"Water is the oil of this century."

--Dow Chemical Chairman Andrew Liveris, World Economic Forum, February, 2008

Course Policies

Please note the dates and times for submitting assignments. Late work is not accepted because the instructor teaches other classes and has other OSU work obligations, too.

What happens if something unexpected comes up during the week that keeps you from meeting a deadline in the class such as a sick child, job interview, family member deployed, death in family, dog ate my homework, etc.? I have heard all of the excuses, some probably sincere, others not so. In this day and age where nearly everyone in the world has a cellphone, consider giving the instructor a telephone call or sending an email BEFORE the assignment or other activity is due to make arrangements. Think about it – how do you feel when someone is late for an appointment with you and they don’t call ahead of time to make other arrangements? It is the professional thing to do. Thanks for your consideration.

Why Take This Class?

Articles in mainstream media warn that the next scourge to afflict the global economy after soaring oil and food prices will be a surge in the cost of water brought on by growing scarcity. Global water markets, including drinking water distribution, management, waste treatment, and agriculture are a nearly $500 billion market and growing fast. The bottled water business is a $100 billion per year market, with the US responsible for nearly $11 billion of these revenues. Over one billion people currently lack safe access to drinking water and the United Nations predicts 50% of world population will face water shortages by 2025.

Over 99 percent of the global fresh and unfrozen water is stored underground. There is over 1000 times as much water stored underground as there is found on the land surface. Groundwater is the world’s most extracted raw material with withdrawal rates estimated to range between 800 to 1,000 km$^3$ per year through millions of water wells. Yet after over 100 years of studying the hydrological cycle, there are no consistent methods to calculate the available and recoverable water from river basins and groundwater systems; few hydrological watershed models even address groundwater into their water balance models. And despite nearly 20 years of work on defining water scarcity, few indexes incorporate groundwater.

How is the World’s water managed? Surprisingly, the pace of globalization in commerce and world politics have often forgotten about water even though water is “virtually” embedded in all “manufactured” products whether it is for the traditional products usually considered intimately connected to water derived from...
agriculture, to computer chips, new housing developments, golf courses, ski resorts, utilities, and energy development, especially with the renewed focus on renewable energy such as geothermal.

The popular media regularly exhorts the growing potential for “water wars”. This class will introduce the student to the historic and current paradigms related to water management in the world. We will explore the interaction between “hydropolitics” and water resources development. Topics include many themes, including but not limited to, water quality, river basins, groundwater, wetlands, conflict and cooperation, water and energy, climate change, and water institutions. Additional topics will be raised in class through classroom discussions, video, role playing, and serious gaming.

The quality of the class is dependent on what the students are willing to invest in the course with respect to participation. Grading is important, but it is highly dependent on active participation as an emerging professional rather than rote memorization or testing the student’s ability to comprehend “facts”. Students should be more focused on learning and debating the issues or devising solutions to the vexing water issues facing the local, national, and international arenas than about their grades. The problems addressed in the class have no easy “solutions” that can be taught to the student; these solutions do not exist because the “solutions” are social issues with many diverse and diverging viewpoints.

**Course Objectives**

- Become informed of the current state and condition of the World’s water;
- Become proficient participating in discussions based on course readings, videos, and exercises;
- Become proficient at writing succinctly for decision makers using technical memoranda or briefing notes; and
- Be able to sometimes work in a small team environment of water resources professionals.

**Learning Resources**

The WORLD'S WATER - The Biennial Report on Freshwater Resources – This is an Eight Volume Set published by The Pacific Institute, Island Press – **We will use one volume – Volume 8.**


**On Line Learning Resources**

(long links – you might need to cut and paste into your browser if it does not work, be patient while downloading, these are large files because of the quality of the graphics)

The World Water Assessment Programme (WWAP) – Two resources
- The 4th edition of the UN World Water Development Report (WWDR4)
Read Main Messages in Volume 1, pages 1-16. Note the other WWDR reports in right menu, and the announcement of the 2014 report on water and energy.


Read pages 1-32. Note the Oregon example of groundwater depletion.


Readings will be assigned during the term, but we will be focusing primarily on the groundwater briefing notes:

- [http://water.worldbank.org/node/83769](http://water.worldbank.org/node/83769)

Other Important Resources that might come in handy for projects

- The Transboundary Freshwater Dispute Database available online at – [http://www.transboundarywaters.orst.edu/database/](http://www.transboundarywaters.orst.edu/database/)


Canvas – Please familiarize yourself with how Canvas operates as some readings and other important course materials will be posted at this location. If you have any difficulties, please contact the instructor.

Course Organization

Readings Notes and Video Summaries. Weekly readings are listed in the schedule and it looks like quite a bit of reading, but most readings are fairly short. Reading notes are required for the assigned readings and an example is provided on Canvas for your reference. An example video summary sheet can be found on the last page of the course syllabus. Note that some of the readings are from websites that will be used to introduce you to the wide world of international waters. With the exception of the first week, please submit your reading notes and video summaries no later than the end of the Friday (only) of each week through Canvas. Please accept the instructor’s apologies, but assignments attached to emails to the instructor will not be graded. Why this policy? Sometimes a student challenges a grade and Canvas provides a handy place to sort out issues of misplaced assignments and other course materials.

Project Technical Memorandum, Briefing Note and “Water Pitch”. Please make your selection by the second week of class and submit a paragraph on Canvas describing your proposed project from the listing provided in the guidance document appended to the course syllabus. All papers must be typed, well-written, and relatively error-free. Deadlines should be taken seriously. Papers must be in a technical memorandum or “briefing note” format. The memorandum or briefing note will be due as listed on the course schedule and will be submitted as a pdf to distribute to the class via Canvas. Please submit your projects through Canvas. Assignments attached to emails to the instructor will not be graded.
**Water Pitch** – Each student will meet one-on-one with the instructor for the “water pitch” on their briefing note. What is a “water pitch”? It is similar to an “elevator pitch”, meaning that many times an individual has only a few minutes to meet with very important people, many times just the length of time to ride an elevator, and to make their case as to why to be hired, to invest in a great idea, or to learn enough information on a topic to invest millions of dollars in a project. Each student will make an appointment to meet with the instructor during Week No. 10 to make their water pitch. The student should anticipate spending about 10 minutes with the instructor one-on-one to make their pitch and permit time for questions. **Times and dates for the “pitch” will be during Week No. 10. A sign-up sheet will be circulated later in the term, but the times and dates for the “pitch” will coincide with class time during Week No. 10.**

**Reflection Essays** – Write a personal reflective commentary on the content and learning activities for a specific period of the course (e.g., Gaming – we will play Santiago – a board game; Pandal Basin Role Play). A reflection essay should be approximately 1,000 to 1,500 words in length.

To develop the reflection essay, please comment on:
- Learning activities
- Lecture content (e.g., sharing water)
- Readings (e.g., book chapters)
- Video materials
- Discussion

What course content (readings, lectures) and activities where most meaningful to you? Why? How?

Comment on content and activity that stand out for you; that you consider to be important, relevant, insightful, confusing, controversial, debatable, etc.

Each reflective writing submission can be written by hand or typed, but please upload to Canvas (this means if it is hand written, it must be scanned and uploaded. Valley Library has this function in the copy center).

Grade for reflective essays will be based on:
- Content – 50% of grade - Does the content demonstrate thoughtful inquiry into the subject?
- Writing – 40% of grade - Is the overall structure logical, coherent, well-organized, moving the reader from introduction to conclusion?
  - Effective use of paragraphs - Are the sentences well-constructed?
  - Complete sentences; not run-on sentences; flow well; make sense; Is the grammar sound?
  - Noun/verb agreement; correct use of verb tense; clear referents; singular/plural consistency; spelling; punctuation; appropriate voice
- Professional approach – 10% of grade – Professional formatting; Professional tone

**Grades**

The grading distributions is as follows:

<table>
<thead>
<tr>
<th>Briefing Note or Technical Memorandum</th>
<th>20%</th>
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</thead>
<tbody>
<tr>
<td>One-on-one “water pitch”</td>
<td>10%</td>
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<tr>
<td>Midterm Exam</td>
<td>10%</td>
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<tr>
<td>Gaming Reflection Essay</td>
<td>15%</td>
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<tr>
<td>Role Play Reflection Essay</td>
<td>15%</td>
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<tr>
<td>Assignment/Exams</td>
<td>Percentage</td>
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<tr>
<td>Final Exam</td>
<td>10%</td>
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<tr>
<td>Reading Notes (six), Lecture Notes (one) and Video Summaries (three)</td>
<td>10%</td>
</tr>
<tr>
<td>Miscellaneous (class participation in gaming and role plays)</td>
<td>10%</td>
</tr>
</tbody>
</table>

**Grading Scale:**

The class will not be graded on a curve. Using this approach, the number of students receiving the same grade is not restricted.

- 100% - 93% A
- 92.9% - 90% A-
- 89.9% - 87% B+
- 86.9% - 83% B
- 82.9% - 80% B-

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<thead>
<tr>
<th>Grading Scale</th>
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<tbody>
<tr>
<td>79.9% - 77% C+</td>
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<tr>
<td>76.9% - 73% C</td>
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<tr>
<td>72.9% - 70% C- S</td>
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<td>69.9% - 67% D+ U</td>
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<td>66.9% - 63% D</td>
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<td>62.9% - 60% D-</td>
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<th>Grading Scale</th>
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<td>59.9% - 0% F</td>
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**INCOMPLETES?** – Unfortunately no longer considered. Students rarely complete them. Please do not ask for one.

For S/U students - 70% is required for a P or an S.

**Schedule for Assignment/Exams**

**Friday of Each Week**
- Friday of Week No. 1
- Friday of Week No. 2
- **Wednesday of Week No. 5**
- Friday of Week No. 7
- Friday of Week No. 8
- Friday of Week No. 9
- Monday & Wednesday of Week No. 10
- Week No. 11 – **Thursday @ Noon**

**Reading or Video Notes due**
- Video Notes & Lecture Notes due
- Paragraph on Project due
- Midterm exam
- Gaming Reflection Paper due
- Role Play Reflection Paper due
- Projects Due
- Water Pitches and Class Review of Papers
- Final exam
### Tentative Schedule of Events and Readings

<table>
<thead>
<tr>
<th>Topics/Readings</th>
<th>GW (Notes Req.)</th>
<th>World’s Water (Notes Req.)</th>
<th>WWAP (Notes Opt.)</th>
<th>Other (Notes Opt.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1 – Setting the Scene; Getting Ready for Change; Running Dry (video); Introduction to Groundwater (Introduction to IGRAC Resources)</td>
<td>Ch. 1</td>
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<tr>
<td>Week 2 – Hydropolitics and Governance; Overview of US water</td>
<td>Ch. 2</td>
<td>Ch. 6</td>
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<tr>
<td>Week 3 – Integrated Water Resources Management; Energy and Water; Myths &amp; Facts about Hydrofracking</td>
<td>Ch. 3</td>
<td>Ch. 4</td>
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<td>BB</td>
</tr>
<tr>
<td>Week 4 – Geography of Groundwater; Water Footprints</td>
<td>Ch. 4</td>
<td>Ch. 5</td>
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<tr>
<td>Week 5 – Groundwater Depletion; Last Oasis (video); Midterm</td>
<td>Ch. 5</td>
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<tr>
<td>Week 6 – Sharing Water; Water Security; Gaming Santiago Game</td>
<td>Ch. 6</td>
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<td>BB</td>
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<tr>
<td>Week 7 – Water Wars; Water Cooperation; Role Play</td>
<td>Ch. 6</td>
<td>WB-3; WB-4</td>
<td></td>
<td>BB</td>
</tr>
<tr>
<td>Week 8 – Groundwater Management; International Agreements</td>
<td>Ch. 7</td>
<td>Ch. 1</td>
<td></td>
<td>WB-GW</td>
</tr>
<tr>
<td>Week 9 – Future of Water (video); Zombie Projects</td>
<td>Ch. 8</td>
<td>Ch. 7; WB-2</td>
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<tr>
<td>Week 10 – Projects and Water Pitches; Course Evaluations; Future Directions</td>
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**Explanation of Table**

**WWAP**
- The 4th edition of the UN World Water Development Report (WWDR4)
  Read Main Messages in Volume 1, pages 1-16.
- GW-Side Pub. - Groundwater and global change: Trends, opportunities and challenges: United Nations World Water Assessment Programme, World Water Forum Side Publication Series No. 1,

**World’s Water** = The World’s Water textbook. If WB-1 is assigned, it means it is a “Water Brief” and the number. See World’s Water Table of Contents to learn more about difference between Chapters and Briefs.

**GW** = Groundwater around the World: A Geographic Synopsis. Our textbook.

**Other**
- **WB – GW** = World Bank, Groundwater Briefing Note Series - [http://water.worldbank.org/node/83769](http://water.worldbank.org/node/83769)
  Briefing Notes to be assigned.
- **BB** = Readings and videos posted on Canvas.
Learner Outcomes

The intention of the course is for you to demonstrate your ability to:

<table>
<thead>
<tr>
<th>Skills</th>
<th>Evaluation Methods</th>
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<tbody>
<tr>
<td>Acquire specialized language and concepts relevant to water resources in the World through readings in texts and supplementary articles</td>
<td>Exams, written and discussion exercises, class participation</td>
</tr>
<tr>
<td>Develop appreciation for complexities and disciplines related to resource decision-making</td>
<td>Exams, written and discussion exercises, class participation</td>
</tr>
<tr>
<td>Demonstrate ability to obtain, analyze, synthesize, and critique information relevant to water resources from a range of external sources, including scientific literature and databases and prepare briefing notes</td>
<td>Research projects, exams</td>
</tr>
<tr>
<td>Communicate through writing, key concepts, including advanced concepts, relevant to water resources using briefing notes</td>
<td>Exams, written and discussion exercises, class participation</td>
</tr>
<tr>
<td>Acquire skills to evaluate critically written of peers and professionals</td>
<td>Peer review; role play and gaming exercises</td>
</tr>
</tbody>
</table>
| This special edition of the class will provide students an understanding of the following attributes of groundwater:  
  • basic flow paths for groundwater;  
  • types of groundwater storage and movement (e.g., aquifer types, chemical migration in groundwater, etc.); and  
  • the impact from groundwater withdrawals and consumptive and non-consumptive uses (e.g., distance of cone of depression from one well or a cluster of wells, impacts with over pumping, impacts from waste disposal or injection, etc.). | Written and discussion exercises |
| Develop ethical and moral guidelines for personal approach to resource use and allocation issues, and enhance joy and grace in one’s life | Self evaluation |

The Required Section on University and Departmental Policies regarding Civility and Honesty

Please Be Honest And Do Not Cheat – It Is A Time Consuming Thing For Both The Student And Instructor.

The course follows the university rules on civility and honesty. These can be found at [http://oregonstate.edu/studentconduct/offenses-0](http://oregonstate.edu/studentconduct/offenses-0). Cheating or plagiarism by students is subject to the disciplinary process outlined in the Student Conduct Regulations. Students are expected to be honest and ethical in their academic work. Academic dishonesty is defined as an intentional act of deception in one of the following areas:

- **Cheating** – use or attempted use of unauthorized materials, information or study aids;
- **Fabrication** – falsification or invention of any information;
- **Assisting** – helping another commit an act of academic dishonesty;
- **Tampering** – altering or interfering with evaluation instruments and documents; and
- **Plagiarism** – representing the words or ideas of another person as one’s own.

Statement Regarding Students with Disabilities: Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 541-737-4098.
GEO 424: International Water Resources Management
Project Technical Memorandum or Briefing Note Guidelines

All students enrolled in GEO 424 will be responsible for one major project selected from the listing below. If a creative project is selected, it should be accompanied by a write-up (double spaced or single spaced – student’s choice) incorporating course concepts and describing the project's relevance to water resources issues, and grounding the project in an academic setting. Help solve a problem, be persuasive, and don't just present it. Projects may be linked to work from another course, provided the original work is clearly marked.

A paragraph describing your topic is due as listed on the course schedule; full papers are due on as listed on the course schedule. Please submit your papers as a pdf that can be shared with the class. Students will critique other student papers or projects. The following points should be used as guidelines for consideration for your discussion and writing:

1. Student memos/or briefing notes should take the form of a topic that might be researched and written for a policymaker (County Commissioner, Senator, Governor, King, Queen, etc). The following guidelines should be viewed as a means to get started, but are not all inclusive and may not be applicable to all projects. A technical memorandum or briefing note should be approximately 2,000 to 3,000 words in length. Each submittal should include three to five of the best sources cited for those who might like to learn more about the topic.

2. Each memorandum or briefing note should include at least one original graphic.

3. Writing a technical memorandum or “briefing note” can be more difficult that writing a research paper because the writer must be able to summarize the major points of a full report so that the information will fit on a few pages. Do not fall into the trap into thinking a memorandum is a “quick write up job”. Memoranda and Briefing Notes often require more planning than writing a full technical research paper. What does one look like? See the examples developed by the World Bank under Learning Resources.

4. A good place to start is with a topical outline. The reason is that the topical outline provides the road map for all parties involved with the project. It is very much like setting a meeting agenda. Get in the habit of preparing the topical outline as your supervisor or client will more than likely want to see one during the course of your professional projects.
Options for Projects
Helpful hint: Long URLs may require cutting and pasting into your browser if they don’t work.

Business of Water – OSU is starting a new initiative: a waterMBA. Why? Because the global water services industry is slated to approach US$1 trillion in annual revenues by 2020 according to the Bank of America. What are some of the “business elements” in water resources? What is the geography of the business elements and associated dollar values? Still confused? Consider the element of balneology and ecotourism, geomancy and geoengineering, Water Exchange-Traded Funds (ETFs), water banks, water markets, “Water Footprints” and how do these topics fit into the international business of water? Why should the world “invest”?

Corruption and Water - Compare and contrast what you learned about corruption, the geography of corruption, the connection of corruption and water, and the relationship to known areas of water scarcity and renewable freshwater supply (both physical and economic water scarcity). Good places to start – WBP = World Bank Presentation on Corruption.

http://info.worldbank.org/governance/wgi/index.aspx#home

Step 1 – Review “The Worldwide Governance Indicators (WGI) project”
Step 2 – Go to “Interactive data access”
Step 3 – Select “Single World Map” from menu
Step 4 – Select “2013” for year
Step 5 – Under “Select Indicator” view each indicator – see any surprises?
Examine the “Control of Corruption” -
Step 6 – Go to the UNDP World Governance Facility site, http://www.watergovernance.org/
Step 7 – Review the Report on Preventing Corruption in the Water Sector.
http://watergovernance.org/resources/preventing-corruption-in-the-water-sector/ (long link, may have to cut and paste into browser)
Step 8 – Compare and contrast what you learned about corruption, corruption and water, and known areas of water scarcity and renewable freshwater supply (both physical and economic water scarcity).

Step 9 - See also this important document on Fighting Corruption in the Water Sector:

Declarations, Proclamations, and Statements – What is the geography of the water and environmental declarations related to water, the topical linkages, the evolution of thought and scope over the past 25 years. Examine, analyze and critique at least 10 water-related declarations, proclamations, and statements. Good place to start –

International Water and Social Media – Over 500 million blogs are estimated to exist on the web. Is there a geography of water and social media, topics, what are the top 10 best and to 10 worst sites in your opinion, are they effective in getting the message out and changing opinions about water use and reuse? Good place to start – http://water.alltop.com/

Water Conflict or Water Cooperation – Are water wars coming or are they a myth? If anticipated, what are the locations and scales? If they are a myth, what is the evidence? Good place to start – [http://www.dailystar.com.lb/Business/Lebanon/2014/Jan-03/242949-water-cooperation-in-the-arab-world-myth-or-reality.ashx?goback=%2Egde_3213735_member_5824887341793189891%21](http://www.dailystar.com.lb/Business/Lebanon/2014/Jan-03/242949-water-cooperation-in-the-arab-world-myth-or-reality.ashx?goback=%2Egde_3213735_member_5824887341793189891%21)

Mega water meetings - What is the geography of these meetings; What is the purpose of these meetings; How many people show up; Are they worthwhile and do they make a difference in the opinion of some water experts? Who are these water experts and their opinion? Good places to start – [http://www.siww.com.sg/](http://www.siww.com.sg/)

Water security, water stress, water scarcity – What are the meanings of these concepts, are there linkages, differences, what is missing, is there a geography of the concepts? Visit the instructor to learn more about this timely project as the literature is robust and always updated. Good place to start - [http://www.amazon.com/Water-Security-Principles-Perspectives-Practices/dp/0415534712](http://www.amazon.com/Water-Security-Principles-Perspectives-Practices/dp/0415534712)

Humanitarian Engineering and Hydrophilanthropy – OSU is starting a new initiative in Humanitarian Engineering. Compare and contrast the two topics, is there a geographic connection to these practices, what do each emphasize, are these fields making a difference, what are the shortfalls, that is, are they doing good work, doing a god’s work, or is it work going bad? Good places to start:
Oregonians doing good - [http://humanitarian.engineering.oregonstate.edu/](http://humanitarian.engineering.oregonstate.edu/)

International Waters and Gaming – Can serious games be used to help make decisions and avert conflict over water resources? Compare at least five and up to seven serious water and climate games that are readily available, both as board games and online. Make your comparison with the one game that you have personally played during the term of the class. Good starting places are article and example game:

International Waters and Film. Make your own video. The Institute for Water and Watersheds (IWW) has camera and computer editing software, but be forewarned, there is a steep learning curve on using the IWW editing software as it is professional grade. Consult with the instructor to learn more about other editing software as he has made many videos. Good examples of projects-
- Student Generated Computer Animation - [http://youtu.be/WZpSMvaDx0I](http://youtu.be/WZpSMvaDx0I)
- Instructor Generated Video - [https://www.youtube.com/watch?v=xboMsjKI6Ro&feature=player_embedded](https://www.youtube.com/watch?v=xboMsjKI6Ro&feature=player_embedded)
Interview someone working in international waters. At Oregon State University there are many folks working in this area such as Stephen Good, Aaron Wolf, Michael Campana, Desiree Tullos, John Selker, Kendra Sharp, Arturo Leon, Meghna Babbar-Sebens, Brian Tilt, among others, but you are not obligated to interview any of these people if you know someone else either at OSU or another campus in Oregon. Be respectful of busy people schedules and make an appointment. Before embarking on your interview, provide your interview questions to the instructor. In your write-up, provide a rationale for questions, the interviewee’s answers, and an analysis as part of your write-up. See Canvas for an example interview completed by the instructor. Note: The analysis portion of the interview is not included as it was completed for a different class.

Artists in residence? Mapping projects, video, photo exhibit, analysis of policy, work of fiction or poetry, project of original research, or any of a variety of other projects if it can be shown to relate to the topics raised in the course. Original poems, ceramics, drawings, music have all been offered in past course offerings. See Canvas for an example completed by the instructor.

Project on data analysis – The World’s Water Series of books date back to the 1990s and have pages upon pages of useful water data on a broad spectrum of topics. Or, use the OSU transboundary freshwater dispute database (TFDD), the International Groundwater Assessment Centre (IGRAC) database, and/or the International Shared Aquifer Resources Management (ISARM) information system.

For example, you can investigate the relationship between any physical or social parameter and the signing of a water treaty on the TFDD. Trends before and after a treaty goes into effect will be evaluated and the relationships between cause and effect explored.

1. Identify a treaty you would like to explore through the Transboundary Freshwater Dispute Database http://www.transboundarywaters.orst.edu or other database connected to international waters (see Learning Resources).

2. Read up on the countries involved and their hydropolitics for the period around the date of the treaty (why did they need a treaty?).

3. Develop a hypothesis regarding the relationship between the terms of the treaty and the impact on any quantifiable parameter.

4. Find details on any parameter which might show the effectiveness of the treaty for which data are available for the five years before and after the treaty was signed. This could be a physical parameter (water flow, irrigated land, water quality) or a social parameter (GDP, literacy rate, % of GDP spent on military). Graph out the parameter versus time for the 10 years in question (show on your chart the date of the treaty).

5. Write up your findings (please label your sections):
   a. Intro: Describe the setting, the actors, and the treaty.
   b. Describe your hypothesis.
c. Methodology: What parameter did you choose and why (don’t be afraid to “think out of the box”).

d. Findings: What were your findings? What does this prove or disprove about the agreement? (Be careful: coincidence does not show causality.) What would you explore further to prove or disprove your hypothesis?
Running Dry Video Summary (Copy questions and Post answers to these questions on Canvas)

1. What is the crisis described in this video? How many people die from the crisis?

2. What agency has a plan to deal with the crisis? How much will it cost? Is this very much money?

3. What are the crises described by geographic region (for example, what is the crisis in China, Middle East, Africa, other regions mentioned in video)?

4. What is the name of the Oregon State University professor interviewed in the film?

5. In 50 to 100 words, what can you do to help?