



## ENEP 420/624: Water Resources Management

Fall 2023 | 3 Credits | T/Th 3:55-5:15, Gore Hall Rm 303

### 1. Instructor Information

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Office Hours: T/TH 1-3pm

### 2. Course Description

Water is likely the most essential resource for human society, as well as for all life on Earth. It is also one of the most contested—and conflicts surrounding water use and resources are likely to grow as we experience the effects of global climate change. Throughout history, human societies have modified existing water resources with dams, reservoirs, irrigation systems, and other strategies, with considerable impacts on human lifestyles, resource distribution and equity, and ecosystems. Our systems for allocating and managing water resources have become complex and variable, and are intricately connected to both science and human values. This course will give an overview of the policies, systems, and challenges associated with water use and management on local, regional/national, and international scales.

### 3. Learning Outcomes

In this course, students will be able to:

1. Explain the primary components and systems associated with water resources management.
2. Articulate the foundations and evolution of US water politics and policy.
3. Identify and evaluate key issues in water use and water quality.
4. Evaluate and apply strategies for future water resources management.

### 4. Learning Resources

#### Required Resources (2):

There is no formal textbook for most of the content in this course, however the following two items are important for course reflection assignments and discussion.

1. Mona Hanna-Attisha (MHA in syllabus), [What the Eyes Don't See](#), One World Press, 2018. (\$14-20).

2. Mark Arax, *The Dreamt Land: Chasing Water and Dust Across California*. Penguin RandomHouse, 2020 (\$15-20)

Recommended Resource (1):

If anyone feels they would benefit from a “handbook” style resource about water policy in general, this is a decent one. We will not be using this text directly in the course.

1. Juliet Christian-Smith and Peter Gleick, *A 21<sup>st</sup> Century US Water Policy*. Oxford University Press, 2012 (\$20-35)

Technology:

**CANVAS USE:** In this class, Canvas, UD's online learning management system, will be used for all course activities and communication channels. All assignments will be posted through the Canvas course site unless otherwise directed. Information on how to use Canvas is available through the [Canvas Student Guide](#). Canvas is accessible via [MyUD](#) or directly at <http://www.udel.edu/canvas>.

## 5. Learning Assessment

The final course grade will be calculated using the following assessment components:

Component	Percentage of Total Grade
Class Participation (engagement, discussion, activities)	20
Journal Responses/ Reflections	15
Quizzes (6, lowest dropped)	20
Group Case Study	25
Exams (2) / Annotated Bibliography (graduate students)	20

Course Assessment Components:

1. Class Participation

Students are expected to participate meaningfully in class discussion and activities. Meaningful participation includes coming prepared for class having read assigned materials as well as doing your part to create an engaged and respectful learning environment. A syllabus for assessing participation will be jointly developed during the second week of class.

1. Journal/Reflection Responses

Students will be assigned periodic “journal” assignments, including a series of responses where they will reflect what they are learning from on course content in 2-3 paragraphs.

## 2. Content Quizzes

Scheduled quizzes will be used to assess conceptual understanding of course material. Quizzes may include multiple choice, true/false, and matching questions along with 1-2 short answer questions. The lowest quiz grade will be dropped.

## 3. Group Case Study

Students will work in teams throughout the semester to develop a case study of a single location-specific water management conflict. They will identify the key stakeholders involved, explain how the issue developed, and identify any important policies involved. The teams will then explore the current and future impacts that climate change is likely to have on the issue. At each step, there will be opportunities to gain feedback from peers during in-class workshop sessions.

## 4. Exams

The exams will be comprehensive and structured to include multiple choice, short answer, and essay questions. You may (likely) be asked to apply course content to new information.

## 6. Course Calendar\*

(\*subject to revision and modification)

#	Date	Topic	Notes	Readings and Course Content
<b>Week 1</b>				
1	8/29	Course Intro, Water Basics		
2	8/31	Water Resources and Use		Reflection: TED Radio Hour: Our Relationship with Water (due Friday)
<b>Week 2</b>				
3	9/5	Water Economics		
4	9/7	Water Law and Management		Reflection: The Price of Water
<b>Week 3</b>				
5	9/12	Agriculture and Industry		MHA 1-5
6	9/14	Ag and Industry II		MHA 6-10

<b>Week 4</b>				
5	9/19	Municipal Water Systems I - Systems and Overview		MHA 6-10
6	9/21	Municipal Water Systems II - Safe Drinking Water Act	Case Study Project and Team Assignments	MHA 11-15
<b>Week 5</b>				
7	9/26	Municipal Water Systems III - Sanitation		MHA 16 - 20
8	9/28	The Flint Water Crisis and Environmental Justice		
<b>Week 6</b>				
10	10/3	Stormwater Management		MHA 21 - 26 + Epilogue
11	10/5	<u>Grad Section:</u> Meet to Discuss Annotated Bibliography		<u>Undergrad Section:</u> No Class - Catch up on MHA and Reflections
<b>Week 7</b>				
12	10/10	Climate Change and Municipal Water Systems		
13	10/12	EXAM 1		
<b>Week 8</b>				
14	10/17	Team Updates		
15	10/19	The Reclamation Movement	Case Assignment 1 Due Friday 10/21	<b>Bork 2011</b> Arax Ch. 1-2
<b>Week 9</b>				

16	10/24	<i>Class Canceled</i>		
17	10/26	Tribal Water Rights and Conflicts		<b>Tsosie 2006</b> Arax Ch. 3-4
<b>Week 10</b>				
18	10/31	Western Water Conflict: Colorado River Basin		Arax Ch. 5
19	11/2	Western Water Conflict: Colorado River Basin		Arax Ch. 6-8
<b>Week 11</b>				
20	11/7	No Class (Election Day) - GO VOTE!!		Arax Ch. 9-10
21	11/9	Sea Level Rise and Policy Responses		
<b>Week 12</b>				
22	11/14	Managed Retreat	Dr. Siders Guest Lecture	Arax Ch. 11-13
23	11/16	Team Updates 2	Case Assignment 2 Due	Arax Ch. 14-16
11/21-11/23 - Thanksgiving!				
<b>Week 14</b>				
24	11/28	Eastern Water Conflict: The Tri-State Water War		Arax Ch. 17-19
25	11/30	Project Workshop and Check-Ins		Arax Ch. 20-21, Epilogue

Week 15				
26	12/5	Case Study Updates 3		
27	12/7	EXAM 2		
	12/12			Case Assignment #3 due
	12/14			Annotated Bibliographies Due

## 7. Course Policies

### I. Mental/Emotional Health and Support

Life happens, even when it is not convenient, and sometimes it affects our daily life, work and academic success. I have learned this as well as anyone. If you are struggling, for any reason, please feel free to contact me and let me know. I may not be able to solve your problem, but I will do my best to be a sympathetic ear and to help where I can. No one should feel alone—because none of us needs to be. If life has you overwhelmed, I care about you as a person, not just a student, and I am happy to be in your corner.

### II. Attendance

I do not take attendance, and it is not formally part of your grade. You DO NOT need to contact me if you will be missing a class here and there. However, if you will be missing more than a week of class for some meaningful reason, please let me know ahead of time (or as soon as possible), because otherwise I will worry about what happened to you.

If you miss a class, please confer with a student colleague to obtain missed class notes or announcements. The instructor will not provide notes to students. Please be aware that some activities and discussions cannot be made up, and repeated or regular absences will affect your grade (i.e. it's hard to participate or meaningfully engage when you're not there).

Absences on religious holidays listed in university calendars is recognized as an excused absence. Nevertheless, students are urged to remind the instructor of their intention to be absent on a particular upcoming holiday (*if nothing else so I can wish you well for the special day!*). Absences on religious holidays not listed in university calendars, as well as absences due to athletic participation or other extracurricular activities in which students are official representatives of the university, shall be recognized as excused absences when the student informs the instructor in writing during the first two weeks of the semester of these planned absences for the semester.

### **III. Additional Course Expectations**

1. Students and the instructor are expected to treat everyone with respect and kindness. It's a rough and sometimes awful world out there, and creating change and finding the good in it starts with your regular, daily interactions.
2. Students are expected to have completed all readings before the designated class period so that they are able to participate in class discussion.
3. This class focuses on politics and public policy, and there is no possible way to be completely objective at all times and still be a human being. I do my best to present material in a fair way with a dash of (attempted...) humor, and to present a variety of viewpoints in lectures and course materials. Let me know if you think I'm not succeeding, or if you have ideas or resources to share.
4. Similarly, if you have a different viewpoint than is being presented by me or others in class, please share it ( if you are comfortable doing so)! Students at four-year institutions like UD are disproportionately white, politically liberal, and from middle- or upper-income backgrounds. With most things, there are many reasonable perspectives, even when we think we have all the answers. That being said, any sort of language that is disrespectful and/or demeaning to others will not be tolerated.
5. Finally, if you do not feel comfortable in this course for any reason, I welcome that input as well as any recommendations for creating a more welcoming inclusive environment. We all have different social blinders, and I am committed to recognizing and removing my own.

### **VII. University-Wide Policies**

#### **1. Academic Integrity**

Please familiarize yourself with UD policies regarding academic dishonesty. To falsify the results of one's research, to steal the words or ideas of another, to cheat on an assignment, to re-submit the same assignment for different classes, or to allow or assist another to commit these acts corrupts the educational process. Students are expected to do their own work and neither give nor receive unauthorized assistance. Complete details of the university's academic integrity policies and procedures can be found at <http://www1.udel.edu/studentconduct/policyref.html> Office of Student Conduct, 218 Hullihen Hall, (302) 831-2117. E-mail: [student-conduct@udel.edu](mailto:student-conduct@udel.edu)

#### **2. Harassment and Discrimination**

The University of Delaware works to promote an academic and work environment that is free from all forms of discrimination, including harassment. As a member of the community, your rights, resource and responsibilities are reflected in the non-discrimination and sexual misconduct policies. Please familiarize yourself with these policies at [www.udel.edu/oei](http://www.udel.edu/oei) . You can report any concerns to the University's Office of Equity & Inclusion, at 305 Hullihen Hall, (302) 831-8063 or you can report anonymously through UD Police (302) 831-2222 or the EthicsPoint Compliance Hotline at [www1.udel.edu/compliance](http://www1.udel.edu/compliance). You can also report any violation of UD policy on harassment, discrimination, or abuse of any person at this site: [sites.udel.edu/sexualmisconduct/how-to-report/](http://sites.udel.edu/sexualmisconduct/how-to-report/)

### **3. Faculty Statement on Disclosures of Instances of Sexual Misconduct**

If, at any time during this course, I happen to be made aware that a student may have been the victim of sexual misconduct (including sexual harassment, sexual violence, domestic/dating violence, or stalking), I am obligated to inform the university's Title IX Coordinator. The university needs to know information about such incidents in order to offer resources to victims and to ensure a safe campus environment for everyone. The Title IX Coordinator will decide if the incident should be examined further. If such a situation is disclosed to me in class, in a paper assignment, or in office hours, I promise to protect your privacy--I will not disclose the incident to anyone but the Title IX Coordinator. For more information on Sexual Misconduct policies, where to get help, and how to reporting information, please refer to [www.udel.edu/sexualmisconduct](http://www.udel.edu/sexualmisconduct). At UD, we provide 24-hour crisis assistance and victim advocacy and counseling. Contact 302-831-1001, UD Helpline 24/7/365, to get in touch with a sexual offense support advocate.

For information on various places you can turn for help, more information on Sexual Misconduct policies, where to get help, and reporting information please refer to [www.udel.edu/sexualmisconduct](http://www.udel.edu/sexualmisconduct)

### **4. Inclusion of Diverse Learning Needs**

Any student who thinks he/she may need an accommodation based on a disability should contact the Office of Disability Support Services (DSS) office as soon as possible. The DSS office is located at 240 Academy Street, Alison Hall Suite 130, Phone: 302-831-4643, fax: 302-831-3261, DSS website ([www.udel.edu/DSS/](http://www.udel.edu/DSS/)). You may contact DSS at [dssoffice@udel.edu](mailto:dssoffice@udel.edu)

### **5. Non-Discrimination**

The University of Delaware does not discriminate against any person on the basis of race, color, national origin, sex, gender identity or expression, sexual orientation, genetic information, marital status, disability, religion, age, veteran status or any other characteristic protected by applicable law in its employment, educational programs and activities, admissions policies, and scholarship and loan programs as required by Title IX of the Educational Amendments of 1972, the Americans with Disabilities Act of 1990, Section 504 of the Rehabilitation Act of 1973, Title VII of the Civil Rights Act of 1964, and other applicable statutes and University policies. The University of Delaware also prohibits unlawful harassment including sexual harassment and sexual violence.

For inquiries or complaints related to non-discrimination policies, please contact:  
Director, Institutional Equity & Title IX Coordinator- Susan L. Groff, Ed.D. [sgroff@udel.edu](mailto:sgroff@udel.edu), 305 Hulliher Hall, Newark, DE 19716, (302) 831-8063

For complaints related to Section 504 of the Rehabilitation Act of 1973 and/or the Americans with Disabilities Act, please contact:

Director, Office of Disability Support Services, Anne L. Jannarone, M.Ed., Ed.S., [ajannaro@udel.edu](mailto:ajannaro@udel.edu), 130 Alison Hall, Newark, DE 19716, (302) 831-4643 OR contact the U.S. Department of Education - Office for Civil Rights ([wdcrobcolp01.ed.gov/CFAPPS/OCR/contactus.cfm](http://wdcrobcolp01.ed.gov/CFAPPS/OCR/contactus.cfm)).