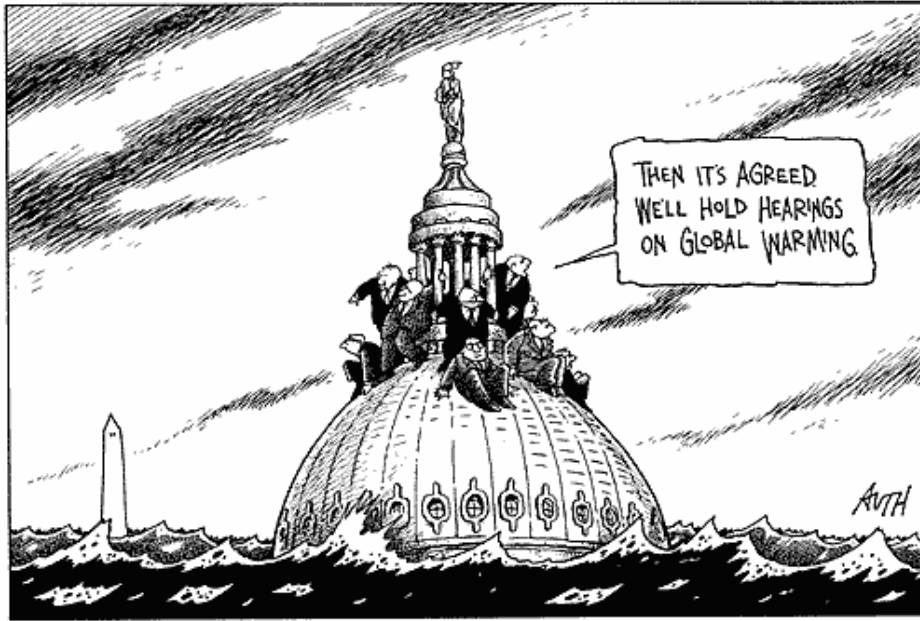


Environmental Studies 290
Climate Change: The Facts, the Issues, and the Long-Term View



Instructor:

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Office Hours:

Wednesday 1 to 3pm or by appointment

Class Meetings:

Tuesday, Thursday 11am-12:15pm Van Wickle 105

Course Description:

Members of the scientific community have considered the potential threat of human-induced climate change for decades, yet only recently has this issue emerged in the consciousness of the broader society. Despite a broad consensus among climate scientists that modern climate change is indeed happening, that human beings are largely the cause and that many of the potential impacts will be significantly detrimental, many people still uncertain about this threat. Why? Why too have governments been so slow to act to address it? What are the policy issues associated with humans' influence on the climate system and why are they so challenging and complex?

This seminar will consider the scientific evidence that has climate experts worried about the future, as well as the significant and global nature of economic, societal, ethical, and political-issues that human induced climate change raises. We will draw upon

the rich archive of information about past interactions between life and climate provided by Earth's geologic record. While this archive shows that humans are not the first organisms to fundamentally alter the climate system, it also illustrates just how dependent living things are on their environment for survival.

Course Materials:

- The Rough Guide to Climate Change 3rd edition by Robert Hansen (required)
- State of Fear by Michael Crichton (required)
- The St. Martin's Handbook 6th edition by Andrea A. Lunsford (required)
- Additional required articles will be made available as handouts or on Moodle

Course Philosophy:

As world population has expanded the interaction of societies with the Earth has become global in extent. It is one of these interactions, the effect of humans on Earth's climate, that we seek to explore. We will investigate both the science of climate change and how this issue bears on human societies from moral, political, and economic perspectives. This course is intended to help you think about the interconnectedness of life on Earth and Earth's environment, as well as how issues that impact the whole human experience are often challenging to address.

As human societies themselves become ever more complex and interconnected, having knowledge of and being able to communicate your ideas about global issues will be an indispensable skill. This course will be directed at helping you grapple with the large-scale issue of human-induced climate change. Along the way, we will work to improve your ability to critically evaluate the information you receive, assessing both the legitimacy and accuracy of that information and working to improve your skills at presenting your ideas effectively in both written and oral forms. To this end, class meetings will involve a variety of activities including: class discussions of scientific concepts, articles from the popular press, policy statements, and visual media; lectures; peer-review workshops; in-class writing activities; and student presentations.

Learning Outcomes:

After taking this course you should be able to:

- accurately summarize the science and major ethical and policy concerns of anthropogenic climate change;
- lead a small-group discussion about an article you have read or a film you have viewed;
- use evidence to evaluate the credibility of information and ideas;
- produce a variety of different types of academic writing (e.g. summaries, reflections, analyses, research papers);
- produce a well-developed and properly cited research paper and presentation.

Course Grading:

- In-Class Exam 10%
- Writing Assignment 1 15%
- Writing Assignment 2 15%
- Final Writing Assignment/Presentation 30% (10% presentation/ 20% paper)
- Class Participation 30% (~15% IFW/ ~15% in class)

In-Class Exam (10%):

The “in-class” exam will cover the basic principles of climate science. You will be tested on your mastery of important vocabulary and your knowledge and understanding of important concepts, which lay a critical foundation for your ability to understand the role humans play in climatic change.

Writing Assignment 1 “The Facts” (15%):

You have been commissioned by “The Lafayette” to write an article explaining the science of human-induced climate change. Your contribution should be something that all members of the campus community can understand, including incoming first year students who may not have any previous experience with climate science. Your article should be written in a way that captures your reader’s interest. It should explain the fundamental scientific concepts: Earth’s radiation budget, the greenhouse effect, and how human activity has influenced the climate system. It is your job to decide what specific aspects to focus on to capture and keep your audience’s attention. Because this is an article for a college newspaper it must be short and to the point. It is not to be less than 3 or more than 4 pages in length (double-spaced).

Lifestyle Project/ Writing Assignment 2 (15%)

One way to curb anthropogenic climate change is for individuals to reduce their consumption of goods and energy and increase the efficiency with which they use resources. How hard would it be to pursue a more ecological and less carbon intensive lifestyle? Through the lifestyle project you will learn the answer to this question first-hand. The lifestyle project is a three-week exercise in which you will be asked to achieve gradual, but definitive changes in your lifestyle in order to reduce your ecological and carbon footprints. During the project you will be required to keep a journal of your “project days” when you will either forgo or curtail your use of certain resources of your choosing. At the end of the project you will reflect upon your experience in a short paper. Your finished product is not to be less than 3 pages or more than 4 pages in length (double-spaced). If you choose not to participate in the project, you will be required to complete an alternative 2nd writing assignment.

Final Project (Writing Assignment/ Presentation) “The Issues” (30%):

The issue of human-induced climate change is complex and multifaceted. For your final project you are to select an aspect (e.g. economic, scientific, moral, religious, political) of the human-induced climate change issue to investigate in greater detail. **Your selected topic must be approved by the instructor.** This is a research paper. Thus, to complete this final assignment, you will need to draw upon resources we have examined in this course, as well as additional resources obtained through your own literature

search. Your task is to investigate in detail your chosen topic and write a position paper about that topic. In other words, your paper should not just be a summary, but an informed perspective with a well-defined thesis statement that the rest of your paper elucidates and supports. Your paper and final presentation should include a discussion of both the science of your topic as well as the related policy issues and questions. This paper is to be no less than 8 pages no more than 10 pages (double-spaced not including figures and references). During the last two weeks of class, you will be required to give a 10 minute presentation on your topic to the rest of the class. These presentations will be accompanied by class discussions.

Attendance and Participation (30%):

On-time attendance and active participation in class and on the field trip is a course requirement. This portion of your grade will be based on:

- 1) Active and informed participation in class discussions: Your comments in class reflect your level of preparation of the assigned reading and / or writing. Active participation means that you are engaged in the course and speak up enough to be a presence in the class. Because this course will be largely discussion based, your comments and the extent to which you prepare for class will directly affect not only how much you learn, but also how much your peers learn.
- 2) Periodically there will be short, informal homework or in-class writing exercises. These assignments are intended to help you explore in greater detail relevant questions or issues that arise from the reading or discussions.
- 3) Participation in the weekend field trip: The timing of the trip is listed in the tentative schedule. More information will be provided closer to the trip.
- 4) Assess your ecological and carbon footprint: You will make use of web-based and instructor-provided resources to assess your individual impact on the environment.

Writing Associate:

The College Writing Program, which helps to integrate the practice of writing in courses throughout the college, trains selected students as Writing Associates (WAs) and makes them available for courses in a wide variety of disciplines, the WA for this course will meet with each of you this semester for conferences to discuss drafts of your written work and engage you in conversation about your writing so that you can effectively revise your work. Each of you will meet with the WA four times during the semester. The WA is obligated to inform me of any late or missed appointments. I expect you to respect the WA's time. **Do NOT miss your scheduled meeting with the WA. If you fail to meet with the WA, your paper will not be accepted by the instructor.**

Late Assignments:

Late assignments will not be accepted unless a student has asked for and received an extension prior to the due date. Any requests for assignment extensions that occur after an assignment deadline, including extensions requested because of illness, must be accompanied by a Dean's excuse. In general, you will not be able to make up in-class or informal writing assignments.

Academic Honesty:

To maintain the scholarly standards of the College and, equally important the personal ethical standards of our students, it is essential that written assignments be a student's own work, just as is expected in examinations and class participation. A student who commits academic dishonesty is subject to a range of penalties. Including suspension or expulsion. Finally, the underlying principle is one of intellectual honesty. If a person is to have self-respect and the respect of others, all work must be his/her own.

Privacy Statement:

Moodle contains student information that is protected by the Family Educational Right to Privacy Act (FERPA). Disclosure to unauthorized parties violates federal privacy laws. Courses using Moodle will make student information visible to other students in his class. Please remember that this information is protected by these federal privacy laws and must not be shared with anyone outside the class. Questions can be referred to the Registrar's office.

Disability Statement:

In compliance with Lafayette College policy and equal access laws, I am available to discuss appropriate academic accommodations that you may require as a student with a disability. Requests for academic accommodation needs to be made during the first two weeks of the semester, except for unusual circumstances, so arrangements can be made. Students must register with the Office of the Dean of the College for disability verification and for determination of reasonable academic accommodations.

Diversity and Inclusiveness Statement:

Lafayette College is committed to creating a diverse community: one that is inclusive and responsive, and is supportive of each and all of its faculty, students, and staff. The College seeks to promote diversity in its many manifestations. These include but are not limited to race, ethnicity, socioeconomic status, gender, gender identity, sexual orientation, religion, disability, and place of origin.

The College recognizes that we live in an increasingly interconnected, globalized world and that students benefit from learning in educational and social contexts, in which there are participants from all manner of backgrounds. The goal is to encourage students to consider diverse experiences and perspectives throughout their lives. All members of the College community share a responsibility for creating, maintaining, and developing a learning environment in which difference is valued, equity is sought, and inclusiveness is practiced.

Please make sure your cell phones, iPods, and other electronic devices are turned off before the start of class and lab!

VAST 290 TENTATIVE SCHEDULE

INTRODUCTION	
Week 1	Human Perceptions of Climate and the Environment
	<i>Reading</i> RG "The Basics" - p. 3-48 ; "The Science - Keeping Track" p. 189-211
	<i>Assignment</i> Informal writing assignment: your perception of climate change
24-Jan	Course Introduction and Perceptions of Climate Change
26-Jan	Perceptions of the Natural World: Viewing & Discussion of "Rivers and Tides"
Week 2	An Introduction to Climate Change
	<i>Reading</i> RG " The Science - Circuits of Change p. 249-265; "The Symptoms" - p.51-81
	<i>Assignment</i> <i>Paper Topic 1 Assigned</i>
31-Jan	Viewing of " An Inconvenient Truth" CLASS ENDS AT 12:45pm
2-Feb	Discussion of "An Inconvenient Truth"
THE FACTS	
Week 3	Climate System Basics
	<i>Reading</i> RG "The Symptoms" p.82-186; Collins et al. 2007
7-Feb	Instructor Lecture
9-Feb	Instructor Lecture
	Initial Meetings w/ WA
Week 4	Assessment
	<i>Reading</i> RG "The Long View" p.212-248
	<i>Assignment</i> "Long Term View" Topics Assigned
14-Feb	Climate Systems Basics Peer-Review
	Draft of paper 1 DUE for peer-review
16-Feb	In-Class Exam: Climate System Basics
THE LONG-TERM VIEW	
Week 5	Lessons from Earth History
	<i>Readings</i> Prologue by Andrew Knoll (1 page) (handout)
	“When Methane Made Climate” – Kasting
	“Snowball Earth” – Hoffman & Schrag
	<i>Assignment</i> Informal Writing: short summaries of long-term view readings
21-Feb	Introduction to Long-Term View; Viewing of "Snowball Earth" movie
	Draft of paper 1 DUE to WA
	Mandatory Attendance - Dr. Richard Alley Lecture
23-Feb	Student Groups 1 & 2 led discussions of the reading

Week 6	Lessons from Earth History / Individual Emissions
	<i>Readings</i> "When Did Humans First Alter Climate?" – Ruddiman What can you do p.365-388
	<i>Assignments</i> 2 Paper Topic 2 Assigned Informal Writing: short summary of long-term view reading Analyze your ecological and carbon footprints
28-Feb	Student Group 3 led discussion of the reading/ discussion of ecological/ carbon footprints
1-Mar	Discussion of carbon footprints/ Begin Lifestyle Project <i>Final version of Paper 1 due to the instructor by noon 3/2</i>
THE ISSUES	
Week 7	International Mitigation Strategies
	<i>Readings</i> RG: "Political Solutions" p. 306-331 IPCC Readings: SPM 2007 Kyoto Protocol UNFCCC Readings TBA State of Fear p. 1-200
	<i>Assignments</i> Informal Writing: Climate Change Source Reflection
6-Mar	Discussion of the IPCC
8-Mar	Discussion of Kyoto Protocol/UNFCCC <i>Assignment 2 Lifestyle Project Journals Due</i>
Week 8	SPRING BREAK 3/10 - 3/18 Read "State of Fear"
Week 9	Climate Change and Government
	<i>Readings</i> short articles TBA State of Fear p.200-476
	<i>Assignment</i> <i>Final Project Assigned</i>
20-Mar	Climate and the Courts <i>Assignment 2 Lifestyle Journals Due or Draft of Alternative Assignment 2 Due to WA</i>
22-Mar	U.S. federal, state and local government action to curb climate change
Week 10	Climate Change in the Media
	<i>Readings</i> short articles TBA State of Fear p. 476-640
	<i>Assignment</i> Informal Writing: Locate/ Summarize Climate Science in the Media Articles
27-Mar	Library Research Workshop <i>Final Version of paper 2 due to instructor</i>
29-Mar	Discussion of Portrayal of Climate Science in the Media

THE ISSUES

Week 11 Public Perception of Climate Change

Readings RG "A Heated Debate" p.269-297
 Additional Readings TBA

3-Apr Discussion of challenges to mitigating climate change ("State of Fear")

Final Paper Topic Proposals Due to instructor

5-Apr Discussion of Impediments to climate change legislation/ Climate Change Source Reflection
4/5- 4/10 Mandatory Individual Meetings w/ Reference Librarian

Week 12 Mitigation/ Planning for the Future

Readings RG "Technology Solutions" p. 332-362

10-Apr Mitigation Strategies - Alternative Energy Sources (Alley video/ discussion)

12-Apr Technological Mitigation Strategies - Geoengineering

Outline of Final Paper Due to instructor by noon 4/13

Week 13 Mitigation/ Planning for the Future

Readings RG "The predicament" p.298-305
 short articles TBA

17-Apr Discussion of Mitigation Strategies - The Wedge Strategy

19-Apr Individual Reflections on Climate Change

Week 14 Class Presentations/ Discussions - Climate Science and Public Policy

24-Apr 10 minute individual student presentations of final projects and class discussions (**Attendance is Mandatory**)

Students with presentations Week 15 FINAL PAPER DRAFTS DUE to WA

26-Apr 10 minute individual student presentations of final projects and class discussions (**Attendance is Mandatory**)

Week 15 Class Presentations/ Discussions - Climate Science and Public Policy

1-May 10 minute individual student presentations of final projects and class discussions (**Attendance is Mandatory**)

Students with presentations Week 14 FINAL PAPER DRAFTS DUE to WA

3-May 10 minute individual student presentations of final projects and class discussions (**Attendance is Mandatory**)

FINAL PAPER due to instructor during Finals week – May 9th at noon