

GEO 4033: Climate Change and Health

Dr. David Keellings

MWF 9:35-10:25am

0260 Florida Gym

Fall 2023

Office Hours

M/F 1-3pm, other times **BY APPOINTMENT ONLY**

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Note: For best results – utilize office hours. If you are having trouble with the course, come and see me sooner rather than later so that I can help you.

Course Description

This course is an introduction to the effect of global climate change on health. The course will be taught from a geographical perspective and will introduce students to the physical science of climate change and the impact it has on health through discussion of extreme weather events, altered ecological systems, and threats to human security and welfare. Discussion will build on the core concepts of climate change science to provide students with a solid foundation to further examine a variety of topics from acute impacts such as heat waves and other weather extremes to chronic conditions such as shifting disease vector habitats, degraded air quality, and food security. Direct correlations between health impacts and climate change will be emphasized throughout as will discussion of mitigation and adaptation strategies. *3 Credit Hours*

Prerequisites

GEO 2200 or GEO 2242 or MET 1010 or permission of instructor.

Student Learning Objectives

After completing the course, students should have developed a keen understanding of the science of climate change and the pathways by which it impacts human health. Specific learning objectives include:

- Explain the science behind climate change and climate variability
- Describe links between climate change and health through examination of correlations between climate and health
- Identify geographic patterns of climate-health relationships at various spatial scales
- Apply scholarly and research methods to describe climate-health relationships
- Apply common scientific skills such as observation, data gathering, analysis, interpretation, and communication to describe climate-health relationships
- Apply critical thinking skills as they relate to climate science and public health including the capacity to make informed decisions about human activities, climate change, and health

NOTE: This course is co-listed with GEO 6346 which is a graduate course. While the two will meet together and complete similar exams and assignments, undergraduates and graduates will be evaluated on a different basis. Graduate students are required to contribute more frequently and with greater depth in reading discussions, complete a rigorous research paper and present the research paper to the class, and graduate students will not be able to consult their notes during the exams. In lieu of the graduate student research paper and presentation, undergraduate students are required to complete weekly homework assignments in the form of discussion responses.

Course Resources

Required Text:

- Luber, G. and Lemery, J. eds. 2015. Global Climate Change and Human Health: From Science to Practice. John Wiley & Sons. ISBN: 978-1-118-50557-1

Furthermore, throughout the semester readings will be distributed and discussed. All of these readings will be free, online books or articles and will be posted on the class website.

Grades and Grading Scale

Exams (2 @ 20%): 40%

Homework Assignments: 30% (10 HWs @ 3% each)

Group Presentation and Discussion: 20%

Class Participation: 10%

- **Exams:** Exams will be used to evaluate your proficiency in the course material. Two exams will be given that cover only the material since the previous exam.
- **Homework Assignments:** Assignments are to serve as preparation for the topical material covered weekly. Assignments will consist of several questions related to the weekly assigned readings and should be completed on the course website discussion board along with the reading prior to that week's topic being discussed in lecture. On the week you are presenting your group presentation you are exempt from the homework assignment.
- **Group Presentation:** Each week a small group of students will present a summary of an article relating to the topic covered in lecture. The presentation should consist of a concise summary of the article and lead into discussion questions for class participation. A sign-up sheet will be posted on the class website for you to pick a topic/week of presentation. Group sizes will be limited and topic/date is chosen first-come-first-served. Each group member will be expected to contribute to the presentation and discussion points. Each group member will be evaluated based on presentation/discussion performance and within group peer-evaluation. See reading sign-up sheet and presentation grade rubric.
- **Class Participation:** Students are expected to regularly attend class and actively participate in group-led discussions. Students should be prepared to contribute to discussion having read the assigned readings.

>=91.0% = A	90.0-90.9%= A-	87.0-89.9%= B+	81.0-86.9%= B
80.0-80.9%= B-	77.0-79.9%= C+	71.0-76.9%= C	70.0-70.9%= C-
67.0-69.9% = D+	64.0-66.9%= D	60.0-63.9%= D-	<60.0% = E

A grade threshold must be crossed in order to receive the letter grade indicated (no rounding). It is your responsibility to know your current grade. Grades will be posted to the course website. Information on current UF grading policies for assigning grade points may be found at <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

Make-Up Exams and Assignments

Students must notify the instructor as soon as possible in case of absence and provide documentation as to the reason for the absence. If deemed an excused absence, the student will be permitted a reasonable amount of time to make up the missed work. Requirements for make-up exams, assignments, and other work in this course are consistent with university policies that can be found at <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Late Work

Late assignments will have 10 percent deducted from the possible total score for each day they are late (E.g. if you earn an 80% on the work but are one day late you receive a 70%).

Canvas Course Website Information

This syllabus, announcements concerning exams, some lecture content, grades, and other course information will be posted on Canvas course management system. Access this page at <https://elearning.ufl.edu/>. If you miss a class, it is your responsibility to learn the material covered during your absence. Come see me if you have any questions. Students must activate their UF GatorLink account in order to use Canvas. If you need help learning how to perform various tasks related to this course or other courses that utilize Canvas, please consult the above webpage. You may also contact the UF Computing Help Desk at (352) 392- HELP(4357) or helpdesk@ufl.edu

Accommodations for Students with Disabilities

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester. After initial arrangements are made with that office, notify me in writing as soon as possible, and a minimum of one week before an exam.

Academic Honesty

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code." 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 Honor code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor.

Attendance and Proper Conduct

I have no policy of mandatory attendance. You are all adults and can decide to come to class or not. But you are also the only person responsible for attaining the grade you want. When you enter the lecture room you are doing so of your own will, not because you are being forced to. When you make the choice you are also agreeing to show respect to your fellow students by allowing them to hear the lecture materials without having to compete with background chit-chat. Turn off cell phones, put away newspapers, and refrain from casual conversation once class begins. If you have a question – please raise your hand or ask at the end of class.

Recordings and Notes: It is not permitted to sell or distribute notes or recordings from this class without written consent of the instructor. Nor are students permitted to disseminate recordings of the instructor lecturing or post copies of assignments or exams on the internet.

The University of Florida is committed to an ethical, inclusive community defined by respect and civility. The University of Florida prohibits discrimination against any person. The U Matter website (<https://umatter.ufl.edu/refer-or-report/>) provides a list of reporting channels that can be used to report incidences of illegal discrimination, harassment, sexual assault, sexual violence, retaliation, threat assessment or fraud.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online 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>.

Your evaluations are used by faculty to improve their courses and teaching methods, and by department chairs and college deans to assess teaching effectiveness. Without your responsible input, we cannot effectively assess and improve teaching performance and student learning. Please be honest, fair, and constructive as you complete your evaluations.

Campus Resources

Health and Wellness

- U Matter, We Care: Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.
- Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.
- Sexual Discrimination, Harassment, Assault, or Violence: If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the Office of Title IX Compliance, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu
- Sexual Assault Recovery Services (SARS)
- Student Health Care Center, 392-1161.
- University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>

Academic Resources

- Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://career.ufl.edu/>
- Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.
- Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <https://teachingcenter.ufl.edu/>.
- Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio/>.
- Student Complaints Campus: <https://registrar.ufl.edu/complaint.html>.
- On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>.

Course Schedule (Subject to Change)

Week	Topics	Class Activity	Readings (to be completed prior to date shown)
1 Aug. 21	Introduction & Climate Science		
		Lecture	
		Lecture	
2 Aug. 28	Climate Science	Lecture	Chapter 1 Textbook
		Discussion of Chapter	
		Group Presentation	IPCC AR6 SPM 2023
3 Sep. 4	Extreme Weather/Disaster Risk Reduction	NO CLASS	NO CLASS
		Discussion of Chapter	Chapter 2 Textbook
		Group Presentation	IPCC SREX SPM 2011
4 Sep. 11	Climate/Health Risk Factors	Lecture	Chapter 3 Textbook
		Discussion of Chapter	
		Group Presentation	Johnson et al 2012
5 Sep. 18	Hydrologic Cycle/Waterborne Disease	Lecture	Chapter 4 Textbook
		Discussion of Chapter	
		Group Presentation	Semenza et al 2012
6 Sep. 25	Air Masses/Air Quality	Lecture	Chapter 5 Textbook
		Discussion of Chapter	
		Group Presentation	Kinney 2018
7 Oct. 2	Vector-borne/Zoonotic Diseases	Lecture	Chapter 8 Textbook
		Group Presentation	Butterworth et al 2017
		NO CLASS	NO CLASS
8 Oct. 9	Carbon Dioxide/Plant Biology	Lecture	Chapter 7 Textbook (NO HW)
		Review	
		Exam 1	
9 Oct. 16	Food Security/Nutrition	Lecture	Chapter 9 Textbook
		Discussion of Chapter	
		Group Presentation	Porter et al 2014
10 Oct. 23	Mental Health	Lecture	Chapter 10 Textbook
		Discussion of Chapter	
		Group Presentation	Galea et al 2007
11 Oct. 30	Future Climate/Health Impact Projections	Lecture	Chapter 13 Textbook
		Group Presentation	Huang et al 2011
		NO CLASS	NO CLASS
12 Nov. 6	Adaptation	Lecture	Chapter 17 Textbook
		Discussion of Chapter	
		Group Presentation	Ebi et al 2013
13 Nov. 13	NO CLASS	NO CLASS	NO READINGS
14 Nov. 20	NO CLASS	NO CLASS	NO READINGS
15 Nov. 27	Mitigation & Cobenefits	Lecture	Chapter 18 Textbook
		Discussion of Chapter	
		Group Presentation	Jacobson et al 2013
16 Dec. 4	Communication	Lecture & Grad Presentation	Chapter 16 Textbook (NO HW)
		Exam 2	