

SYLLABUS: IDS 4930 – CLIMATE CHANGE SCIENCE AND SOLUTIONS

Spring 2015, Section 1319, Meeting: MAEB 238, Thursday 7th-8th period (1:55-3:50 pm)

INSTRUCTORS

Section Instructor

TA: Eric Stubbs, Department of Agricultural Education and Communication Office: ROL411

Office Hours: T, R 1:00 – 1:50 pm (or by appt.) e-mail: ericeric@ufl.edu

Lead Instructor: Dr Andrew Zimmerman, Department of Geological Sciences

Office: 364 Williamson Hall Ph# 392-0070 e-mail: azimmer@ufl.edu Office meeting: by appointment

COURSE DESCRIPTION

This course invites students to deepen their understanding of science by examining the complex societal issue of climate change. We will explore climate change from local, national and global perspectives, integrating information and insights from a wide variety of natural sciences and engineering/design disciplines in order to develop holistic approaches to adaptation and mitigation. Students will work individually and collaboratively using the scientific method to design innovative solutions and to communicate their work effectively.

Prerequisites: none

Credits: 3

Course Fee: none

Gen. Ed. Fulfillment: P

Course Objectives

This physical science general education course will cover concepts of climate change and our modern society. It is the aim of this course that by the end, students will be able to:

- Understand the basic facts and uncertainties regarding climate change, the role of humans in causing it, and its possible effects on a variety of natural and human systems.
- Apply the process of scientific inquiry in discovering, understanding, and addressing the challenges of climate change.
- Develop hypothesis-driven solutions to climate change through critical evaluation and teamwork.
- Effectively communicate multi-disciplinary scientific challenges and strategies for addressing them.

Course Structure

The course will require both on-line and in-class participation. Each week, students will explore on-line content (about 2 hours total) that will include:

- 1) Completion of a 'Spark' Discussion (by Monday 11:59 pm)
- 2) Readings and on-line lectures
- 3) A quiz on the on-line materials (completed by Wednesday 10:00 pm)

Each week, in class, students will:

- 1) Review and discuss on-line material
- 2) Complete an In-Class Activity that reinforces the 'Fundamental Science Topic' & 'Framework Topic' and practices the 'Science Skill' for that week (usually turned in on-line within 2 days of class – see below)

In addition, students will work on a semester-long group project, both in and outside of class that will develop a novel approach to addressing one or more climate change-related issues. Students are required to bring a laptop or other web-enabled device to each class meeting and are also required to participate in an all-day field trip on one Saturday of the semester and take the midterm exam one evening of the semester.

COURSE WEBSITE and COMMUNICATION

Course Website

The course will run via **Canvas** through the UF e-learning website; go to <http://lss.at.ufl.edu/> and click on the Canvas Login button. The course site will be used to post relevant announcements, reading, lecture materials, links, assignments and quizzes, etc. You are responsible for checking this site for updates, announcements and to verify that your grades are recorded correctly. No grade will be changed more than one week following the date it was turned in. It is recommended that students adjust Canvas settings so that Announcements are sent to phone or email.

Questions and Comments on course logistics (e.g. assignments, grading etc.) and on content (e.g. science or policy questions directed toward any of the course instructors) should be posted in two respective discussion boards within the course website. Questions of a personal nature (e.g. medical emergency, legal, documented disability accommodation, etc.) should be sent to the TA via e-mail who will forward these to the faculty instructor as necessary.

Required Textbook

Dire Predictions: Understanding Global Warming, by Mann and Kump, 2009, Prentice Hall (\$15 new on Amazon or at the UF bookstore for about \$37)

In addition, there will be numerous selected readings posted or linked through the course website weekly.

ASSESSMENTS AND GRADING

Final Grade Calculation

25%	<u>Homework:</u>		
	5%	12 'Spark' Discussions (2 lowest dropped)	[0.5% each]
	20%	12 Quizzes (2 lowest dropped)	[2% each]
30%	<u>In-class Activities</u> (some individual, some group work), 12 assignments, lowest 2 will be dropped		[3% each]
25%	<u>Final Project</u>		
	3%	Initial proposal (Group Assessment)	
	3%	Midpoint presentation (Group Assessment)	
	8%	Final presentation (Group Assessment)	
	8%	Final paper (Group Assessment)	
	3%	Individual Assessment	
20%	<u>Mid-term exam</u> (No Final Exam)		

Final Grade Scale

A = ≥93%, A- = 90-92.99, B+ = 87-89.99, B = 83-86.99, B- = 80-82.99, C+ = 77-79.99, C = 73-76.99, C- = 70-72.99, D+ = 67-69.99, D = 63-66.99, D- = 60-62.99, E < 60

***Note:** An earned grade of 'C-' grade or below does not qualify for major, minor, Gen Ed, or college basic distribution credit.

For further information on UF's Grading Policy, consult:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Discussions

Students have from the end of class (Thursday 5 pm) till Monday 11:59 pm to complete the on-line 'Spark' Discussion. Each student should make one substantive original comment and one substantive response to the comment of another student. That is, students must read what has been said before and add something more than a few words of agreement or disagreement. No credit will be given for late submissions.

Quizzes and Exams

Quizzes each week will be taken by students on Canvas by 10 pm of the Wednesday before class and will consist of 12-20 multiple choice questions on the lecture and reading material presented on-line that week. It is also possible that an additional on-line homework activity will be assigned. In addition, students should bring any questions they may have to class, brought to mind by the online material. Quizzes can be completed up to 1 week after they are due, not later, but will be penalized 6 (of 20) points. NOTE: If you cannot complete the quiz by 10 pm, it is better to start the quiz after 10 pm as students will be locked out at 10 pm.

The Midterm Exam will be given on campus in the evening of Feb. 16, closed book, 2 hour limit. Students must bring a laptop to take the exam which will consist of about 50 multiple choice questions (some taken from quizzes, some new). Everything associated with the class up to the point of the exam (Weeks 1-6), including on-line material and in-class discussion/exercises, is fair game on the mid-term exam. If there is an issue attending the exam at this time, this should be discussed with the TA prior to the date.

In-Class Activities

For each class meeting, there will be a short assignment (short essay, a few short answer questions) to be completed and turned in, usually via Canvas (Assignment Tab) by the following evening (Friday 11:59 pm). These may be individual or group assignments. Late assignments will lose 6 of 30 possible points and these assignments will not be accepted after 1 week following the class. Full credit will be awarded as follows:

- 6 points – assignment is submitted by the due date
- 6 points – Fundamental Science/Framework Topic: assignment is focused, coherent, and correct... successfully integrates examples with explanations, supporting evidence and analysis.
- 6 points – Core Skill: demonstration of knowledge and application of the skill
- 6 points – Individual Effort
- 6 points – reflects in-depth engagement with the topic

Semester Project

Students, in groups of 3-4, will be asked to work as a team to create and evaluate either a strategy to mitigate or adapt to climate change. The strategies will range widely, e.g., from a solar-powered bicycle to a change in international law. But we encourage student groups to consider a local or regional problem and solution. Each group will also quantitatively evaluate the cost and/or potential impacts that would result from the adoption of their strategy (climate, human health, economic, etc.). During the course of the semester, both lectures and sub-assignments will build students' skills and the knowledge base needed for this kind of problem solving. At the end, both an oral and a written presentation will be due. More details will follow.

Extra Credit

Possibilities for extra credit will be announced during the semester. These will be available to all and will not be offered on an individual basis.

COURSE AND UNIVERSITY POLICIES

Attendance and Absence

Students are expected to complete all requirements (quizzes, exams, presentation) on the specified dates and will not be granted an alternate date unless they have an acceptable reason for their absence (e.g., absences due to medical emergency, observance of religious holidays, military obligation) and pre-arranged consent of the instructor. These requests must be timely and accompanied by all necessary written documentation. This policy is accordance with UF's attendance policies, which can be reviewed further at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>. Discussions, quizzes and assignments turned in late will suffer a loss of points spelled out in each section above. No assignment can be turned in more than 1 week after its due date without instructor consent.

Classroom policy

Students are required to bring to each class meeting a laptop or similar device for use in taking notes, summarizing in-class activities, and accessing the internet. However, use of mobile devices and computers during class for purposes other than viewing readings or conducting sanctioned research is not allowed. Cell phones must be turned off during class. Students who receive or make calls or text messages or engage in other disruptive behavior during class will be asked to leave and will not be allowed to turn in the assignment due on that day. Students should also bring pen/pencil and paper to each class.

Academic Honesty Policy

Students must conform to UF's academic honesty policy regarding plagiarism and other forms of cheating. This means that on all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The university specifically prohibits cheating, plagiarism, misrepresentation, bribery, conspiracy, and fabrication. For more information about the definition of these terms and other aspects of the Honesty Guidelines, see <http://www.dso.ufl.edu/sccr/process/student---conduct---honor---code/>. All students found to have cheated, plagiarized, or otherwise violated the Honor Code in any assignment for this course will be prosecuted to the full extent of the university honor policy, including judicial action and the sanctions listed in paragraph XI of the Student Conduct Code. For serious violations, you will fail this course.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

Accommodations for Students with Disabilities

Please do not hesitate to ask for accommodation for a documented disability. Students requesting classroom accommodation must first register with the Dean of Students Office (<http://www.dso.ufl.edu/drp/>). The Dean of Students Office will provide documentation to the student, who must then provide this documentation to the Instructor when requesting accommodation. Please ask the instructor if you would like any assistance in this process. Please provide this information to your TA within the first two weeks of the semester.

Instructor Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

Drop/Add/Withdrawal

A student can drop/add during the drop add period with no penalty. After drop/add, a student who drops will receive a W until the date listed in the academic calendar. After that date, the student may be assigned an "E" (fail). Note: it is the responsibility of the STUDENT to withdraw from a course, not the instructor. Failure to participate/complete the class is NOT a drop.

Additional Resources

Students facing difficulties completing the course or who are in need of counseling or urgent help may contact the Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc/Default.aspx>, 392-1575; or the University Police Department: 392-1111 or 9-1-1 for emergencies.

Other Resources available on-campus for students include:

- a. Student Mental Health, Student Health Care Center, 392-1171, personal counseling;
- b. Sexual Assault Recovery Services (SARS), Student Health Care Center, 392-1161, sexual counseling;
- c. Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.

COURSE SCHEDULE

Spring 2015 Week Of:	Week	Module	Fundamental Science Topic	Framework Topic	Skill	Other Activities	Reading in 'Dire Predictions', pages
4-Jan	1	Introduction to climate and CC	Disciplines of climate change	Interdisciplinary Science	Course Search		
11-Jan	2		Climate Drivers	Scientific Method	Formulate Hypotheses		6-31
18-Jan	3		Climate History	How Science is Done	Excel, Test Hypotheses		32-33, 40-43
25-Jan	4		Evidence for Anthro. CC	Uncertainty/Consensus	Sources/Critical thinking		34-46
1-Feb	5		CC and the Weather	Research and Big Data	Data Patterns	Intro. Semester Project (2 nd hr)	47-62
8-Feb	6		CC Projections	Models	Excel, Test Hypotheses		63-105
15-Feb	7	Problems and Solutions	Ecological Impacts of CC	Team Science	Team Work	Midterm Exam – Feb 16	107-127
22-Feb	8		Population/Consumption	Ethics /Sustainability	Calculation/Units	Field trip – Feb 21	128-139, 190-191
1-Mar			SPRING BREAK WEEK	-----	-----	-----	-----
8-Mar	9		Agriculture/ Land Use	Communicating Science	Communication	Semester Project (2nd hour)	141-153
15-Mar	10		Energy	From Lab to the Real	Calculation/Units		155-169
22-Mar	11	CC Policy	Built Environment	Effecting Change	Incorporate Criticism	Midpoint Project Evaluation	166-183
29-Mar	12		Environmental Policy	Science in Action	Cost/Benefit Analysis		180-197
5-Apr	13		Sea Level Rise	Science in the Public Realm	Debate		98-99, 110-113, 148-149
12-Apr	14		----- Semester Project Presentations During Class -----				
19-Apr	15	-----Semester Project Paper & Individual Assessment Due April 24 -----					

Weekly Climate Change Class Due Dates (Spring 2015: IDS 4930, Section 1319)*

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Spark due 11:59 pm		Finish module Quiz due 10pm	Class 1:55pm MAEB238	ICA due 11:59pm Start next module	

*this does not include due dates of assignments relating to the Semester Project