Spring 2021, 2:00-3:00 pm Tuesdays and Thursdays

Instructor: Lucas Silva  
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OH: 1:00-2:00p Wednesdays. GE: Adriana Uscanga Castillo; 541-346-2699; Email: adrianau@uoregon.edu; OH: 3:30-4:30p M & W.  
https://canvas.uoregon.edu/courses/180934

Overview: This course will examine the physical and human geographical aspects of global environmental change, focusing on variations of the environment over time, the impact of human action on the Earth and its environmental systems, and the projection of future environmental changes.

Learning objectives: In addition to providing some intermediate-level material on Earth-System Science and global environmental change, the material in the lectures, reading and exercises addresses some cross-cutting concepts in Geography and Earth Science, as well as some practical skills that are useful in both academic and casual contexts. The general concepts include: understanding the way in which different components of the Earth system interact with one another; the application of both conceptual and mechanistic models in explaining how environmental systems work; understanding the drivers of global environmental change; and practical skills include the use of scientific information and sources to understand global environmental change.

Expanded course description: The course will introduce some of the major themes in global environmental change, a relatively new interdisciplinary field that focuses on both long-term and recent changes in the Earth system, including those brought about by both human and natural causes. The major components of the Earth system will be described, along with the ways they are linked and vary over time. The lectures and readings will cover the basic concepts and records of environmental change (both natural and human-induced), the tools used to develop those records, and the ways in which our understanding of those concepts have developed.

An important reason for studying past environmental change is to learn how to project future environmental changes, and this task is motivating the development of both stand-alone models of individual components of the Earth system as well as integrated models that explicitly examine the linkages between human activities and the environment. The way in which such models are developed, tested, and used will be a key component of the lectures and discussion. The study of global environmental change also provides the context for understanding how humans have interacted with the environment over time to create the one we are currently living in and rapidly modifying. A full understanding of environmental change therefore requires the synthesis of information from a variety of sources that describe both physical environment and human activity, and in ways that encourage and exploit new techniques for viewing the Earth system.

The online exercises will be focused mainly on "making sense" of the kinds of data and information that arise in studying global environmental change. Although ultimately based on numerical data from satellites or from simulation models, most of the information that is actually analyzed in studying global appears in the form of maps or other graphical summaries, and interpretation of such summary information, is critical for understanding how the physical environment varies over time and space.

Workload expectations: Attendance at two lectures per week. There will be 10 online exercises using materials provided on canvas. These will take 2-3 hours each week (mostly for reading background material; the actual completion of the exercises will not take that long). In addition, about 6 hours per week will be required to complete the readings. Additional time (1-2 hours) could be profitably spent on browsing on-line resources such as links on the Current Weather & Climate web page https://pjbartlein.github.io/UOCWC/, climate and environmental change blogs (e.g. Real Climate http://realclimate.org, the NY Times Science section, and the news portions of Science and Nature.
**Grading/assessment:** Two exams (20% each), 4 short quizzes (5% each), and completion of all ten exercises (40%). The exams and quiz questions will consist of multiple-choice, essay and short-answer questions, will emphasize concepts, and will also include questions aimed at your ability to synthesize material presented in the lectures, readings, and related web pages. Skipping quizzes and submitting exercises late (see below) are the most efficient ways to lower your grade.

**How to deal with the readings:** All of the readings will be available as pdf files on canvas. There is no single up-to-date textbook and most of research publications and assessments (e.g. from the IPCC) are available first (or only) as pdfs. Printing every single page in the .pdfs will not be feasible, and so it will be necessary to develop a personalized routine for reading the material online. The visual inspection and interpretation of the maps and images will be important, but accommodation for alternative methods of course-material access may be possible. Please let your instructor know if alternative methods might be needed as soon as possible.

**Student support:** The support provided by the following may be useful: UO Division of student life: [http://studentlife.uoregon.edu](http://studentlife.uoregon.edu), University Counseling Center: [https://counseling.uoregon.edu/](https://counseling.uoregon.edu/) and the UO Accessible Education Center [http://aec.uoregon.edu/](http://aec.uoregon.edu/)

**Collaboration and misconduct:** Working together on exercises is a good thing, but you must submit your own work. Similarly, using somebody else's distillation of notes to use as a study guide may be convenient, but it won't provide the same insight as organizing the material yourself. UO's policy on academic dishonesty will be strictly enforced. The University Student Conduct Code (available at [https://dos.uoregon.edu/conduct](https://dos.uoregon.edu/conduct)) defines academic misconduct: Students are prohibited from committing or attempting to commit any act that constitutes academic misconduct. By way of example, students should not give or receive (or attempt to give or receive) unauthorized help on assignments or examinations without express permission from the instructor. Students should properly acknowledge and document all sources of information (e.g. quotations, paraphrases, ideas) and use only the sources and resources authorized by the instructor. If there is any question about whether an act constitutes academic misconduct, it is the students’ obligation to clarify the question with the instructor before committing or attempting to commit the act. Additional information about a common form of academic misconduct, plagiarism, is available at [http://researchguides.uoregon.edu/citing-plagiarism](http://researchguides.uoregon.edu/citing-plagiarism).