GEOGRAPHY 438 WESTERN WATER RESOURCES & MANAGEMENT

COURSE DESCRIPTION
This course provides an overview of the water resources issues facing the public, resource managers, and water users in the western United States today, including both water distribution/allocation and water quality issues. Students will learn the terminology, concepts, and regulatory environment that provide the foundation for contemporary water policy and water resources and water quality management in the western U.S. They will learn to critique and use various sources of information and reformulate perspectives on water issues based upon what is learned in this course.

CATALOG DESCRIPTION
Examination of water issues facing the public, resource manager, and water users in the western U.S., including both water allocation and water quality management.

PREREQUISITES
Completion of CO1 - CO3.

COURSE OBJECTIVES
In this course students will meet the Silver Core Curriculum Objectives #9 Science, Technology, and Society.

Core Objective 9 (Science, Technology, and Society)
Students will be able to connect science and technology to real-world problems by analyzing scientific data related to a problem of societal concern, be able to discriminate between sound and unsound interpretations of data, employ cogent reasoning methods in their own examinations of problems and issues; and evaluate the applications of science and technology in societal contexts.

STUDENT LEARNING OUTCOMES
Upon completion of this course, the successful student should be able to:
1. Explain the terminology, concepts, and regulatory environments that provide the foundation for contemporary water policy and water resources and water quality management in the western U.S.
2. Critique and use various sources of information about water allocation and water quality management.
3. Develop cogent reasoning methods in examining problems and issues associated with water resources and management in the western US. (CO9)

ASSESSMENT
SLO #1 will be assessed by evaluating the midterm exam to assess the effectiveness of students’ use of terminology, understanding of concepts, and knowledge of regulatory environments.

SLO #2 will be assessed in students’ presentation of an article or book. Students will be evaluated regarding their critique and use of various sources of information about water allocation and water quality management.

SLO #3 (CO9) will be assessed in the final exam. Students will be evaluated to determine the degree to
which they can develop a cogent approach for a hypothetical yet realistic water resources scenario in the western US.

**SCHEDULE & INFORMATION**

This course will meet on Wednesdays 2:30 to 5:15pm in Mackay Science Building, room 321 as well as for field trips on Analyze ways in which ethnic and racial groups within the US differ and how such differences position them in relation to one another and become articulated in places and landscapes. (CO10selected dates (more below on this). I encourage you to visit during my office hours (Mondays & Wednesday 1:30 to 2:30pm) about any aspect of the course or make an appointment. My office is located in Mackay Science room 302. I can also be reached by email.

**COURSE REQUIREMENTS**

Grading for this course will utilize the University's grading policy which allows for letter grades with the possibility of a plus or a minus (eg., it is possible to get a C+ or an A-). Your grade for this course will be based on the following items:

150 points  Class attendance and participation  
200 points  Field Trips & Write-ups  
150 points  Presentation on an Article or Book  
250 points  Midterm Exam  
250 points  Final Exam  

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1,000 points  TOTAL

A plus/minus grading scale will be used:

- A  93-100%
- A-  90-92%
- B+  87-89%
- B   83-86%
- B-  80-82%
- C+  77-79%
- C   73-76%
- C-  70-72%
- D+  67-69%
- D   60-66%
- F   less than 60%

Late assignments must be approved prior to the deadline to receive credit. With prior approval, 10% of the total possible points will be deducted from the grade of any assignment that is late. Any exam taken late must be arranged for in advance.

**CLASS ATTENDANCE AND PARTICIPATION**

You are expected to attend each scheduled class period. If for some reason, you are unable to attend a class period you may want to contact a classmate to get notes for the missed class but remember, it is more difficult to absorb material from another person’s notes than it is to understand materials presented while you are in class. If you miss a class, contact me to let me know about your situation. Each missed class will count against your attendance score and will obviously influence your ability to participate as well.
I expect active involvement by all students throughout this course. Feedback and discussion are important to understand and assimilate the materials presented in this course. Do not hesitate to ask questions or contribute comments on the readings, lectures or assignments at the appropriate time. I may question you about the assigned readings, previous lectures, and discussions to insure that these materials are absorbed.

**Assigned Readings**
All assigned readings should be completed **before the assigned class period**. Assigned readings are available on the course WebCampus. On the syllabus and on WebCampus each reading is labeled with the author(s) surname and the date of publication.

**Field Trip & Write-ups**
One of the highlights of this course are the field trips. These trips give you the opportunity to meet, listen to, and talk with professionals and others involved in water management & policy and where possible, get a sense for things as they happen on the ground. Here is a list of field trips:

- September 18 — upper Carson Valley – agricultural water use & riparian restoration
- September 26 – Reno, lower Truckee River & Pyramid Lake – water-based recreation, transbasin diversions & tribal water issues
- October 4 – Fallon – irrigation district management & tribal water issues
- October 14 – Tahoe – non-point source pollution control & stormwater management
- October 29 – Carson City – water policy & regulation development & implementation
- November 11 – near Reno – ranching water use, erosion control & municipal wastewater treatment
- November 20 – Reno & Carson City – municipal water treatment

More details will be provided in advance of each field trip. Write-ups of a page or so for the each field trips you participated in will be due a week after the field trip.

**Student World Water Forum & Write-ups**
The Student World Water Forum (SWWF) is an annual conference event organized by students with presentations by students on many aspects of water issues. This year the SWWF will take place on **Thursday and Friday November 21 & 22** at the J. Crowley Student Union. Undergraduate students will attend and evaluate all the presentations in at least 2 sessions. Write-ups of a page or so for the each session you attended will be due the class following the SWWF, **December 4**. You may receive extra credit for attending 1 or 2 more sessions and doing write-ups on these (25 pts/session write-up). More details will be provided throughout the semester as the SWWF organizing committee develops information & schedules.

**Presentation of a Journal Article or Book**
Select a journal article or book on an aspect of water management or policy in the western US that particularly interests you that you will read and make a presentation to the class. Email at least 2 choices of articles or books to me on **October 2** and I will approve one of these. Presentations will be in the first half of the class
period on **November 6 & 13**. Prepare and deliver a 5-minute presentation that includes a brief summary of the reading’s key points, points out relevant examples or information, describes what is particularly interesting about the reading, and discusses the relevancy to the course materials. Provide an electronic copy of your presentation at the end of class.

**MIDTERM & FINAL EXAMS**
The midterm exam (for undergraduate students only) will consistent of true-false, multiple choice, matching, and short answer questions. It will be given at the end of class on **9 October**. All enrolled students (graduate and undergraduate students) will taking the final exam, which will be primarily short answer and essay questions, and will be given on our last class period, **4 December**.

**A NOTE ON PLAGIARISM**
Plagiarism (copying all or part of someone else’s work and passing it off as your own) is a serious form of academic misconduct and will not be tolerated in this class. The following definitions and possible courses of action are taken from the Academic Standards section of the university catalog:

> Academic dishonesty is defined as: cheating, plagiarism or otherwise obtaining grades under false pretenses. Plagiarism is defined as submitting the language, ideas, thoughts or work of another as one’s own; or assisting in the act of plagiarism by allowing one’s work to be used in this fashion.... Disciplinary procedures for incidents of academic dishonesty may involve both academic action and administrative action for behavior against the campus regulations of student conduct.... Academic action may include: (1) canceling the student’s enrollment in the class without a grade; (2) filing a final grade of “F”; (3) awarding a failing mark on the test or paper in question; (4) requiring the student to retake the test or resubmit the paper.

“The work of another” does not just mean whole papers or articles copied from another source. It includes any information, ideas, sentences, or phrases that came from somewhere other than your own head (i.e. books, articles, internet sites, videos, documents, lecture notes or handouts from other courses, and any other sources used in your paper). These must be properly acknowledged by providing references either in the text or in a footnote, along with a bibliography giving the complete publication information for all sources used in your paper. Even if you paraphrase someone else’s ideas and do not quote them directly, you still must acknowledge your source. Citations should also be given for little-known facts and statistics. Ignorance is not an excuse for plagiarism. If you are not sure whether you need to provide a source for a piece of information or how to cite a source, ask.

**OTHER INFORMATION**
If you have a disability and will be requiring assistance, please contact me or the Disability Resource Center (Thompson Building Ste. 101) as soon as possible to arrange for appropriate accommodations and keep me apprised of your situation.

Your student fees cover usage of the Tutoring Center (784-6801 or [www.unr.edu/tutoring](http://www.unr.edu/tutoring)), and University Writing Center (784-6030 or [www.unr.edu/writing_center](http://www.unr.edu/writing_center)). These centers can support your classroom learning.

In consideration of your fellow students and the instructor, turn off cell phones, IPODs, and laptop computers during class time unless you have prior permission to use them.
# Class Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Class Topics</th>
<th>Assigned Readings</th>
<th>Reminders</th>
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<tbody>
<tr>
<td>28 August</td>
<td>Introduction</td>
<td>----</td>
<td>Welcome!</td>
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<tr>
<td>4 September</td>
<td>Basics of Hydrology</td>
<td>Pielou 1998; Cowell &amp; Urban 2010</td>
<td>Select field trips</td>
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<tr>
<td>11 September</td>
<td>Basics of Water Law</td>
<td>Wolfe 1996; Getches 2005</td>
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<tr>
<td>18 September</td>
<td>No Class -- Field trip #1</td>
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<tr>
<td>25 September</td>
<td>Diverting Water, Storing Water</td>
<td>Goshnell &amp; Kelly 2010</td>
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<tr>
<td>2 October</td>
<td>Irrigation &amp; Agricultural Water Mgt.</td>
<td>Raley 2001</td>
<td>Select article or book (undergrads only)</td>
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<tr>
<td>9 October</td>
<td>Water Quality Mgt.</td>
<td>NAS 2008</td>
<td>Midterm Exam</td>
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<td>16 October</td>
<td>Municipal Water Supply Mgt</td>
<td>Jenkins 2009; NACWA et al 2013</td>
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<tr>
<td>23 October</td>
<td>Water Policy &amp; Its Implementation</td>
<td>Leshy 2009; Little 2009</td>
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<tr>
<td>30 October</td>
<td>Water Conservation</td>
<td>Woodard 2009; Woodhouse 2009; Larson et al 2009</td>
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<tr>
<td>6 November</td>
<td>Water Markets &amp; Privatization</td>
<td>Matthews 2003; Draper 2008</td>
<td>Article/book pres. #1</td>
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<tr>
<td>13 November</td>
<td>Prospects for the Future</td>
<td>Jehl 2003</td>
<td>Article/book pres. #2</td>
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<tr>
<td>20 November</td>
<td>No Class – Field trip #7</td>
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<td></td>
</tr>
<tr>
<td>27 November</td>
<td>No Class</td>
<td>----</td>
<td></td>
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<tr>
<td>4 December</td>
<td>Final Exam</td>
<td>----</td>
<td>Field trip write-ups &amp; SWWF write-ups due</td>
</tr>
</tbody>
</table>

1. Field trip #2 is on Thursday 26 September
2. Field trip #3 is on Friday 4 October
3. Field trip #4 is on Monday 14 October
4. Field trip #5 is on Tuesday 29 October
5. Field trip #6 is on Monday 11 November (Veteran’s Day holiday)
6. The Student World Water Forum is on Thursday 21 November & Friday 22 November