested to identify a research topic focused on a water issue or problem of relevance to the American West. In order to help you carry out this project, you will be asked to submit your topic

and research question, a prospectus, a reference list, and an outline of your paper in advance of the deadline for the first draft of the paper (see the course outline for due dates). The first draft will be due **November 3**. The paper will be evaluated and returned for revision. The revised paper, together with the first draft, is to be submitted on **December 6**. Research for the paper should cite at least six peer-reviewed scholarly articles, one contemporary news article, and one personal interview; your paper must include at least one map appropriate to the topic chosen. More details on this assignment will be provided in class, and we will have one class period devoted to environmental social science research in the Mansfield Library.

**Evaluation of Writing:** All of your writings will be read and critically reviewed with respect to spelling, grammar, composition, voice, and strength and depth of research (where appropriate). Critiques will include comments and corrections so that you can work to improve your reading, analysis, research, and writing skills as you progress through the course. You are expected to incorporate any corrections and/or suggestions for revision into future work with the aim of improving your writing skills. You should refer to the Turabian manual in reviewing the corrections and/or suggestions for revision, and are encouraged to visit with the instructor and TA to discuss your reviewed works.

**In-Class Research Presentation:** Using appropriate visual aids (PowerPoint, overhead, etc.) students will provide a short and well-organized 10-minute summary/overview of their research results. Specifically, each student is to highlight what the research objective was, where she/he found relevant information and data, what results were discovered, and the conclusions drawn from the work (please review separately posted Presentation Guidelines and Schedule). Grades will be assigned based on thoroughness and rigor of the research conducted as well as the professionalism of the presentation—and points will be deducted for going over the allocated time, so advance preparation is essential. Everyone is expected to attend all presentation sessions, as this is both respectful to your fellow classmates and an important opportunity to deepen and apply your understanding of water policy. For that reason, you will receive a separate grade for your attendance at the presentation sessions (50 pts for attending all five sessions; 30 pts if you miss one; 20 pts if you miss two; and no credit if you miss three or more classes during the presentation period).

***Grading Summary:***

The course grading breakdown to be employed is as follows:

<b>Assignment:</b>	<b>Point Value</b>	<b>Percentage</b>
Exams (2 @ 100)	200 points	20%
Reflective Essays (2 @ 100)	200 points	20%
<b>Term Paper Research Project:</b>		
Prospectus and references	50 points	5%
Annotated outline	50 points	5%
First Draft	150 points	15%
Final Draft	200 points	20%
Presentation	100 points	10%
Attendance at Presentations	50 points	5%
<b>Total Final Grade</b>	1000 points	100%

I will be grading using the plus/minus system as based upon the following percentages of the total points possible for the course as weighted by the criteria specified in course requirements. The best individual strategy to ensure that you receive a grade you can live with is to work to meet and/or exceed course requirements. Remember, A's are rewards for Superior Performance, B's for Above Average Performance, and C's for Average Performance. *This class carries traditional grading and cannot be taken CR/NC.*

A = greater than 93.0%	A - = 90.0-92.9%	
B+ = 87.0-89.9%	B = 83.0-86.9%	B- = 80.0-82.9%
C+ = 77.0-79.9%	C = 73.0-76.9%	C- = 70.0-72.9%
D+ = 67.0-69.9%	D = 63.0-66.9%	D- = 60.0-62.9%
F = less than 59.9%		

***Additional Policies:***

Work is due at the start of class on day specified. Late work will lose one-half a letter grade (i.e., A to A-) for each weekday late. Please do not make excuses for late work – I will need advance notification of any factors that will affect your ability to turn in work on time and/or to meet other course requirements. Brief or occasional absences for reasons of illness, injury, family emergency, religious observance or participation in a University sponsored activity (for example, field trips, ASUM service, music or drama performances, and intercollegiate athletics) may be excused. Absences for reasons of military service, wildfire duty, or mandatory public service will be excused. I will not extend deadlines for individuals unless timely notice of the absence is given beforehand. Be prepared to provide **documentation** for events leading to absences if you wish extensions or to make up missed work. Similarly, makeup exams can only be administered if you have a legitimate and documented excuse for an absence or situation that constrains your ability to be present on exam day.

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code, available for review online at [http://life.umt.edu/vpsa/student\\_conduct.php](http://life.umt.edu/vpsa/student_conduct.php). Note in particular that the Student Conduct Code defines plagiarism as “representing another person's words, ideas, data, or materials as one's own.” Assigned readings in Turabian also provide guidance on proper citation of sources.

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommason Center 154 or 406-243-2243. I will work with you and Disability Services to provide an appropriate modification.

## COURSE SCHEDULE

(Please note: Subject to revision; watch Moodle for announcements!)

DATE	TOPIC	READINGS & ASSIGNMENTS
<b>Aug. 30</b>	<b>T:</b> Overview and expectations for the course including the writing emphasis of this course. “Water in the landscape” field tour	<b>T:</b> Review syllabus and resources posted on Moodle
<b>Sept. 1</b>	<b>R:</b> Water in the American West: History, law and policy	<b>R:</b> Cech Ch. 1; Turabian Ch. 1
<b>Sep. 6</b>	<b>T:</b> Hydrologic cycle and freshwater availability; perceptions towards and uses of water today	<b>T:</b> Cech Ch. 2; <a href="#"><i>Estimated Use of Water in the United States in 2005</i></a> , pp. 4-15, 42-45; <a href="#">“Yet Another ‘Footprint’ to Worry About: Water.”</a> (WSJ 2/17/09)
<b>Sep. 8</b>	<b>R:</b> Hydrology & restoration initiatives	<b>R:</b> Cech Ch. 3; Turabian Ch. 2
<b>Sep. 13</b>	<b>T:</b> Water development for human use; policy choices and their consequences	<b>T:</b> Cech Ch. 6 and 7; Ch. 9, pp. 294-312
<b>Sep. 15</b>	<b>R:</b> Recap and discussion of term paper topics and sources	<b>R:</b> Turabian Ch. 3-4; <b>Reflective Essay #1 due at start of class</b>
<b>Sep. 20</b>	<b>T:</b> Water allocation systems – Foundations of western water law; federal, state, and tribal authority	<b>T:</b> Cech Ch. 8 (pp. 249-77); <a href="#"><i>Water in the U.S. American West</i></a>
<b>Sep. 22</b>	<b>R:</b> Montana water rights	<b>R:</b> <a href="#"><i>Water Rights in Montana</i></a>
<b>Sep. 27</b>	<b>T:</b> Groundwater and exempt wells	<b>T:</b> Cech Ch. 4
<b>Sep. 29</b>	<b>R:</b> Montana water policy issues	<b>R: Paper Prospectus due at start of class:</b> One-page maximum, with problem statement, research question, summary outline, and list of at least five references
<b>Oct. 4</b>	<b>T:</b> Guest Speaker: Geography Reference Librarian, Mansfield Library: Library resources and search tips for term paper research project.	<b>T:</b> Turabian Ch. 15
<b>Oct. 6</b>	<b>R:</b> Geographic scales of water management and overlapping legal mandates	<b>R:</b> Cech Chs. 10 and 12; <b>Reflective Essay #2 due at the start of class</b>
<b>Oct. 11</b>	<b>T:</b> Water quality issues and policy choices	<b>T:</b> Cech Chs. 5 and 13
<b>Oct. 13</b>	<b>R:</b> Restoring the Upper Clark Fork River	<b>R:</b> “Introduction,” <i>The River We Carry With Us</i> ; <b>Annotated term paper outline due at start of class</b>

<b>Oct. 18</b>	<b>T:</b> Watershed and river basin planning continued: The Columbia River Treaty	<b>T:</b> Cech Ch. 8, pp. 277-82; review Ch. 12, pp. 428-33; <a href="#">State of the Columbia River</a> (NPCC 2013), pp. 6-9, 28-29, 33
<b>Oct. 20</b>	<b>R: Mid-Term Exam</b>	<b>R: Exam will cover all materials assigned to date, plus lectures &amp; presentations</b>
<b>Oct. 25</b>	<b>T:</b> Federal and Indian reserved water rights	<b>T:</b> Cech Ch. 8, pp. 286-287; “Protecting Indigenous Rights and Interests in Water” chapter, <i>In Search of Sustainable Water Management</i>
<b>Oct. 27</b>	<b>R:</b> Tribal water rights and issues continued	<b>R:</b> Report on Water Rights Compact; <a href="#">“Water Rights Tear at an Indian Reservation”</a> ( <i>NYT</i> , 4/21/13)
<b>Nov. 1</b>	<b>T:</b> Watershed governance and other old ideas worth revisiting	<b>T:</b> <a href="#">“What if . . . the United States of America were based on watersheds?”</a> ; <a href="#">“Mapping by Watersheds,”</a> ( <i>Community Builders</i> ) posted online
<b>Nov. 3</b>	<b>R:</b> Discussion of research paper and presentations	<b>R: First draft of term paper due at start of class, Nov. 3!</b>
<b>Nov. 8</b>	<b>T:</b> International dimensions of water conflict & cooperation ~ <i>no class meeting</i>	<b>T:</b> Cech Ch. 14
<b>Nov. 10</b>	<b>R:</b> Reflection and discussion: Water ethics and policies for a sustainable future	<b>R:</b> Cech Ch. 15; “Local Water” chapter in <i>Blue Revolution</i>
<b>Nov. 15</b>	<b>T:</b> Student Presentations	Paper revision
<b>Nov. 17</b>	<b>R:</b> Student Presentations	
<b>Nov. 22</b>	<b>T:</b> Independent exercise outside of class – <i>no class meeting</i>	Paper revision
<b>Nov. 24</b>	<b>R:</b> Thanksgiving Holiday – <i>no class</i>	
<b>Nov. 29</b>	<b>T:</b> Student Presentations	Paper revision
<b>Dec. 1</b>	<b>R:</b> Student Presentations	
<b>Dec. 6</b>	<b>T:</b> Student Presentations	<b>T: Final draft of term paper (submit with first draft) due at start of class!</b>
<b>Dec. 8</b>	<b>R:</b> Synthesis and course conclusion	
<b>Dec. 19 10:10- 12:10</b>	<b>Monday: Take Home Final Exam Due</b>	<b>Exam will draw from entire course but will emphasize materials presented subsequent to the mid-term, including student presentations</b>

