

Fall 2019

SUST-402 | EPS-400 | GEOG-499 | POLS-400 | Climate Change & Sustainability

Instructor: Jessica Rowland
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UNM Learn: All articles, interactive websites, videos & podcasts available here: <https://learn.unm.edu/>

Course Description: Global climate change is one of the defining issues of the twenty-first century. Despite wide-spread consensus regarding the scientific basis of climate change, it has been challenging to develop and implement an effective policy response worldwide. Responding to climate change is a highly political process that is shaped by many factors, including one's understanding of climate variability and the impact of anthropogenic greenhouse gas emissions, the use of science in decision making, the link between climate change and economics, the relative importance of equity and justice, the nature of collective action problems, and the role of the market in solving global environmental problems. This course explores the environmental, economic, political and social frameworks of climate change and sustainability, and offers an integrated examination of climate science, environmental economics, and climate policy initiatives.

Course Objectives:

Students will:

- Explain the scientific context of climate change
- Assess feasible climate responses using environmental economic paradigms
- Evaluate the efficacy of existing and proposed climate policy strategies
- Recommend specific courses of action for society to mitigate or adapt to climate change
- Engage in community-level climate advocacy

The SUST-402 Climate Change & Sustainability course can fulfill either the Environmental Protection or Economic Vitality area of focus requirement for the Sustainability Studies Program minor degree. To declare the Sustainability Studies minor or to discuss the program, set up a meeting with Program Administrator Terry Horger via Lobo Achieve or email her at thorger@unm.edu.

Grading: Your grade will be determined from the following:

Attendance & Participation	10%
Laboratory Exercises	30%
Climate Advocacy	20%
Climate Policy Proposal	40%

A+	> 99%	B+	87-89.9%	C+	77-79.9%	D+	67-69.9%	F	< 60%
A	93-99%	B	83-87%	C	73-77%	D	63-67%		
A-	90-93%	B-	80-83%	C-	70-73%	D-	60-63%		C/NC not allowed

Attendance & Participation (10%): This class necessitates your active participation and team work, so it is required that you show up on time and participate fully in discussions* and activities. Your perspectives, knowledge, and enthusiasm are valuable and necessary to make the class a good experience for all involved. Materials are available on *UNM Learn*, organized in folders that correspond to topics on the syllabus. Note: *Graduate students will facilitate 1-2 class discussions/activities on relevant topics related to their research.

Laboratory Exercises (30%): During the semester, students will complete three (3) interactive activities that highlight the science, economics, and policy of climate change. Students will analyze data, synthesize information, and make recommendations in the style of a climate adviser. To ensure you receive full credit,

hardcopies of the laboratory exercises are due in class or electronic versions must be uploaded to *UNM Learn* by 5pm the day they are due. Late work will be accepted for only one week after the due date and will be graded down by 10 percent. Specific guidelines for each assignment are available on *UNM Learn*. Labs #1 and #2 will be done on your own outside of class; lab #3 will be completed in class in small groups.

Climate Advocacy (20%): We must not forget that our individual and collective actions matter, especially at the local level. As such, students will devise a unique plan of engagement to meaningfully contribute ten (10) hours of time to the climate community during the semester. Approved activities include participation in: symposia, rallies/marches, event planning/management, government meetings/working groups, social media strategy, grassroots advocacy, and directed research. *All students must participate in either the New Mexico Rising conference (Sept. 6&7) or the School Strike for Climate Action (Sept. 20).* Students will submit a log of activities and a brief write-up detailing their contributions to community climate advocacy.

Climate Policy Proposal (40%): Students will work in teams* to complete a semester long research project on a specific policy initiative related to climate change. The project will include a 5-page research paper and an in-class presentation, with several low-stakes milestones throughout the semester. As a diverse group of subject matter experts -- equipped with an essential understanding of climate science and economics -- your team will create a concise piece of policy that aims to reduce the impacts of climate change. You must ensure that the policy will institute measurable change that can be tracked over time. The policy can address either or both mitigation and adaptation strategies. Specific guidelines will be available on *UNM Learn*. Note: *Graduate students will complete the climate policy proposal as an individual project, and formally submit the proposal 1) to the most relevant entity or 2) as a conference paper.

CLASS POLICIES

Academic Honesty: At UNM, honesty is considered one of the cornerstones of academic development. All UNM policies regarding academic honesty apply to this course. Students should communicate and act, both in class interactions and in assigned coursework, in a manner directed by personal integrity, honesty, and respect for self and others. Academic dishonesty includes, but is not limited to, 1) plagiarism: claiming credit for the words or works of another, taken from any source – print, Internet, or electronic database – or failing to cite the source, 2) fabricating information or citations, 3) facilitating acts of academic dishonesty by others, 4) submitting the work of another person or 5) submitting work previously used for another course. Any incident of blatant academic dishonesty will result in the instructor reporting the student to the Dean of Students Office, and potentially a failing grade for the assignment or class, or expulsion from the university.

Internet & Email Responsibility: It is expected that students visit the *UNM Learn* course website regularly to stay up to date with course material. Check your UNM email account, as the instructor will use this account to keep in touch regarding course requirements, field trips or other updates. If you regularly use another email address, forward your UNM mail to that account. As a courtesy to the instructor, please observe proper *netiquette*. Instructor responses to student emails can be expected within 48 hours of receipt.

Technology: Be respectful of each other's learning by silencing cell phones and not using the internet while in class. Laptops may be used for the sole purpose of taking notes. No texting in class.

ADA Accessibility: Qualified students with disabilities needing appropriate academic adjustments should contact Accessibility Services (Mesa Vista Hall 2021; 505-277-3506) and inform the instructor as soon as possible to ensure your needs are met in a timely manner.

TITLE IX: In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered “responsible employees” by the Department of Education. This means that any report of gender discrimination (which includes sexual harassment, sexual misconduct and sexual violence) that is made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the [Office of Equal Opportunity](#) (OEO). Please note that UNM has three offices where you can confidentially discuss any incidents or concerns: [LoboRESPECT Advocacy Center](#), [Women's Resource Center](#) and the [LGBTQ Resource Center](#). The staff in these offices are specially trained advocates and do not share information with the OEO without a student's signed permission.

Schedule:

Class	Date	Topic	Read & Discuss	Assignment Due
I. Introduction				
1	T 8/20	Course Overview & Introduction	-Syllabus	Read the syllabus
2	R 8/22	Climate Literacy: The Essential Principles	-US Global Change Research Program, 2009	
3	T 8/27	Climate Advocacy: What Can We Do?	-UN, 2019 -Pierre-Louis, 2017	
II. Earth's Climate & the Science of Climate Change				
4	R 8/29	Earth's Energy Balance & Radiative Forcings	-NASA, 2009 -CSSR, 2017 ch#2	Climate Advocacy: Brainstorming
5	T 9/3	The Modern Climate System: Variability & Trends	-EarthLabs, 2017	
6	R 9/5	Understanding Climate Change: Paleoclimate Proxies	-NASA, 2005 -Bradley, 2015	
	<i>F 9/6 - S 9/7</i>	<i>New Mexico Rising: Making a Difference</i>		
7	T 9/10	Understanding Climate Change: The State of the Climate	-Eos, 2019 -NOAA, 2019	Climate Policy Proposal: Brainstorming
8	R 9/12	Understanding Climate Change: Climate Impacts	-CSSR, 2017 <i>E.S.</i> -EPA, 2016	Climate Advocacy: Submit overview
9	T 9/17	Global Carbon Cycle	-NASA, 2011	Lab Exercise #1
10	R 9/19	Climate Models & Projections	-CSSR, 2017 ch#4 -IPCC, 2014 <i>SYR</i>	
	<i>F 9/20</i>	<i>School Strike for Climate Action</i>		
III. The Economics of Sustainability & the Environment				
11	T 9/24	Ethics & Economics	-IPCC, 2014 <i>WG3</i> , ch#3 -Harris, 2017	
12	R 9/26	Economic Development & The Tragedy of the Commons	-Hardin, 1968 -Krugman, 2010	Climate Policy Proposal: Draft Outline
13	T 10/1	The Efficiency Standard	-Principles of Economics, 2016 ch#18.1	
14	R 10/3	The Safety Standard	-Goodstein, 2011 ch#5	
15	T 10/8	The Sustainability Standard	-Goodstein, 2011 ch#6, 7	Climate Advocacy: 5 hours completed
X	R 10/10	FALL BREAK – no class		

**This reading list is subject to modifications at the discretion of the instructor.*

Schedule:

Class	Date	Topic	Read & Discuss	Assignment Due
16	T 10/15	Environmental Valuation & Economic Impact of Climate Change	-Loomis, 2005 -Meyer, 2017	Lab Exercise #2
IV. Policy Solutions for Climate Change				
17	R 10/17	Climate Policy Discussion <i>Guest Speaker: Kelsey Rader, CABQ</i>	-Harris, 2017 - Project Drawdown	
18	T 10/22	Global Environmental Governance	-Rich, 2018 -IPCC, 2014 <i>WG3</i> , ch#13	Climate Policy Proposal: Final Outline
19	R 10/24	The Kyoto Protocol & the Paris Agreement	-Website: Kyoto Protocol -Website: Paris Agreement	
20	T 10/29	Mitigation: Emissions Trends & Transformation Pathways	-IPCC, 2014 <i>WG3</i> , ch#5 -CSSR, 2017 ch#14	
21	R 10/31	International Carbon Markets, Taxes, & Direct Regulation	-Principles of Economics, 2016 ch#18.2 -Pollitt, 2016 -Green, 2017	
22	T 11/5	US Climate Policy	-Plumer, 2019 -Jotzo, 2018 -Pew Research Center, 2018	
23	R 11/7	Business, Technology & Behavioral Strategies for Climate Change Mitigation	-IPCC, 2014 <i>WG3</i> , SPM -Griffin, 2017	
24	T 11/12	Climate Change Adaptation & Planning	-IPCC, 2014 <i>WG2</i> , SPM	
25	R 11/14	Climate Justice & Green Growth in the Developing World	-IPCC, 2014 <i>WG3</i> , ch#4 -Hansen, 2017	Climate Advocacy: Project due
26	T 11/19	Communicating Climate Change; Future of Climate Change Policy	-Leiserowitz, 2019 -Website: YPCCC	
27	R 11/21	Climate Stabilization Strategy Game	Website: Stabilization Wedges	Lab Exercise #3
V. Student Presentations & Course Wrap-Up				
28	T 11/26	Climate Policy Proposal Presentations		Climate Policy Proposal: Final Report
X	R 11/28	<i>THANKSGIVING – no class</i>		
29	T 12/3	Climate Policy Proposal Presentations		
30	R 12/5	Climate Policy Proposal Presentations		

**This reading list is subject to modifications at the discretion of the instructor.*