UNIV 200: Climate Change: Science & Ethics
Integrated Perspectives Course, Spring 2013
Mondays and Wednesdays, 3–4:22PM | Dana 134
Course Website: http://moodle.bucknell.edu/course/view.php?id=7631

Instructors
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Description of Subject Matter & Methods of Instruction
Since the Industrial Revolution, human activities have set in motion changes to the atmosphere that are predicted to cause dramatic changes in global climate and the environmental systems on which human societies depend. We are already beginning to see the effects of climate change on global economies and human well-being, but the largest impacts are still in the future.

What exactly is climate change, how do we know it is happening and that human activities are responsible? How much confidence should we place in predictions about climate 50 years from now, when meteorologists can’t predict the weather a month from today? Should we try to lessen our climate impacts? If so, what could be done, and what would it cost? Would it be easier to do anything at all and simply adapt to future changes as they occur?

In this course, we will explore these and other questions from a number of different angles. We will examine the theoretical basis and evidence for anthropogenic climate change using the perspective of Earth system science. We will use the lens of epistemology — the branch of philosophy that deals with how we know what we think we know — in order to understand how we construct, test, and update scientific knowledge, the roles of evidence and skepticism, how scientists handle errors and uncertainty, and how scientific knowledge differs from everyday thinking and understanding.

The really tough questions about climate change are not scientific or epistemological. What responsibilities do we have towards people in other places or to future generations? What are the roles of individual, state, and international actors in the climate change arena? How can we best approach such issues and navigate the political dissent surrounding climate change? These questions require a different perspective and lens altogether. They are the domain of ethics.

As you can see, the climate change problem is an inherently interdisciplinary problem. This is one of the reasons why it is a particularly difficult problem. And it is the reason that this is an Integrated Perspectives course. It is taught by a scientist and a philosopher of science who bring different backgrounds, methodologies, and perspectives to the table — just like you do. Accordingly, the primary mode of interaction in the course will be discussion and small-group work, though we will occasionally need to lecture, particularly at the beginning of the course.

Learning Goals: In successfully completing this course, you should:
- Gain a general understanding of the fundamental science of climate change and what current predictions portend for the Earth system, biodiversity, and human well-being;
- Gain a sophisticated understanding of the nature of scientific evidence as pertains the climate change problem: understanding the strengths, weaknesses, and uncertainties of these predictions.
- Become familiar with the different kinds of ethical frameworks through which questions about responding to climate change might usefully be addressed;
- Become familiar with the different perspectives and methodologies (particularly those of science, philosophy, and social science) needed to address the climate problem.
- Be able to effectively evaluate different scientific theories, ethical claims, and policy proposals related to climate change.
- Relevant CCC Goal: (4) develop knowledge and skills to identify and respond creatively and effectively to local and global challenges to humans and the natural world.

**Required Texts**


*Merchants of Doubt*, Oreskes and Conway (Bloomsbury Press)

Other articles will be available on the course website in PDF

**Requirements**

Your final course grade will be based on your performance on the following components. Note as well what the different letter grades represent. According to the Course Catalog (http://www.bucknell.edu/catalog.xml), an ‘A’ means ‘Superior achievement’, a ‘B’ means ‘High pass’, a ‘C’ means ‘Pass’, a ‘D’ means ‘Low pass’, and an ‘F’, of course, stands for ‘Failing work’. Unless you’re some kind of savant, it’s highly unlikely that you can produce ‘superior work’ (or even B-level, good, but uninspired work) without putting time and effort into your studies. At Bucknell, one credit courses have a minimum expectation of twelve hours per week of student academic engagement. Our time together represents less than three hours per week. You should thus plan to spend at least nine hours outside of class each week reading, engaging in the online discussion, visiting us in office hours, or doing other course related activities.

**Attendance & Participation (-20% to +20%)**

Note that, while few students ever exercise the option, it is possible to earn negative participation points for excessive tardiness or absences, disrespectful or disruptive behavior, and other impediments to your peers’ learning.

**Weekly Discussion Posting: (20%)**

Since much of our time in class will be spent discussing rather difficult problems and concepts, it will be crucial that you come prepared and willing to engage in the discussion. To this end, we will post some questions for reflection and discussion to which we will ask you to respond in the online forums in Moodle. You should write at least one post and one comment per week. Posts should address a discussion question for a given class by 2PM on the day of that class. Responses can come at any point during the week (i.e., before Sunday). Posts or replies in previous weeks’ forums will not be graded. As the term progresses, we will convert these forums to a small group format and provide opportunities for more open-ended interaction. Grades for each week will be assigned on a simple 0-3 basis (0= “not done”/“insufficient”, 1=“acceptable”, 2=“good”, 3=“excellent!”). We will count only your best ten weeks of posting, so if you want to simply not attempt a couple (you might be busy with other work or ill or what have you) that won’t hurt your grade. Otherwise, deadlines will be strict and extensions not granted.

**Quizzes: (20%)**

We will occasionally give short and unannounced (<5 minute) reading quizzes. These will be easy to pass if you have read carefully. More substantial (20 minute) quizzes will be announced in advance. In either case, missed quizzes cannot be made up without our assent (for legitimate, university-sanctioned reasons) prior to the class in question. Your worst quiz grade in each category will be dropped.

**Small Group Project & Report (40%)**

In small groups, you will produce a series of podcasts that will communicate to the general public a position or problem on one of the issues we’ve examined in the climate change arena. Each of you will be responsible for writing your own short script and accompanying report, but you will assemble these in coherent topical groups and collaborate on their production. Your groups will present these in the final day of class and we will discuss as a class how best to get them out to the public. Podcasts of sufficiently high quality will be
released as Public Service Announcements to local/regional radio stations.
— A podcast script (in the spirit of the “90 Second Naturalist”) — 10%
— A companion (single-author, 10-15 page) research report — 30%

**Other Course Policies & Information**

*Office Hours.* You are invited and encouraged to supplement your in-class learning by visiting either of us during office hours. You do not need to have any specific mission to accomplish. Feel free to drop by or make an appointment. You may also reach Prof. Slater via Skype or cell phone (address/number can be found in his email signature) during reasonable hours.

*Civility.* Cell phone conversations in class are not permitted. You may use your phone for texting/surfing in class, but only up to a maximum of four times, since each use will result in a deduction of one letter grade from your final grade in the course. Thus, we suggest you turn them off to avoid temptation. Please don’t fall asleep right in front of us (do we really have to say this?).

*Email Communication.* To avoid confusion and speed up responses, if you need to communicate with us by email, please include both of our email addresses in the “to:” line. Expect a reply within 24 hours.

*Academic Honesty.* We expect you to abide by Bucknell’s Honor Code: [www.bucknell.edu/x1324.xml](http://www.bucknell.edu/x1324.xml). In particular, unless otherwise instructed, your written work must correctly and completely cite all materials used (including primary sources, textbooks, and other materials from the internet). I will not hesitate to refer students who commit any form of academic dishonesty to the University Board of Review ([www.bucknell.edu/x1337.xml](http://www.bucknell.edu/x1337.xml)).

*Accommodations for the Disabled.* If you have a disability that may affect your work in this course, please talk to us (either by email or in person) at your earliest convenience and we will make every effort to accommodate your needs. If you have not yet spoken with the appropriate Associate Dean about your disability ([www.bucknell.edu/x7759.xml](http://www.bucknell.edu/x7759.xml)), please do so as soon as possible. Accommodations will need to be sanctioned by their office.

**Schedule**

Readings marked with an asterisk are recommended/optional supplements; all other readings are required. Please complete reading before class meetings at a level that will permit in-depth discussion of the issues.

<p>| <strong>Week 1:</strong> Introduction to the Course and the Issues | 1/16 |
| <strong>Week 2:</strong> The State and History of Climate Science | 1/21–1/23 |
| <strong>Week 3:</strong> Climate Science Evidence and Modeling | 1/28–1/30 |
| <strong>Week 4:</strong> The Nature of Science | 2/4–2/6 |
| <strong>Week 5:</strong> The Doubt Industry | 2/11–2/13 |
| <strong>Week 6:</strong> Climate Change Denialism | 2/18–2/20 |
| <strong>Week 7:</strong> Implications &amp; Projections | 2/25–2/27 |
| — Film: “Chasing Ice”, Tuesday 2/26 at the Campus Theatre, 7PM* | |
| <strong>Week 8:</strong> Mitigation | 3/4–3/6 |
| — Film: “The Island President”, Tuesday 3/5 at the Campus Theatre, 7PM* | |
| <strong>Week 9:</strong> Spring Break | 3/11–3/13 |</p>
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<td>12: Climate Change as an Ethical Problem</td>
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<td>13: Spatial and Temporal Justice</td>
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<td>15: Political and Economical Perspectives</td>
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*Counts towards participation grade. An alternative reading assignment will be available for those who cannot attend screenings.*