

# Syllabus

## GEOS 489 – The science and politics of global climate change: A guide to the debate

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Eller O&M 906a

Office hours: Monday and Wednesday 2-3, or by appointment.

This course will investigate the policy and scientific debate over global warming. It will also explore our options for responding to climate change, and how to evaluate them. Finally, the present deadlocked political debate over global warming will be explored. This course is designed for senior- or graduate-level students.

Books:

Required: Dessler and Parson, *The Science and Politics of Global Climate Change: A Guide to the Debate*, Cambridge Univ. Press.

Linden, *The Winds of Change : Climate, Weather, and the Destruction of Civilizations*

Schedule:

Tues. Jan. 16. Introduction to the class

Class details

Read for next class: Kolbert, *New Yorker*, I

Dessler+Parson, chapter 1

Assignment: Who are you? (due 1/18)

Thurs. Jan. 18. Background on climate change & the debate

Due: Who are you?

Tues. Jan. 24. Positive vs. Normative questions

Read for next class: Dessler+Parson, 2.1, Forests, Tornadoes, and Abortion by

Pielke

Assignment: Make an argument (due 1/25)

Thurs. Jan. 25. How Science Works

Due: Your argument

Positive questions: How science works

Scientific method, peer review, replication, prediction

Read for next class: Oreskes on consensus, Kitzmiller on what is science (1-3, 64-89), remainder of chapter 2 of Dessler+Parson

Tues. Jan. 30: How Politics Works

Thurs. Feb. 1: The interaction of Science and Politics

Players & rules of engagement

How science is used in policy debates

Scientific assessments

Examples of environmental policy debates: ozone depletion

Tues. Feb. 6: The ozone-CFC issue

Thurs. Feb. 8: Basic physics of the greenhouse effect  
Greenhouse gases and budgets  
Effective temperature of the Earth  
One-layer and two-layer models and surface temperature  
The natural greenhouse  
Paleoclimate

Tues. Feb. 13: Climate forcing and feedbacks  
Water vapor, lapse rate, albedo, clouds

Thurs. Feb. 15. Is the climate warming?

Tues. Feb. 20: Are humans to blame?

Thurs. Feb. 22: What future changes can we expect?  
Climate models  
Emissions scenarios  
Future predictions  
Temperature  
Other elements of climate

Tues. Feb. 27: Impacts of climate change  
To climate system (human impacts discussed later)  
Hand out questions for exam

Thurs. March 1: Impacts and adaptation  
Impacts on humans

Tues. March 6: Review first half of class

Thurs. March 8: EXAM

March 13-15. SPRING BREAK

Tues. March 20: Policy options to reduce CO<sub>2</sub> emissions

Thurs. March 22: Balancing costs and benefits of various response options  
Discounting  
Marginal costs and benefits  
Geoengineering  
Risks  
Example: Should we use CFCs to warm a planet?

March 27-29. The political debate  
The advocates  
Present positions

April 3-5. The political debate (cont'd)  
Arguments against action and the use of science  
Example of a previous debate: ozone depletion

Tues. April 10: Discounting, costs of mitigation, costs of adaptation/impacts

Thurs. April 12: Cont'd: Costs of mitigation, costs of adaptation/impacts

April 17-19. The political debate

Elements of an effective response to climate change (cont'd)

Political strategies

Adjusting response over time

Tues. Apr. 24: Integrated assessment models

Thurs. Apr. 26: The future of the climate change debate

Tues. May 1: Review of semester

**Class evaluation:**

Bi-weekly writing assignments/homework —typically a few paragraphs of analysis of a reading assignment, class discussion, or news coverage of climate change (40%)

Mid-term exam (25%)

Final exam (25%)

Class participation (10%)

Grading scale:

A: 90-100

B: 80-90

C: 70-80

D: 60-70

F: below 60

This class will follow the University's policy for excused absences. For more information, please see Section 7 of the student rules: <http://student-rules.tamu.edu>.

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committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have the permission of that person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated.

If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, <http://student-rules.tamu.edu/>, under the section "Scholastic Dishonesty."

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Aggie Code of Honor: "Aggies do not lie, cheat, or steal, nor do they tolerate those who do." Instances of scholastic dishonesty will be treated in accordance with Section 20 of the TAMU Student Rules. Please inform yourself on the student rules regarding cheating, plagiarism, fabrication of information, conspiracy at the Code of Honor website:  
\*[www.tamu.edu/aggiehonor/](http://www.tamu.edu/aggiehonor/)\*