Syllabus
Course Number: GEOG 4397/6397
Course Title: The Science and Policy of Climate Change

~~Course Time/Location: Cameron 229, Monday 5:30-8:30 pm US Central Time~~
Website: Begin at http://uh.edu/webct/ (available Aug 25)
Instructors:
  • **Dr. Barry Lefer -- Science 223, blefer@uh.edu, 713-743-3250**
  • **Dr. Peter Bishop -- Cameron 211, pbishop@uh.edu, 281-433-4160**
Office Hours: M, 3:30 – 5:30 pm and by appt. – also available via email and phone

Overview

This course explores the scientific origins, consequences and possible mitigations of climate change taking place in the late 20th and early 21st centuries. It surveys the likely causes of climate change, long-term forecasts of its effects on individuals and societies, and potential mitigating strategies to adapt to and potentially eliminate the causes.

Objectives

The objectives of the course are for students to:
  • Understand the role that energy has played and is playing in historical and contemporary societies
  • Evaluate the likely causes of climate change and its projected consequences
  • Discuss the economics and the politics of energy production and use and the emissions therefrom.
  • Investigate potential strategies to slow the development and mitigate the effects of climate change
  • Present findings on two research projects – one on the carbon footprint at the University of Houston; the other on the feasibility and obstacles to deploying one of the mitigating strategies

Required Texts

Futures courses require a lot of reading. The type of reading for this course, however, is for overall comprehension and understanding, not for facts and details. Therefore, you can and should read these in a way that gives you an overall picture and allows you to extract for yourself the most important terms and ideas. You should not read for every detail.

The required texts are:

  • The Science and Politics of Global Climate Change: A Guide to the Debate. Andrew E. Dessler & Edward A. Parson. Cambridge University Press, 2006
  • Cradle to Cradle: Remaking the Way We Make Things. William McDonough & Michael Braungart. North Point Press, 2002.

Required Software

All students, on and off campus, work on the UH learning platform called WebCT. If you are registered for this course, you are automatically enrolled in the WebCT version of this course. You get access to WebCT initially by going to http://uh.edu/webct/ and looking up your login information. You can also test your browser (recommended) from that screen. After you login, you will see the courses you can access. Click on Introduction to Futures Studies, and you're in.

For those students who cannot or choose not to come to class, you can still participate in the class through a UH system called Horizon WIMBA, a Voice-Over-IP system that also displays the classroom computer screen and has other features. I'll post a little instruction module on the website (when I remind myself again how it works). Those who called into the class on a regular basis last semester said it was very helpful.

In addition to the browser, you will need a Word-compatible word processor to be able to read and upload material. You will also need file-compression software using the zip format (e.g., WinZip) for downloading some files and uploading your final portfolio.

Schedule

Date	Topic	Readings (pre)	Speakers *(invited)*	Footprint study (post)	Wedge study (post)
1. Aug 25	Introduction, orientation Footprint intro Wedges intro		Bishop Lefer		
Sept 1	Labor Day				
1. Sept 8	Past and present energy production and use	Wedges overview ICLEI software manual DP Sec 1, 2	Bishop	Module chosen	
1. Sept 15	Carbon emissions and global warming	Framework paper DP 3.1, 3.2	Lefer	Plan due	
1. Sept 22	Effects and implications of global warming	DP 3.3-3.5	Robert Harriss, HARC		
1. Sept 29	Stabilization wedges Framework categories	DP Sec 4	Ron Sass, Rice	Data collected	Wedge chosen
1. Oct 6	Economics of energy production and emissions		Ed Hirs		
1. Oct 13	Politics of energy production and emissions	DP Sec 5	Victor Flatt, UH		Framework completed
1. Oct 20	Carbon emissions, capture, sequestration		Darrick Eugene Michael Moore		
1. Oct 27	Non-carbon electricity production – hydro, nuclear, geothermal, renewables (wind, bio, solar, marine)		Dan Cohan, Rice Vanessa Kellogg, Horizon		Recommendations completed
1. Nov 3	Materials – production efficiency	MB		Recommendations completed	
1. Nov 10	Architecture – building efficiency		Leonard Bachman, UH Brian Yeoman,. CCI	Draft presentation due	
1. Nov 17	Transportation – vehicle efficiency Agriculture -- reforestation		Karl Pepple, Houston		Draft presentations due
1. Nov 24	Footprint report		David Irvin, UH	Final presentation	
1. Dec 1	Wedge class presentations	Draft portfolios due			Final presentation
1. Dec 8	No class	Final portfolios due			

DH – Dessler & Parson
MB – MdDonnough and Braungart

Assignments

Weekly (may be rotating, not everyone every week)

All readings are due before the class on that topic. All students will read the assignment from the textbooks. Other readings will be posted on WebCT which students will read on a random, rotating basis. All students should be prepared to summarize and reflect on their readings in class.

In addition, some students, again on random, rotating basis, will be required to post four pieces of information from the Internet on the topic for that week --

- A dataset, graph or other **empirical da**ta that illustrates an important change in that topic.

- An informative descriptive piece that analyzes change in that topic (with empirical support, if possible) and provides a forecast of the **expected future** in the topic.

- An informative descriptive piece that analyzes an uncertainty in that topic and provides a forecast of an **alternative future** in the topic.

- A proposal piece that contains a specific recommendation, proposal or plan for creating a more **preferable future** in the topic.

Finally each student will post a reflection on what learned from the reading each week and at least two questions or issues they still have as suggestions for lecture or discussion topic.

Term projects

Each student will conduct two terms projects, either individually or in teams.

> **Footprint** (teams)
>
> The objective of the Footprint project is to measure the ecological footprint of the University in terms of its energy and materials use and its emissions of greenhouse gases. Students will have access to software to record data collected from University departments and to analyze and forecast the results.
>
> 1. Sept 8 -- Select one of the footprint modules to work on –
>   a. Buildings
>   b. Vehicles
>   c. Employee commute
>   d. Water/sewage
>   e. Solid waste
> 2. Sept 15– Submit a plan for collecting the required data (historical and current) for that module, including persons to be interviewed and databases to be accessed
> 3. Sept 29 – Collect and enter the data into that module
> 4. Nov 3 – Develop recommendations on how the University might feasibly reduce its carbon footprint using one of the stabilization wedges studied in the other term project.
> 5. Nov 10 – Submit a brief, draft presentation on the footprint for the module and the forecast for the future of that footprint, if you have that data.
> 6. Nov 24 – Deliver the presentation to Mr. Irwin and his staff from the UH Department of Plant Operations

Wedge (individual or teams) –

1. Sept 22 -- Select one of the Wedges for focused study

2. Oct 13 – Submit the framework document for that Wedge—at least five elements in each of the framework categories, plus an overall statement of the baseline and at least two alternative futures (The framework categories will be described in class.)

3. Oct 27 – Submit at least three recommendations for implementing that Wedge with a trade-off of the benefits and costs/risks of each one

4. Nov 17 – Submit a draft presentation of the forecast and the recommendations (10 slides, 15 minutes)

5. Dec 1 – Deliver the presentation to the class and any guests

Procedures

Each week begins and ends at midnight on the night **before** the class meeting (i.e., Sunday night) so material can be prepared for the class meeting. All assignments are due at that time. Assignments may be turned in late, but they are assessed a 10% penalty for each week they are late. All of those scores are combined into an overall Timeliness score that weights the final grade at the end of the semester.

Class meetings are held at 5:30 pm (US Central Time) in Room 229 Cameron Hall. Those online can participate in the class via audio chat on the Internet. Most of the class is oriented toward the following week's material--in effect, doing together what will be done online that week, such as discussing the material and doing the exercises. While class participation is not required, those who do participate (in person or online) report that they get more out of the course and do better on the assignments. Overall, the assignments should not take any more than 8 hours each week (including participating in class), and many weeks less. Please contact the instructor if you find yourself having to spend more than 10 hours a week on a regular basis.

At the conclusion of the course, each student submits the two major term projects (Footprint and Wedges) and the seven best assignments from different weeks that he/she believes represents his or her best work that week and/or the activity in which he or she has learned the most. Students submit these files (zipped together) as a portfolio of their work along with an essay that describes what they learned throughout the semester. An optional draft portfolio is due Midnight, Monday, December 1. The draft portfolio receives feedback within 72 hours, in preparation for the submission of the final portfolio which is due Midnight, Monday, December 8. The grades for the material are included in the draft and final portfolios.

Grading

The final grade will be a combination of the number and timeliness of your submissions and the quality of the submissions in your portfolio according to the following allocation –

Footprint project	30%
Wedge project	30%
Weekly submissions (total)	30%
Learning essay (optional)	10%

Submissions are assessed on a five-point scale according to the following criteria –
5 = outstanding submission, shows considerable insight and/or proficiency
4 = good submission, shows more insight and/or proficiency than required
3 = acceptable submission, shows insight and/proficiency required
2 = poor submission, shows less insight/proficiency than required
1 = failed submission, shows no insight/proficiency

Timeliness is the percent of time that a submission or reflection was submitted on time, with each submission and reflection losing 10% for each week it is late. The total timeliness score is multiplied by the average quality score to arrive at the final quality score.

Contact one of the professors by WebCT email or by phone if you have any questions or difficulties.

Other policies

Academic honesty policy All UH students are responsible for knowing the standards of academic honesty. Please refer to the UH catalog. Plagiarism, using research without citations or using a created production (such as other people's words) without quotations or citations, will result in a grade penalty or failure of the course. Internet sources must be credited according to the sites recommended citation guideline if available. If no citation guideline is provided by the web source, then the date, URL site owner, and author must be included with the web material used.

Disabilities: If you have a disability and need a special accommodation consult first with the Coordinator of Health Disabilities Services, Bayou 1402, telephone 283-2627, and then discuss the accommodation with me.

Incompletes: A grade of "I" is given only in cases of documented emergency or special circumstances late in the semester, provided that the student has been making satisfactory progress. An Incomplete Grade Contract must be completed.

Withdrawals: Refer to class schedule for dates to withdraw without evaluation from a course. Last day to withdraw or drop without a grade penalty for