

NRES 441: Climate Change Implications, Policies and Solutions

Spring 2023
University of Wisconsin-Stevens Point
College of Natural Resources

3 credits
Classroom: TNR 271
Lecture: Wednesday 11-11:50 am
Discussion: Thursday 9-10:50 am

Instructor

Nancy Turyk
Email: nturyk@uwsp.edu
Office hours: Wednesday 11 am - 12 pm or by appointment

Course Description

Many communities and ecosystems around the world are experiencing the results of the warming climate and changing climactic patterns. This course focuses on addressing climate change implications on the sustainability of social-ecological systems. We will explore climate change impacts on the biosphere, people and societies and identify resource management and community sustainability challenges. We will introduce potential actions and approaches for climate adaptation, mitigation, resilience, and policy solutions that will help students gain hands-on experience in understanding and developing resilient community and sustainable management approaches. To gain real-world experiences in addressing climate change issues, you will be engaged in the examination of actual place-based impacts and community practices and will develop a semester project focused on watershed and community climate action planning. We will also have guest speakers to connect you with professionals who are working with climate change resilience in their occupations.

Course Philosophy

Students learn best when they are applying what they learn. In this course, lectures will be used to illustrate important concepts and discussions will primarily be focused on the application of lecture and reading materials to complete your semester project successfully. I am here to facilitate your learning by providing tools, data, and assistance in finding the information that you need for enhanced learning and success.

Learning Outcomes

In addition to the tasks listed above, students will develop several professional skills in this course. Upon successful completion of this course, students will be able to:

1. Explore and assess implications of climate change on social-ecological systems from a real-world perspective.
2. Examine and apply resources, tools, and methods for mitigation/adaptation/resilience planning and policy solutions for climate change.
3. Strengthen skills on collaboration and working effectively in a team-environment.
4. Communicate plans and ideas in writing and verbally to peers and the public.

Readings

All required and supplemental readings will be posted in CANVAS.

Attendance and Grading

Attendance is mandatory in all lecture and discussion classes. You are also expected to actively participate in classes and complete your work on time. If any problem arises, please contact me as soon as possible. There will be no makeup assignment or exam unless you have made prior arrangements with the instructor. All late assignments will be met with a 10% reduction in your grade each day (including weekends). That said, I expect this class to be fun, and you will be

given multiple opportunities in class to ask questions and think about how you will apply course concepts to your project and profession. You will also need to spend a considerable amount of time outside of class working on developing your watershed climate action plan.

Individual and Group Assignments

The following is a summary of the individual and group assignments; details will be introduced in class as we progress. Upon completion of all group assignments, self and peer evaluations will be completed by each group member and emailed to me. As I expect your best effort within your group project, grades can be changed by up to 20 points to address situations where student performance within the group does not meet expectations.

I. Public perception survey

One of the biggest challenges in addressing climate change issues is a lack of public awareness and climate literacy. To learn more about public perceptions and understanding of climate change issues, I ask you, as a member of a group, to conduct a brief in-person campus survey. Your group will then analyze and summarize the survey findings, review existing literature on public perceptions on climate change and submit a 2-page written report in CANVAS.

II. Climate change impacts case study

As we explore implications of climate change on different aspects of social-ecological systems, you will work with your group to select a theme from a list that may include impacts on forest ecosystems, food and agriculture, water and sea level rise, human health, industry, and energy supply. As a group, you will examine and review the relevant literature to give a detailed presentation on the selected topic to the class.

III. Climate action plan assessment

Many countries, states, and local governments have developed climate action plans to mitigate and adapt to the changes. To familiarize you with these action plans and to prepare for your semester group project on climate action planning, each member of your group will assess a plan from a provided list and, as a group, you will submit a comparative analysis of strengths and shortcomings of the plans along with your recommendations for improvement.

IV. Semester Group Project: Watershed climate action plan

This is the primary lesson of this course that provides you with real-world experience utilizing existing data and information and applying tools and methods to develop an adaptation plan and find policy solutions to deal with changing climate patterns. Based on your understanding of potential climate change impacts and familiarity of methods and strategies in community climate plans, your group will be developing a climate action plan for your assigned community/watershed. Using relevant assessments, reports, and websites, you will identify actions strategies to reduce impacts from climate change and opportunities for resilience, adaptation, and greenhouse gas mitigation in the built, agricultural, and natural landscapes.

There are three components to the assignment—(i) develop a draft plan that is more than 60% complete, (ii) present the plan and ideas in class, and then, (iii) considering instructor's and class feedback, complete the final report and submit it in CANVAS.

V. Climate change communication

To learn how to communicate about climate change with the public and other targeted stakeholders, in this assignment you will develop a 1-page flier with graphics and key communication messages based on a climate change issue and action(s) identified in your watershed climate action plan. Submit your work in CANVAS.

VI. Class attendance/ participation

Attendance of class lectures and active participation in class discussion is mandatory.

VII. Weekly discussion/ reflections

There will be a weekly discussion thread in CANVAS. You will be asked to post key takeaways from each week's assigned readings, lectures, and discussions. You can also consider posting questions, comments, news, events, photos, videos, and other relevant current topics and issues that help increase our understanding of climate change and policy.

VIII. Mid-term & Final Exam

There will be two exams consisting of multiple choice, short answers, or essay questions. The exams must be taken during the scheduled times. Make-up exams will not be given unless there is a documented, valid reason for missing the scheduled exam.

Summary of Deadlines / Assignments

Due Date	Assignments	Brief Description	Points
Week 3	Group	Public perception survey	50
Week 5	Group	Impact case study presentation	50
Week 8	Group	Climate action plan assessment	50
Week 8	Individual	Mid-Term Exam	50
Week 11	Group	Watershed climate action plan - draft	20
Week 13	Individual	Climate change communication piece	30
Week 14	Group	Presentation on Watershed climate action plan	50
Week 15	Group	Watershed climate action plan - final	50
Finals	Individual	Final Exam	50
Assignments must be submitted to CANVAS unless otherwise noted.			
All weeks	Individual	Class attendance and participation	50
All weeks	Individual	Weekly discussion/reflections in CANVAS	50
Total			500

Percentage ranges for letter grades

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

Academic Integrity, CANVAS, and turnitin.com

Familiarize yourself with the academic honesty policy of UWSP. In a nutshell, if you cheat, plagiarize, or turn in work other than your own, you will at a minimum receive a zero on that assignment. The CANVAS drop boxes are linked to turnitin.com; everything you submit will be compared to multiple sources to check for originality.

Accessibility Statement

If you have a learning or physical challenge which requires classroom accommodation, please contact the UWSP Disability and Assistive Technology Center with your documentation as early as possible in the semester.
www.uwsp.edu/datc/Pages/ (715) 346-3365; TTY (715) 346-3363

Course Schedule

The instructor reserves the right to make changes to the syllabus and schedule when necessary to meet the learning needs of the students and compensate for cancelled classes or other unforeseen circumstances.

		Topic	Reading	Assignments: **Due: Friday at 11:59 pm in CANVAS
Week 1 Jan 25-26	Lecture	Syllabus, icebreaker – Overview of Climate Change Issues		
	Discussion	Begin: Survey and literature review on climate change perceptions assignment History of Earth’s climate (Eggleton 2013, Ch. 8, 9)		
Week 2 Feb 1-2	Lecture	Factors forcing climate change	NASA: http://climate.nasa.gov/causes/ NAS Climate Change Evidence and Causes 2020	
	Discussion	Reading discussion and debate		
Week 3 Feb 8-9	Lecture	Climate change research, models, and predictions	IPCC Physical Science Basis Summary for Policymakers AR6 2021	**Perceptions survey results summary and email group evaluations
	Discussion	Discussion perceptions survey results and reading Begin: Climate change impact case study assignment		
Week 4 Feb 15-16	Lecture	Climate change impacts on the biosphere and societies	NOAA: http://www.noaa.gov/topic-tags/climate-impacts Wisconsin Initiative on Climate Change Impacts (WICCI) Assessment Report Choose a subchapter from the Land Chapter and the Water Chapter https://wicci.wisc.edu/2021-assessment-report/	
	Discussion	Reading discussion on impacts on the biosphere and communities including WICCI subchapters Work session: Impact case study assignment		
Week 5 Feb 22-23	Lecture	Impact case study presentations	Fourth National Climate Assessment- Sector Intersections and examples https://nca2018.globalchange.gov/chapter/17/	Case Studies (In-class) **email group evaluations
	Discussion	Impact case study presentations Reading discussion: Sector Intersections		
Week 6 Mar 1-2	Lecture	Climate change adaptation	Fourth National Climate Assessment Chapter 28; IPCC Report on Adaptation; U.S. Climate Resilience toolkit	
	Discussion	Begin: Climate action plan assessment assignment		
Week 7 Mar 8-9	Lecture	Climate-Smart conservation and community resiliency	Stein et al. 2014. Climate-Smart Conservation: Putting Adaptation Principles into Practice	
	Discussion	Work Session: Group work on Climate Action Plan Review		

		Exam Review		
Week 8 Mar 15-16	Lecture	Mid-Term Exam	IPCC 2014: Report- Mitigation; U.S. CC mitigation: https://nca2014.globalchange.gov/report/response-strategies/mitigation NCA4 Chapter 29 Reducing Risks Through Emissions Mitigation	Mid-Term Exam **Climate action plan assessment and email group evaluations
	Discussion	Climate change mitigation		
Spring Break!				
Week 9 Mar 29-30	Lecture	Watershed climate action plans	EPA community-based adaptation 2015; WICCI	
	Discussion	Guest: Bob Micheel, Director, Monroe County Land Conservation Dept. Begin: Watershed climate action plan		
Week 10 Apr 5-6	Lecture	Climate change communication and raising public awareness	Yale Climate Change communication program: https://climatecommunication.yale.edu/	
	Discussion	Discussion: Effective climate change communication Work session: Watershed/community climate action plan		
Week 11 Apr 12-13	Lecture	Climate change adaptation, culture, and traditional ecological knowledge	UCS: Importance of Traditional Ecological Knowledge, 2017; Tribal adaptation toolkit: https://toolkit.climate.gov/tool/tribal-climate-change-adaptation-planning-toolkit	** Draft watershed climate action plan and email group evaluations
	Discussion	Climate change adaptation and traditional ecological knowledge Guest: Cathy Techtmann, Environmental Outreach Specialist, UW-Madison Division of Extension Begin: Climate change communication assignment		
Week 12 Apr 19-20	Lecture	Policy tools: carbon trade, tax, dividend Guest: Nathan Sandwick, Portage County Community Development Educator, UW-Madison Division of Extension	OECD 2015. Climate Change Mitigation: Policies and Progress, Ch 1	
	Discussion	Reading discussion and Work Session: watershed climate action plan presentations and communication assignment		
Week 13 Apr 26-27	Lecture	Climate change and economics	RFF Paper (2006): The Economics of Climate Change	**Watershed climate action plan group presentations (in class) Email group evaluations
	Discussion	Watershed climate action plan group presentations		

Week 14 May 3-4	Lecture	Climate policy and negotiations	UNFCC 2015_ Paris Agreement; https://unfccc.int/documents ; https://sustainabledevelopment.un.org/sdgs	** Climate change communication assignment
	Discussion	Work session: Mitigation policy tools and practices, policy debate		
Week 15 May 10-11	Lecture	Climate change and sustainable development		**Final watershed climate action plan and email group evaluations **Climate change communication assignment
	Discussion	Work session: Global initiatives; Final exam review		
Final Exam: May 17, 2023 at 12:30 am in TNR 271				