

## **SIO25: Climate Change and Society WI18**

Dr. Jane L. Teranes

Lectures: MWF 10:00-10:50am, Cognitive Science Building (CSB) 002

Final Exam: Friday March 23<sup>rd</sup>, 2018, 8am–11am

**Dr. Teranes' Office hours:** Wednesdays 1pm-3pm **Office:** Galbraith Hall 367

I am also available by email and by appointment.

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### **Graduate Students Readers/Graders for this course:**

Mikayla Ortega ([mjortega@ucsd.edu](mailto:mjortega@ucsd.edu)) and Leah Werner ([lewerner@ucsd.edu](mailto:lewerner@ucsd.edu))

### **Objectives:**

This course will focus on scientific understanding of global climate change and examination of policy questions. By the end of this course, you should be able to (1) understand and describe the physical basis of climate change; (2) identify and explain global symptoms of climate change (3) be familiar with technological, economic and political solutions for reducing greenhouse gas emissions (4) be able to effectively engage in the public policy debate on climate change solutions and (5) be able to accurately and effectively relate information on climate change to a general public audience.

### **Reading:**

-Required Book: Introduction to Modern Climate Change 2<sup>nd</sup> edition, Andrew Dessler, Cambridge University Press. 2016.

-The Intergovernmental Panel on Climate Change (IPCC) Assessment Report 5 Working Group 1 Summary for Policy Makers report (abbr.: IPCC AR5 SPM)

-Additional articles will be required and will be distributed and/or available online or on the course website (e.g. government websites, federal agency reports, journal articles, etc.)

### **Grading:**

10% i>clicker and discussion points

20% Homework assignments (assigned approximately weekly)

30% Two mid-term exams (15% each)

40% Final Exam (cumulative)

Extra credit: Additional campus seminars opportunities will be announced **in class** throughout the quarter.

### **Course Format:**

Class will consist of lecture material, assigned reading, in-class clicker questions, in-class discussion, homework assignments, mid-terms and a final. The lectures and required reading assignments form the significant portion of the class material and in-class clicker questions will regularly assess your understanding of the material. Weekly homework assignments will give you practice and experience with the material in the reading and the lectures. There are two mid-terms and a final that will assess your overall understanding of the course material.

**Course Schedule\***

<b>Date</b>	<b>Topic</b>	<b>Assigned Reading</b>
1/8	Top 10 Climate Stories of 2017 ...and what to expect in 2018	
1/10	Understanding Climate: A Primer	Dessler, Chapter 1
1/12	Who's Responsible?	Dessler, Chapter 1
1/15	Martin Luther King Holiday <b>No class</b>	
1/17	How is the Climate Changing?	Dessler, Chapter 2 Reading: IPCC AR5 SPM section B
1/19	The Symptoms of Climate Change: Extreme weather	Dessler, Chapter 9
1/22	The Symptoms: Shrinking Snowpack, Melting Ice	Dessler, Chapter 9
1/24	The Symptoms: Changing Oceans - Sea Level Rise and Ocean Acidification	Nat Geo: Rising Seas ( <a href="http://ngm.nationalgeographic.com/2013/09/rising-seas/folger-text">http://ngm.nationalgeographic.com/2013/09/rising-seas/folger-text</a> ) Pacific Marine Environmental Laboratory, NOAA ( <a href="http://www.pmel.noaa.gov/co2/story/What+is+Ocean+Acidification%3F">http://www.pmel.noaa.gov/co2/story/What+is+Ocean+Acidification%3F</a> )
1/26	The Symptoms: Ecosystems and Agriculture	Dessler, Chapter 9
1/29	The Science: Greenhouse Gases and the Greenhouse Effect	Dessler, Chapter 5, section 5.1 Greenhouse gases and our atmosphere's composition
1/31	The Science: Radiation and Energy Balance	Dessler, Chapter 3 IPCC AR5 SPM section B and C:
2/2	<b>Midterm #1</b>	
2/5	The Science: A simple climate model	Dessler, Chapter 4
2/7	The Science: The Carbon Cycle	Dessler, Chapter 5 Nat Geo: The Carbon Bathtub ( <a href="http://ngm.nationalgeographic.com/big-idea/05/carbon-bath">http://ngm.nationalgeographic.com/big-idea/05/carbon-bath</a> )
2/9	The Science: Climate Forcing, Feedbacks and Sensitivity	Dessler, Chapter 6 Reread: IPCC AR5 SPM section C
2/12	The Science: Putting it all together	Dessler, Chapter 7 IPCC AR5 SPM section D
2/14	What the Future Holds: Climate Scenarios	Dessler, Chapter 8 IPCC AR5 SPM section E.1-7
2/16	What the Future Holds: Climate Stabilization, Climate Change Commitment and Irreversibility	Dessler, Chapter 10 IPCC AR5 SPM section E.8
2/19	Presidents' Day Holiday <b>No class</b>	
2/21	Paleoclimate: A Long View of Climate Change	Reread Dessler, Chapter 2
2/23	<b>Midterm #2</b>	

2/26	Global Energy Consumption	TBD
2/28	Climate Change Solutions: A Primer	Dessler, Chapter 11
3/2	Climate Change Solutions: Mitigation	Dessler, Chapter 12
3/5	Climate Change Solutions: Climate Science and Policy The Paris Climate Accord	Dessler, Chapter 13
3/7	Climate Change Solutions: What will it take to “fix” the climate?	Dessler, Chapter 14
3/9	Where are we now and where do we go from here?	TBD
3/12	Climate Change in the United States, and what should we do about it?	The U.S. Global Change Research Program: Climate Science Special Report: Executive Summary
3/14	University of California report – Bending the Curve	Bending the Curve Executive Summary
3/116	Bending the Curve report (cont.) and What can you do?	Bending the Curve Executive Summary
3/23	Final Exam 8:00 AM	

\*The IPCC reading can be found as a pdf document in TritonEd. You can also access it here: [http://ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5\\_SPM\\_FINAL.pdf](http://ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_SPM_FINAL.pdf)

**Note:** The schedule of topics and assignments set forth in this syllabus is tentative and may be modified as needed throughout the quarter. In particular, additional required reading may be assigned. Notice of such changes will be by announcement in class or by written or email notice and any updates or changes to this syllabus will be posted on the course website at TritonEd.ucsd.edu.

### Course Policies:

Students are expected to attend class and remain in class for the duration of the session. Failure to attend class or arriving late may impact your ability to achieve course objectives which could affect your course grade. An absence, excused or unexcused, does not necessarily relieve a student of any course requirement. Late assignments will not be accepted. Regular class attendance is a student’s obligation, as is a responsibility for all the work of class meetings, including tests and written assignments. I conduct this class in an atmosphere of mutual respect and I encourage your active participation in class discussions. Integrity, honesty and respect are expected of all participants in their relations with other participants and instructors. **Any conduct during class discussions that seriously disrupts the atmosphere of mutual respect will not be tolerated.**

### i>clicker

We will be using the i>clicker student response system in class this quarter. Clicker questions will be based on reading assignments and class lecture material. We are using clickers to encourage you to complete the reading assignments before the class period, to keep up with the lecture material, and to engage more fully in the course content. I also use the i>clicker responses to better understand what you’ve learned from the reading and lecture so that I can review material in class as necessary. Class participation grades, which is your i>clicker points and discussion points, is worth 10% of your grade. **You must register your i>clicker in TritonEd.**

Important: I consider bringing a fellow student's i>clicker to class to be cheating and a violation of the UCSD academic integrity code. If you are found to have a i>clicker remote other than your own, or if you have registered points for classes that you did not attend, you will forfeit all your i>clicker points and may face additional disciplinary actions. See below for further statements on academic integrity.

**Academic Integrity Statement:**

Integrity of scholarship is essential for an academic community. This course will adhere strictly to the UCSD policy on academic integrity: "Students are expected to do their own work without unauthorized aids of any kind," as outlined in the UCSD Policy on Integrity of Scholarship. Academic misconduct will not be tolerated, and will result in disciplinary process. For details, see <https://students.ucsd.edu/academics/academic-integrity/ai-and-you.html>.