

## **SIO25: Climate Change and Society, FA14**

Dr. Jane L. Teranes

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

Final Exam: Friday December 19<sup>th</sup>, 2014, 8am–11am

**Dr. Teranes' Office hours:** Wednesdays 2-4pm **Office:** Galbraith Hall 367

I am also available by email and by appointment.

**Telephone:** 822-2099 **e-mail:** [jteranes@ucsd.edu](mailto:jteranes@ucsd.edu) **Course website:** [ted.ucsd.edu](http://ted.ucsd.edu)

### **Course Teaching Assistants:**

**Ewa Gassmann, Office hours:** by appointment **email:** [ewsawick@ucsd.edu](mailto:ewsawick@ucsd.edu)

**Martin Gassmann, Office hours:** by appointment **email:** [mgassmann@ucsd.edu](mailto:mgassmann@ucsd.edu)

Study session and review sessions: **Galbraith Hall 364** (Times TBD, but usually before homework assignments are due and before midterm and final exams.)

### **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 science of climate change; (2) identify and explain global symptoms of climate change and (3) be familiar with technological, economic and political solutions for reducing greenhouse gas emissions (4) be able to weigh the pros and cons of various solutions and (5) be able to accurately and effectively relate information on climate change to a general public audience.

### **Reading:**

-Required Book: The Climate Crisis: An Introductory Guide to Climate Change, Archer & Rahmstorf, 3<sup>rd</sup> edition, University Press, 2011.

-Recommended Book: The Thinking Person's Guide to Climate Change, Robert Henson, American Meteorological Society, 2014.

-Additional articles will be required and will be distributed and/or available on the course website (i.e newspaper articles, National Geographic graphics, IPCC summary reports, federal agency reports, journal articles, etc.).

### **Grading:**

-30% Homework assignments

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

-40% Final Exam (cumulative)

-Extra credit: Campus seminars that will be announced **in class** throughout the quarter.

### **Format and Course Policies:**

Class will consist of lectures, assignments and in-class discussions. There are required reading assignments that will form a significant portion of your understanding of the class material. There are required homework assignments that you will use to demonstrate your knowledge and will be a significant portion of your grade. Students are expected to attend every 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. Each of us may have strongly differing opinions on the various topics of class discussions. The conflict of ideas is encouraged and welcome. Questioning of the

ideas of others, including mine, is similarly welcome. 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.**

### 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>.

### Course Schedule\*

Date	Topic	Reading
10/3	Introduction	This syllabus
10/6	Understanding Climate	Archer & Rahmstorf, Ch. 1 and Henson Part 1
10/8	Earth’s Energy Budget	Archer & Rahmstorf, Ch. 2 and Henson Part 1
10/10	Greenhouse Gases <b>Homework #1 assigned</b>	Archer & Rahmstorf, Ch. 2 and Henson Part 1
10/13	Who’s Responsible?	Henson Part 1 and Henson Part 5
10/15	The Carbon Cycle	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>
10/17	Climate Change So Far (Part 1)	IPCC, 2013 Summary for Policy Makers (SPM) Archer & Rahmstorf, Ch. 3
10/20	Climate Change So Far (Part 2) <b>Homework #1 due</b>	IPCC, 2013 SPM and Archer & Rahmstorf, Ch. 3
10/22	Shrinking Snowpack, Melting Ice	Archer & Rahmstorf, Ch. 4 and Hensen Part 2: Ch. 6
10/24	Changing Oceans: Sea Level Rise	Archer & Rahmstorf, Ch. 5 and Hensen Part 2: Ch. 7 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>
10/27	Ocean Acidification: The Other CO <sub>2</sub> problem	Archer & Rahmstorf, Ch. 5 and Hensen Part 2: Ch. 7 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>
10/29	<b>Mid Term #1</b>	
10/31	The Longer View of Change	Archer & Rahmstorf, Ch. 6 Henson Part 3: Section 10 & 11
11/3	Climate Change over Millions of Years	Archer & Rahmstorf, Ch. 6 and Henson Part 3: Ch. 11
11/5	Glacial Cycles, Younger Dryas and our Current Interglacial	Archer & Rahmstorf, Ch. 6 and Henson Part 3: Ch. 11 Other reading TBD
11/7	The Last 2000 Years <b>Homework #2 assigned</b>	Archer & Rahmstorf, Ch. 6
11/10	Modeling the Climate System	Archer & Rahmstorf, Ch. 7 & Henson Part 3; Ch. 12
11/12	What the Future Holds (Part 1)	Archer & Rahmstorf, Ch. 7 and IPCC, 2013 SPM
11/14	What the Future Holds (Part 2)	Archer & Rahmstorf, Ch. 7 and IPCC, 2013 SPM
11/17	The Symptoms – Extreme Heat, Floods and Droughts <b>Homework #2 due</b>	Archer & Rahmstorf, Ch. 8 and Henson Part 2
11/19	The Symptoms – Ecosystems and Agriculture	Archer & Rahmstorf, Ch. 8 and Henson Part 2

11/21	The Symptoms – Climate Weirding	Archer & Rahmstorf, Ch. 8 and Henson Part 2
11/24	<b>Midterm #2</b>	
11/26	The Symptoms – assessing the risks to California	Reading TBD
11/28	Thanksgiving Break: No class	
12/1	Global Energy Consumption <b>Homework #3 assigned</b>	Archer & Rahmstorf, Ch. 9 and Henson Part 4, Ch. 14
12/3	Renewable Energy and Nuclear Energy	Archer & Rahmstorf, Ch. 9 and Henson Part 4, Ch. 16 “A Plan to Keep Carbon in Check” Socolow and Pacala
12/5	Transportation Solutions	Archer & Rahmstorf, Ch. 9 and Henson Part 4, Ch. 16
12/8	Action: Policy Solutions	Archer & Rahmstorf, Ch. 10 & Henson Part 4, Ch. 15
12/10	Action: Economic Tools and Financial Incentives	Archer & Rahmstorf, Ch. 10 & Henson Part 4, Ch. 15
12/12	Discussion, Final Review <b>Homework #3 due</b>	Henson Part 5

**\*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 [ted.ucsd.edu](http://ted.ucsd.edu).