

## Title: Climate Change and Water Resources

Water or Natural Resources 220

Fall 2019

Instructor: Dr. Katherine Clancy

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**Office hours:** Monday 2-3, and Wednesday 10-11 or by appointment

**Course Description:** With global warming and increased population, the demands upon world water resources have passed a critical level. In this course, past and present climatic trends are presented using case studies of diverse global regions. Through these case studies we will explore how the availability of water has shaped culture, agriculture, and diet. In addition, we will examine how past and present stressors on available water have been dealt with in different regions.

**Learner Outcomes** After attending lectures, participating in online discussions and the assessments, students will be able to do the following:

- Describe how climatic proxies (i.e. tree rings) are used to interpret climate change and evaluate evidence of climatic change and global warming.
- Explain the differences between global warming, greenhouse effect, enhanced greenhouse effect, and greenhouse gases.
- Describe how climate change has affected various global regions differently in the past millennium.
- Relate how water management strategies will either exacerbate or mitigate future climate change.

### Required Reading:

Fletcher, Charles: Climate Change: What Science Tells Us Wiley, 2013. (text rental)

Additional ONLINE course content is on MetEd (you will need to register and login) <https://www.meted.ucar.edu/>

Quiz Information and Schedule (for details on the extra credit quizzes see the syllabus)

You will need to register to access the Met Ed site. It is free and simple to do. If you have difficulty, then make sure you review the PowerPoint called "getting started" in the content section called "Getting Started"

## SCHEDULE

The weeks below are dated to give you a calendar that corresponds to the lecture topics and weeks in D2L. The topics are listed on D2L.

Week: Date	Topic (online)	Reading/Event
1: Sept 2-6	Major Topics in Climate Change, Greenhouse effect	Fletcher Ch 1 (p 5-22); online reading
2: Sept 9-13	Greenhouse Gases	Fletcher Ch 1 (p. 22-34);online reading
3: Sept 16-20	Proxies, Past Climates and Glaciations	Chapter 3 (p 74-86); online reading
4 Sept 23-27	Overview of Climate Change and why it is a difficult topic to discuss, (TNR 170), Sept 26	Chapter 3 (p 86-102)
5: Sept 30-Oct 4	<b>Exam 1 (online) available 9/29-Oct 7th</b>	
6: Oct 7-11	Water Resources and Water allocation	Online reading
7: Oct 14-18	Climate Impacts to Fresh and marine water environments	Fletcher Ch 5;
8: Oct 21-25	Floods and Droughts	Fletcher Ch 6;
9: Oct 28-Nov 1	Case Studies, <a href="#">online review</a>	Online material
10: Nov 4-8	<b>Exam 2 (online) available Nov 4-11</b>	
11: Nov 11-15	Kyoto Protocol and other Climate Change Policies	Fletcher Ch 4; Ruddiman 13-17
12:Nov 18-22	IPCC scenarios and management strategies	Fletcher Ch 4 Happy Thanksgiving

13: Nov 25-29	Kyoto and Montreal Protocols	Fletcher Ch 4;
14: Dec 2-6	<b>Climate Solutions and Review (Dec 5<sup>th</sup>) and Exam 3</b>	<b>Available 12/5-Dec 11th</b>
15: 9-13	<b>Review</b>	
Final Exam:	<b>Cumulative final exam will be available from</b>	Final exam will be open from Dec 13-Dec 18th

## POLICIES AND OTHER CONSIDERATIONS

### I. UWSP Community Bill of Rights and Responsibilities

UWSP values a safe, honest, respectful, and inviting learning environment. In order to ensure that each student has the opportunity to succeed, a set of expectations have been developed for all students and instructors. This set of expectations is known as the Rights and Responsibilities document, and it is intended to help establish a positive living and learning environment at UWSP. For more information go to:

<http://www.uwsp.edu/stuaffairs/Pages/rightsandresponsibilities.aspx>.

The Rights and Responsibilities document also includes the policies regarding academic misconduct, which can be found in Chapter 14. A direct link can be found here: <http://www.uwsp.edu/stuaffairs/Documents/RightsRespons/SRR-2010/rightsChap14.pdf>.

### II. Americans with Disabilities Act

The Americans with Disabilities Act (ADA) is a federal law requiring educational institutions to provide reasonable accommodations for students with disabilities. For more information about UWSP's policies, check here:

<http://www.uwsp.edu/stuaffairs/Documents/RightsRespons/ADA/rightsADAPolicyinfo.pdf>.

If you have a disability and require classroom and/or exam accommodations, please register with the Disability Services Office and then contact me at the beginning of the course. I am happy to help in any way I can. For more information, please visit the Disability Services Office, located on the 6<sup>th</sup> floor of the Learning Resource Center (the Library). You can also find more information here: <http://www4.uwsp.edu/special/disability/>.

### III. Attendance and Participation

Professional behavior is expected toward your classmates and instructor. It is highly unusual that there is a problem of this nature, but I will not tolerate such behavior. Slurs against a person's gender, race, religion, sexual orientation, political affiliation or essentially attacks against a person are not tolerated in this class or on this campus (and in professional settings). This requirement does not restrict your freedom of speech associated with expressing your opinion. Learning how to express opposing opinions without becoming emotive or insulting is an excellent skill to acquire.

If the behavior is identified in the online class environment or via email and it is not corrected, then it may be followed by removal of your extra credit and/or a deduction of 10 percent of your final grade. Extreme measures can result in a discussion with the Dean of Students.

### IV. Grade Calculations

Grade Distribution:

Weekly Quizzes: 4pts each for a total of 10, 40 pts

Discussions: 20 points each, three discussions for a total of 60 pts

Three best unit exams out 4 (including final exam) 300 pts

Total Points=400

Grade	Percent	Grade	Percent
A	93-100%	C	70-74%
A-	90-93%	C-	65-69%

B+	87-89%	D+	62-64%
B	83-86%	D	55-61%
B-	80-82%	F	< 55%
C+	75-79%		

## V. Exam/Test Policy

Tests are open notes. You may not work with another person. Your lowest test score is dropped. Failure to take a quiz or an exam will be recorded as a zero.

## VI. Quizzes

Quizzes are online are open notes and open book, but you may not work with another person. Do not take a quiz while logged into another person's computer. Do not take quizzes side by side with another classmate. Do not involve yourself in behavior that gives the appearance of cheating.

The best place to take quizzes is on campus because of the fast internet connection. If this is not possible, then choose a location where you will not be disturbed. The quizzes will time out after a while, and this will count as a quiz trial. For example, I do not recommend that you take quizzes at work if you will be called away or disturbed for long periods of time. **If you need help finding a suitable location to take your online quiz, then let me know.**

## VII. Discussions

Discussion are 2 parts. First, you are required to post something. Second, you are require to respond to at least two other posts. There will be separate deadlines for the first post and the response. You will be given one week to formulate a post and a week to respond. Failure to meet the post deadline will result in an automatic deduction of 3-5 pts (why 3 to 5 points? First time is 3, second time is 4, third time is 5). Students who post late, hold up other students from being able to get their responses done. Please contact me if you are having serious difficulties (personal, health, family, etc.), but generally there are no exceptions to this rule. Discussions are further graded on accuracy of content, grammar and spelling, and civility. You do not have to agree with the person, but **NO MATTER WHAT** you may not insult other classmates. Slurs against a person's gender, race, religion, sexual orientation, political affiliation or essentially attacks against a person are not tolerated in this class or on this campus (and in professional settings). This requirement does not restrict your freedom of speech associated with expressing your opinion. Learning how to express opposing opinions without becoming emotive or insulting is an excellent skill to acquire.