Introduction to Water Science and Policy

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Catalog course description: INTRODUCTION TO WATER SCIENCE AND POLICY (3). Policy and science of the hydrologic cycle. Emphasis on interaction between water’s natural time-space fluctuations and human uses. (Bacc Core Course).

Texts
Fresh Water, by E.C. Pielou (paperback)
The texts are required. We will follow them closely. They are on 3-hour reserve at The Valley Library.

Office Hours: I endeavor to keep my office hours as shown above. If for some reason I cannot keep them I will let you know. You are always welcome to make an appointment to see me outside of my normal office hours, or, if my door’s open, drop in to see if I am available.

Course materials online: For announcements, handouts, revised course information and syllabi, homework assignments, grades, Power Point lectures, go to Canvas. Important notices regarding assignments, etc. will also be announced via e-mail, so it is essential that you check your e-mail regularly. All email will go to your ONID account. If you use another email, make sure your ONID email gets forwarded to it.

Assignments, Exams & Points
Assignment #1 Due: Friday, 17 October 40
Assignment #2 Due: Friday, 7 November 40
Assignment #3 Due: Friday, 5 December 45
Exam 1: Tuesday, 21 October 125
Exam 2: Thursday, 13 November 125
Thanksgiving break Thursday/Friday, 27-28 November (no class) ----
Final Exam: Friday, 12 December, 0930 hrs (9:30 AM) in Owen 102 125
TOTAL POINTS ------------------------------------------ 500
Due dates for Assignments are approximate. Up to 40 points of extra credit can be earned by attending water-related seminars (discussed later in this document). Exams are closed book.

Grading Scale:
The percentages used for determining the final grades at the end of the term are: A = 100—94, A- = 93—90; B+ = 89—87, B = 86—84, B- = 83—80; C+ = 79—77, C = 76—74; C- = 73—70; D+ - 67-69; D = 64-67; D- = 60-63; F = < 60. **Note:** For P/N or S/U students, 70% is required for P or S.

### University and College Policies

**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.

**Rules of civility:** The College of Earth, Ocean, and Atmospheric Sciences 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) Behaviors disruptive to the learning environment will not be tolerated and will be referred to the Office of Student Conduct for disciplinary action. “The goal of Oregon State University is to provide students with the knowledge, skill, and wisdom they need to contribute to society. Our rules are formulated to guarantee each student’s freedom to learn and to protect the fundamental rights of others. **People must treat each other with dignity** and [Note: email me by 8 AM 1 October with ‘Extra Credit’ in the subject line to receive 10 points of extra credit] respect in order for scholarship to thrive. **Behaviors that are disruptive to teaching and learning will not be tolerated, and will be referred to the Student Conduct Program for disciplinary action.** Behaviors that create a hostile, offensive, or intimidating environment based on gender, race, ethnicity, color, religion, age, disability, marital status or sexual orientation will be referred to the Affirmative Action office.”

**Goal:** The goal of Oregon State University is to provide students with the knowledge, skill, and wisdom they need to contribute to society. University rules seek to assure each student’s freedom to learn and to protect the fundamental rights of others. People must treat each other with dignity and respect in order for scholarship to thrive. Behaviors that are disruptive to teaching and learning will not be tolerated, and will be referred to the Student Conduct Program for disciplinary action.

**Cheating:** 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.
Course Policies

Etiquette: My commitment to you is to return assignments promptly, and be on time, organized, ready for class. I will treat you with courtesy and respect and answer your questions. I ask the same of you, and out of courtesy to your colleagues that you not eat, talk, read, or walk around during class. There will be no cell/smart phone use (including text messaging) during class. Please set phones on vibrate. Use of computers and tablets (online or not) is allowable as long as their use does not prove disruptive to your classmates or me. You can address me by my full first name, or by calling me ‘Professor’, ‘Doctor’, or Prof. or Dr. Campana. This is not Europe, so you do not have to use Prof. Dr. Campana.

Deadlines: Assigned work must be submitted on the due date. Late work will be marked down 20% for each day it is late. **Make-up work is not an option given the size of the class. Extra credit work is available as discussed in later sections of the syllabus.**

Participation is an important aspect of this class. You are expected to read class material before it is covered in class and become actively engaged in class discussions. **If it becomes apparent to me that most of the class is not reading the material, I reserve the right to institute pop quizzes that will count towards your final grade.**

Course Information, Objectives, Exams, and Syllabus

*Introduction to Water Science and Policy* provides students with an introduction to hydrology – the science dealing with Earth’s freshwaters - and the policies that affect use, distribution, quality, and management of those waters. The course is not focused on any particular geographic region; examples around the globe will be used. About 2/3 of the course is devoted to science with the final 1/3 focusing on policy. Although this may seem disproportionate, some policy will be interwoven throughout the science part of the course.

I do not post copies of my lectures, unless I use a PowerPoint, in which case I will post a PDF of the PPT. Some handouts will also be used; those will be posted on Bb.

GEOG 340 is a Baccalaureate Core Course under the Synthesis category of Science, Technology, and Society (STS). Baccalaureate Core Webpage: [http://oregonstate.edu/main/baccalaureate-core](http://oregonstate.edu/main/baccalaureate-core)

Course Objectives

1. Learn the science of water resources and understand how natural systems function.
2. Learn about the environmental consequences of water resources development and use.
3. Learn how to be a consumer of information focusing on water resources.
4. Learn how policies are generated and what laws and policies control water resources.

Learner Outcomes - Science, Technology and Society category of the baccalaureate core

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

1. Analyze relationships among water science, technology, and society using critical perspectives or examples from historical, political, or economic disciplines.
2. Analyze the role of water science and technology in shaping diverse fields of study over time.
3. Articulate in writing a critical perspective on issues involving water science, technology, and society using evidence as support.
4. Develop a personal water ethic.

**Learner Expectations**
1. Be respectful of other students, especially our guest lecturers, by attending class on time and staying the entire period.
2. Read assignments before they are discussed in class.
3. Participate in learning activities and complete tasks on time.
4. Come prepared to take the final exam (there are no make-up exams).
5. Cell/smart phone use, text messaging, Facebooking, Tweeting, blogging, doing homework for other courses, reading newspapers or other material unrelated to this course’s content, headphones, etc. are prohibited during class. Leave the classroom if you want to do these.
6. Follow University, departmental, and course policies described above, including proper use and citation of peer-reviewed research.

**Recipe for Success**: Attend class, do the readings before class so that the lectures are easier to follow, be engaged (ask questions).

**Assignments**

Three assignments will be discussed and distributed in class. *At least one of these assignments will involve the use of evidence-based writing to articulate a critical perspective on Science, Technology, and Society.* It will consist of a written assignment with a minimum of 1250 words plus references that develops and sustains a critical perspective using evidence as support and a multidisciplinary approach. The assignment should include at least two outside sources. Tentative due dates: 16 October, 6 November, and 2 December. They are worth a total of 125 points – 25% of your final grade.

**Earning EXTRA CREDIT points**

You can earn up to 40 points of extra credit by attending lectures (on/off campus) or student thesis or dissertation defenses on the topic of freshwater resources and hydrologic sciences. *Lectures in this class, whether by your instructor or anyone else, are NOT eligible for extra credit.* Each lecture you attend and report on is worth 10 points. To obtain extra credit: 1) fill out the Extra Credit form (downloadable from Bb) or a facsimile; 2) obtain my signature (if I am present at the talk) or that of the moderator/host (these two options are best) or the speaker (as a last resort) on the form or an attached piece of paper; and 3) prepare a 200-word summary (word-processed) of the presentation and what you learned from it. *Hard copy only* Extra Credit forms are due within 2 weeks of the presentation; hand them in to me in class or in my office, or place in my mailbox in CEOAS 104. Forms received later than two weeks after the event or that are not word-processed, or unsigned are unacceptable. You will find a sample form on Bb.

Lectures on campus are organized by various departments and units: Crop and Soil Science; Geology and Geophysics; Geography; Environmental Science; Fisheries; Forest Ecosystems and Society (FES); Forest Engineering, Resources and Management (FERM); Biological and Ecological Engineering (BEE);
Civil and Construction Engineering (CCE); Chemical and Biological Engineering (CBE); Water Resources Graduate Program (WRGP); College of Earth, Oceanic and Atmospheric Sciences (CEOAS); the Institute for Water and Watersheds (IWW); and other units. The CEOAS bulletin board outside WLKN 104 provides information for lectures in that college. Unless it is obvious from the seminar title that it relates to freshwater, the topic should be verified with M. Campana to see if the seminar qualifies for extra credit. It is your responsibility to find appropriate talks, locations, and dates/times (check OSU’s online calendar).

GROUND RULES – Attending Seminars/Talks. These are seminars/talks with speakers often traveling from in-state and out-of-state to present on local, national, and international water science and policy issues. As a consequence, you must arrive before the speaker begins and stay for the entire lecture. If you cannot abide by these rules, please be respectful to the students, faculty, staff, public, and guest speakers by not attending.

Syllabus

(Note: Weekly readings must be done prior to the first class meeting of that week)

Abbreviations: FW = Fresh Water; AW = Atlas of Water

Week 1 Readings: FW: Prologue & Chapters 1, 12; AW: Foreword, Introduction, Part 1 (Chapters 1-5)
T 9/30 Course and instructor introductions; structure of course; expectations; texts
R 10/2 The water cycle; water shortages, availability, use & supply

Week 2 FW: Chapters 2 & 3; AW: Part 1
T 10/7 Groundwater
R 10/9 Groundwater; competition and conflict

Week 3 FW: Chapters 4 & 5; AW Part 2 (Chapters 6 – 11)
T 10/14 Soil water – vadose zone
R 10/16 Vadose zone – continued; Rivers & streams

Week 4 FW: Chapters 5 & 6; AW: Part 2
T 10/21 Exam 1
R 10/23 Rivers & streams at work

Week 5 FW: Chapters 6, 7 & 8; AW: Chapter 8 and Part 5
T 10/28 Rivers & streams at work – continued; Lakes
R 10/30 Lakes – continued; Ice

Week 6 AW: Parts 5 & 6
T 11/4 Water security, water footprints – Melissa McCracken, lecturer
R 11/6 Water quality – arsenic and other constituents – Lauren Smitherman, lecturer

Week 7 FW: Chapter 9 & 10; AW: Chapter 29 and Part 3 (Chapters 12 – 18)
T 11/11 Water quality
R 11/13 Exam 2
WEEK 8  AW: CHAPTER 6 AND PART 4 (CHAPTERS 19-24); READINGS IN WATER RESOURCES IMPACT, ETC.
T 11/18 Water policy; science & policy
R 11/20 Water policy; science & policy - continu
WEEK 9  READINGS IN WATER RESOURCES IMPACT (NOVEMBER 2006 AND MAY 2014)
T 11/25 Normative Science: Advocacy & The Scientist - Dr. Robert Lackey (Guest lecture)
R 11/27 No class - Thanksgiving

WEEK 10  AW:  PART 6 (CHAPTERS 29 -35); READINGS IN WATER RESOURCES IMPACT (JANUARY 2014)
T 12/2 What the future holds; water-food nexus
R 12/4 What the future holds – more. Information on final exam (12 December)

Week 11 – Exam 3 (Final Exam) will be on Friday, 12 December, 9:30 AM, Owen 102

Exam 1 includes all lecture material & readings from 30 September through 16 October.
Exam 2 includes all lecture material/readings covered since Exam 1.
Final Exam will cover the entire course, emphasizing the material covered since Exam 2

“The road to help is paved with good intentions.” – Tracy Baker

“No policy without a calamity.” – Dutch saying

NOTE: The instructor reserves the right to modify this information. You will be notified of any modifications.