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# Geography 1000: Earth Environments & Global Change

## (Class Syllabus, Fall Semester, 2019)

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### Course Description:

"Earth Environments and Global Change" (3) - Fulfills Physical/Life Science Exploration requirements at the University of Utah. The class explores the four interconnected spheres of the Earth, the atmosphere, hydrosphere, lithosphere and biosphere. The course examines the theories, research methods and types of data that are fundamental to a responsible appreciation of the geographic and historical variation of Earth's environments. Case studies provide the opportunity for students to investigate 'hot' topics in Earth system science and may include melting ice caps, the overkill hypothesis, ozone depletion, the origins of life, and greenhouse effect.

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**(Attending Professor:** Dr. Kathleen Nicoll; **Pronouns:** She/Her/Hers; **Email:** kathleen.nicoll@gmail.com)

**Office Hours:** Tuesday and Thursday, 9:30-10:30am or 12:25-1:25pm (or by appointment), 4th floor of Gardner Commons, Rm: 4625, Geography Graduate Student Desk Area, Desk 7. Any class, lecture, or assignment changes will be announced via CANVAS.

**Required Lecture:** Marriot Library, Room 1150 -- Tuesday & Thursday 10:45AM -12:05 pm. Attendance and participation ***IS*** required.

**Required Textbook:** Petersen et al., 2017, *Physical Geography*, 11th edition, Brooks/Cole Cengage Publishers. Reading (any edition of) this textbook is an essential component of the course; read and study chapters prior to the course lectures.

**Accommodations:** In compliance with the Americans with Disabilities Act of 1990, The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If any student needs accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 581-5020 (V/TDD). CDS will work with students and course instructors to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability Services; students requiring this service must advise the Center of their needs. More is covered on this further below.

### Introduction and Course Goals

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#### What

Geography is inherently a synthetic, interdisciplinary science with emphasis on natural systems, society, space, and time. This course focuses on the Earth's physical environment and provides an overview of the fundamental tools that scientists use to understand the major processes that shape it. In particular, this course treats the Earth as a single, complex system, consisting of interlinked subsystems --the atmosphere, oceans, lithosphere, biosphere. Like any complex system (e.g. the Red Sox Nation, US economy, stock market, human immunology), the Earth system is regulated by complex interactions among these subsystems and external forcings.

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Some mechanisms tend to promote system stability; others can result in rapid and devastating change. The Earth system is inherently dynamic: crustal plates shift positions, resulting in earthquakes and volcanoes; the climate system has flipped between glacial and interglacial states over the past million years; weather fronts sweep through the mid-continent; hurricane storms batter coastlines; and the oceans and atmosphere ceaselessly circulate energy from the tropics to the poles.

### **Why**

Human societies are both vulnerable to the caprices of the Earth system (as shown by Hurricane Katrina/Sandy, or the Nepal earthquake, for example) and they are able to affect it through various intentional and accidental manipulations. Both our vulnerability and manipulative ability will likely continue to increase as the world population builds. It is crucial, therefore, that we have at least a basic understanding of the Earth system and its key processes, so that we may make informed societal decisions about how we manage Earth system resources.

**HOW** This survey course presents the basics of the physical Earth and its related environmental processes in a manner that integrates the very latest, breaking discoveries from around the world. We will learn the associated theory, methods, models, and principles associated within Earth Systems Science. The first part of our course will cover the Earth's atmosphere, emphasizing the processes that control weather, climate, and the flow of energy through the Earth system. We will discuss examples and possible causes of climate change in the past and future. The second part of the course will review the geologic, geomorphic, and biologic components of the Earth system, with examples germane to the human element. This course covers a lot of ground (as it were) in a single semester. We will cover the entire textbook in one semester! Students interested in obtaining a deeper understanding of the Earth system are encouraged to take additional courses in physical geography; I will make suggestions. This class is an excellent prerequisite to others.

Goals and learning outcomes are specified by topic in each chapter of the textbook. Become familiar with these so that you learn how to study. Each chapter has learning outcomes listed!

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**Class Requirements:** Basic internet fluency is necessary to access online course resources. You will need internet access to take regular quizzes and to complete some assignments. There are no prerequisite courses for this class, but students are expected to be geographically literate. Students must know the location of the world's continents and oceans, the location of the 50 states, and be able to read latitude and longitude on a map; much of this information is included in the first two chapters of the textbook, or an atlas. Helpful information can be accessed online.

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students requiring this service must advise the Center of their needs. More is covered on this further below.

## **Class Structure**

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### *Lecture*

Two lecture periods are scheduled for each week; attendance is essential and may be recorded. Students may not sign any attendance sheet on behalf of others. Students who miss 3 lectures without an excuse will not be successful; skipping class is not recommended unless necessary. Additionally, students should prepare to take notes while in lecture. Students should aim to finish the suggested readings in advance of the schedule specified in the topical (see timetable). Your focused study and participation in the class is also important! Occasional guest appearances by other faculty members, podcasts, or other online modules may also occur.

### *Readings*

The text examines many (but not all) of the issues raised in the lectures as well as additional concepts that may not be presented during the lecture period (i.e., from your textbook). Concepts presented in the text may be tested, whether they are covered in lecture (or not), too.

### *Quizzes*

Expect one quiz a week that provides practice with methods, concepts and topics introduced in the lectures and readings. Quizzes will more likely be online but may occur in class, too.

### *Assignments*

Assignments will vary throughout the semester. Some may require travel to the Natural History Museum of Utah. Admission is free with your “U-card” so bring it (they cannot verify your enrollment on site if you forget). You can also try mentioning my name and that it’s for a class assignment, but I cannot guarantee it will work.

### *Exams*

Exams are typically in a multiple-choice, short-answer format and emphasize the material covered since the previous exam, as specified in the timetable outline (below). Standard rules of examinations are set by the department and University policies. Make-up exams and quizzes are not routine in this course and may only

be offered at the discretion of the instructor upon evidence of medical reasons or extreme extenuating circumstances.

### *Exam Reviews*

There will be a 10-minute review during the lecture prior to each exam. Bring questions! Study guides are provided in the textbook and online. It is encouraged that students work with their peers to establish out-of-class review sessions. Rooms can be reserved by contacting the secretary of your respective department (feel free to ask questions on how to do this...I want you to succeed! 😊).

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## **Grading and Class Policies**

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The responsibility for turning in materials on time, and earning a grade is placed squarely on the shoulders of you, the student! Course grades will be determined by how much material each student can demonstrate learning as follows:

3 exams – 100 points (each); 300 points total
Participation, Homework, Assignments, & Quizzes – 300 points
<hr/> <b>Total:</b> 600 points possible

\*\*\*The instructor may decide to (but is not obligated to) drop the lowest quiz score on the above for those students who are regularly attending the class lecture. This is an attendance incentive! 😊\*\*\*

### **Late Assignment Policy**

Materials turned in late may be docked and may take extra time to grade. If you feel an issue might have arisen out of your control or preventing timely completion of your assignment—talk to the instructor before the due date

Students with special needs as defined by the university must consult with the Center for Disabilities early in the semester to arrange accommodations such as extra exam time. Students are expected to abide by suitable classroom conduct policies; the lecture period is meant to foster learning, and students should cooperate toward that goal. The instructor shall reserve the right to preserve the integrity of the classroom as such; disruptive students may be asked to leave. Please respect the integrity of this learning environment.

Policies on appealing grades follow those prescribed by the University and the department. First and foremost, students are encouraged to discuss their grades and related matters during office hours or another scheduled time period with the instructor. Raise any concerns or problems with the course material, lectures, exam questions, in class, in person, or in writing.

Student athletes, EMTs, military personnel etc are expected to provide copies of their schedule well in advance of anticipated planned absences in which they are **\*\*officially\*\*** on active service. Student

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athletes should afford the classroom and the instructor the same courtesy they would extend to their coach/employer/commander.

### Course Schedule and Assigned Readings List 2019

\*\*Key: T= Tuesday; H=Thursday

\*\* Note that we cover about two chapters a week (~6 hours of study a week in addition to attending lecture).

Class	Lecture Topic	Chapters
T, 8/20	Initial meeting! Syllabus overview; should be posted on CANVAS	Preface
H, 8/22	Course overview, Fundamental Concepts I	Preface, 1
T, 8/27	Representations of the Earth	2
H, 8/29	Solar Energy and Earth-Sun Relationships	3
T, 9/3	The Atmosphere, Temperature, and Earth's Energy Budget	4
H, 9/5	Atmospheric Pressure, Winds, and Circulation Patterns	5
T, 9/10	Humidity, Condensation, and Precipitation	6
H, 9/12	Air Masses and Weather Systems; <i>Review of chapters 1-7</i>	7
T, 9/17	<i>Review of chapters 1-7</i>	1-7
H, 9/19	<b>*** EXAM I (Chapter 1-7)</b>	1-7
T, 9/24	Global Climates & Climate Change	8
H, 9/26	Low-latitude and Arid Climate Regions	9
T, 10/1	Middle-Latitude, Polar & Highland Climates	10
H, 10/3	Biogeography	11
T, H; 10/8 & 10/10	Soils & Soil Development I	12
T, 10/15	<b>Fall Break! 10/6/19-10/13/19! Have some fun! 😊</b>	
H, 10/17	Soils & Soil Development I ( <i>continued</i> )	12
T, 10/22	<i>Earth Materials &amp; Plate Tectonics</i>	13
H, 10/24	<i>Review of chapter 8-13</i>	8-13
T, 10/29	<b>*** EXAM II (Chapters 8-13)</b>	8-13
H, 10/31	Tectonism and Volcanism	14
T, 11/5	Weathering & Mass Wasting	15
H, 11/7	Sub-surface Water & Karst	16

T, 11/12	Fluvial Processes and Landforms	17
H, 11/14	Arid Regions and Eolian Landforms	18
T, 11/19	Glacial Systems & Landforms	19
H, 11/21	Coastal Processes & Landforms	20
T, 11/26	<i>Review of chapters 13-20</i>	13-20
H, 11/28	<b>Thanksgiving Break</b>	
T, 12/3	Study Day! Relax! Prepare for Exam III! You're almost there!	13-20
H, 12/5	<b>*** EXAM III (Chapters 13-20)</b>	13-20
<b>Note:</b> There is not a cumulative final offered during final's week. Yay! 😊		

## UNIVERSITY NOTICES

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**Research Ranking of the University:** The University of Utah is the only institution in the state classified in the highest research category (R1). At the University of Utah, you students will have access to state-of-the-art research facilities and be able to be part of the knowledge creation process. You will have the opportunity to do research of your own with faculty who are leading experts in their field, engaging in programs that match your research interests. Further, you will interact with and often take classes with graduate students that provide an advanced understanding of the knowledge in your field.

**Emergency Preparedness Plan:** Students taking this class must be familiar with the campus Emergency Preparedness Plan. Each building has its own evacuation plan. Should there be a drill or an actual emergency that requires a building evacuation, please assemble at the appointed "EAP" (Emergency Assembly Point) and check in with the Prof or class instructor, who will take attendance. Please follow all instructions given. Do not leave the area until you are given permission to do so by your course instructor. Emergency protocols are online here:

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<http://emergencymanagement.utah.edu/eap> and we will post information online via CANVAS.



The Emergency Assembly Point (EAP) for us is located just above here^ on the southeast side of Marriott Library. \*\* If our EAP area is unsafe, proceed carefully uphill to another location by the Garff Executive Education Building (Business school).

**Safety & Wellness:** Your safety is our top priority. In an emergency, dial 911 or seek a nearby emergency phone (throughout campus). Report any crimes or suspicious people to 801-585-COPS; this number will get you to a dispatch officer at the University of Utah Department of Public Safety (DPS; [dps.utah.edu](https://dps.utah.edu)). If at any time, you would like to be escorted by a security officer to or from areas on campus, DPS will help — just give a call.

The University of Utah seeks to provide a safe and healthy experience for students, employees, and others who make use of campus facilities. In support of this goal, the University has established confidential resources and support services to assist students who may have been affected by harassment, abusive relationships, or sexual misconduct. A detailed listing of University Resources for campus safety can be found at <https://registrar.utah.edu/handbook/campussafety.php>

Your well-being is key to your personal safety. If you are in crisis, call 801-587-3000; help is close. The university has additional excellent resources to promote emotional and physical wellness, including the Counseling Center (<https://counselingcenter.utah.edu>), the Wellness Center (<https://wellness.utah.edu>), and the Women's Resource Center (<https://womenscenter.utah.edu>). Counselors and advocates in these centers can help guide you to other resources to address a range of issues, including substance abuse and addiction.

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## Class Accommodations

In compliance with the Americans with Disabilities Act of 1990, The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If any

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student needs accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 581-5020 (V/TDD). CDS will work with students and course instructors to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability Services; students requiring this service must advise the Center of their needs.

**Equal Access Statement:** The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Union Building, 581-5020 (V/TDD). CDS will work with you and instructors to make arrangements for accommodations. All written information in the course can be made available in alternative format with prior notification to CDS.

**Addressing Sexual Misconduct:** Title IX makes it clear that violence and harassment based on sex and gender, which includes sexual orientation and gender identity/expression, is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information.

If you or someone you know has been harassed or assaulted on the basis of your sex, including sexual orientation or gender identity/expression, you are encouraged to report it to the University's Title IX Coordinator; Director, Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or to the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to police, contact the Department of Public Safety, 801-585-2677(COPS). Additional information regarding reporting and victim supportive resources are available at the offices listed.

**Student Veterans:** The U of Utah has a Veterans Support Center on campus, in Room 161 in the Olpin Union Building. Hours: M-F 8-5pm. Please visit their website for more information about what support they offer, a list of ongoing events and links to outside resources: <http://veteranscenter.utah.edu> Please also let me know if you need any additional support in this class for any reason.

**Attention all students, and in particular those members of the LGBTQ community:** My classroom is a safe zone. Additionally, please know that the U of Utah has a Resource Center on campus in Room 409 in the Olpin Union Building. Hours: M-F 8-5pm. Visit their website: <http://lgbt.utah.edu> Please advise if there is additional support you need—I am here to help to the best of my abilities.

**If English is your second language:** There are several resources on campus that will support you with language development and writing: the Department of Linguistics ESL Program <http://linguistics.utah.edu/esl-program/> ; Writing Center (<http://writingcenter.utah.edu/>); the Writing Program (<http://writing-program.utah.edu/>); the English Language Institute (<http://continue.utah.edu/eli/>) Please note that access to translators and dictionaries is not permitted during the exams. Students may not consult notes, texts, papers, calculators, papers, written materials, or each other during exams.

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