Course overview
Human-induced climate change - popularly known as "global warming" - is emerging as one of the great challenges facing society in the 21st century. In this course, we will examine the issues from an Earth Science point of view. The first half of the course, taught by Mike Wallace, will overview the basic science and analyze the state of current knowledge as expressed in 2007 report by the Intergovernmental Panel on Climate Change. The second half, taught by Tad Anderson, will focus on debates and solutions. We will examine the scientific claims made by advocates on both sides ("naysayers" and "alarmists" as they label one another) and we will consider in some detail the actions required to deal with this problem, such as transforming the energy basis of the world economy. Through in-class activities, exercises in quiz sections, and a classroom presentation, students will get a chance to develop their own understanding and perspective on these issues.

Class Webpage: http://www.atmos.washington.edu/2009Q1/111/

Meeting times and locations
Lectures: MTWTh, 10:30-11:20 KNE 220
Quiz: AA QZ F 1030-1120 MGH 254
      AB QZ F 1030-1120 MGH 238
      AC QZ F 1030-1120 MGH 234
      AD QZ Th 130-220 EEB 125
      AE QZ F 1230-120 MGH 238
      AF QZ Th 130-220 JHN 175
      AG QZ Th 230-320 MGH 242 [room change made on 1/5/09]
      AH QZ F 1230-120 MGH 234

Instructors:
Prof Mike Wallace, Office: ATG 504, Phone: 543-7390,
Office Hours: W 11:30-12:30, Th 1:30-2:30 or by appointment.
Prof Tad Anderson, Office: CHL 030, Phone: 543-2044,
Office Hours: W 11:30-12:30, Th 1:30-2:30 or by appointment.

T.A.'s:
Louise Leahy <lleahy@atmos.washington.edu>
Eric Sofen <esofen@u.washington.edu>
Stuart Evans <smevans@u.washington.edu>
Office: ATG 420
Office Hours: T, Th 11:30-12:30, W 2:30-3:30, or by appointment

Required course material:
1. The Rough Guide to Climate Change by Robert Henson, available at Univ. Bookstore
2. Course pack, available at Univ. Bookstore
3. "Clickers" for in-class questionnaires and activities, available at Univ. Bookstore

Note: Students desiring a course with more attention to the physical processes governing Earth's climate (and less focus on the specific issue of global warming) should consider ATM S 211 “Climate and Climate Change.”
Prerequisites
None. Open to all undergraduates. A working knowledge of high-school algebra and physical sciences will be useful; however, the basic tools used by scientists will be reviewed and practiced as they arise during the course.

Learning Goals and Objectives of the course
Students will explore both the basic science behind the theory of global warming and the role of scientific knowledge in formulating effective societal responses. Grappling with this challenge will require intelligent, long-range decision making which, in turn, requires an informed citizenry. The ultimate learning objective of this course is to foster citizens who can think critically and act effectively to address this serious and complex challenge.

Academic Credit
This is an NW course (provides 5 credits toward the Natural World requirement)

Optional “W” (writing) credit
Students will have the option of taking this as a “W” course. This will require extra work and is intended for motivated students wishing to pursue some aspect of the global warming problem in greater depth. Because we have limited graders in this class, only the first 20 students to sign up will be granted the "W" option. These students will write a research paper (10-page, 2500 words, revised once following editing by instructor or T.A.), choosing from a set of readings provided by the instructor. Research topics chosen by the student are also possible but must be approved by the instructor in advance.

Grading Policy

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<tr>
<td>Term paper</td>
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<td>Homework assignments</td>
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<td>In-class activities/presentation</td>
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<td>Mid-term</td>
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<td>Final</td>
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<td>Extra Credit</td>
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Homework
There will be about six homework assignments, concentrated toward the first half of the course when we are trying to get a lot of new material and concepts under our belts. For full credit, homework must be turned in by the end of class on the date due (or earlier). Email submission is fine. Late homework will be marked down 10% if turned in on the due date but after the end of class, plus an additional 10% for each additional day late, to a maximum of 50%. We encourage students to turn in missing homework at any time during the quarter (for up to 50% credit). If turned in after the answer key has been posted, you are required to show work and explain your answers in order to get up to 50% credit. You are free to discuss homework with other students, but all your answers must be your own work in your own words.

Class participation (in-class activities, quiz section, and presentation)
[This section revised 1/5/09 to change "poster" to "presentation"]
There will be a short in-class activity during each lecture. These will be recorded using "clickers" or, in some cases, turned on during class. During quiz section, students will work in small groups and complete various exercises and activities. Two lectures during the second half of the course will be devoted to student presentations. Students, working either individually or in pairs, will research a topic and prepare a PowerPoint-type presentation. These will be submitted electronically and displayed on the class web page. Each student will also be responsible for evaluating at least 4 presentations, using an evaluation form to be provided. The class-participation portion of the grade will be determined using the following point system:

- In-class activities during lectures: 2 points each x 36 = 72
- Activities during discussion sessions: 8 points each x 9 = 72
- Presentation: 72 points x 1 = 72
- Total: 216

Our hope is that it will be relatively easy and fun to earn these points. However, students that choose not to come to class or quiz section will obviously suffer in this category. Students that miss class or quiz section will only be
allowed to make up the points in exceptional cases and with written documentation explaining the absence. For
typical cases (e.g., an absence of a few days due to illness or an outside activity), an equivalent number of points can
be gained via extra credit work (see below).
*Note: Please bring a calculator to quiz section. (Pretty much any calculator will do.)*

**Midterm and Final**
Tests provide a good method of helping students master the vocabulary, key facts, and basic concepts
associated with this topic. Study guides will be provided and students who learn the material should do
well. The midterm will cover the first five weeks. The Final will cover the entire course. No cell phones,
headphones, or electronic devices (other than simple calculators) may be used.
Midterm: Monday, Feb 9, 10:30-11:20  KNE  220
Final: Monday, Mar 16, 8:30-10:20  KNE  220

**Extra Credit**
You can earn up to 100 extra credit points (equivalent to 10% of your grade) in three ways:
1. by doing the extra-credit homework problems
2. by attending extra lectures and writing a brief summary
3. by writing a report on one or more of the assigned and/or supplemental articles.
For further details, see the Extra Credit button on the class website.