

GEOG 170A1
EARTH'S ENVIRONMENTS: INTRODUCTION TO PHYSICAL GEOGRAPHY

Monday and Wednesday, 12noon to 12:50pm

Welcome to GEOG170A1 Earth's Environment: Introduction to Physical Geography!!

There are a few important documents on D2L that will guide you through this course. The first is this *overview* (this document you're reading right now), which contains my overall goals for the class as well as a discussion of the additional challenges from COVID-19.

Next is the *syllabus* – this contains important information about the class, including how to contact me and the Discussion (Lab) Instructor, my office hours and how to reserve a spot, the type of assignments and grading approach, and links to important information about campus resources available to all students. The *syllabus* is a statement of *policies* from the University, the College, the School, and from me, so please review it early in the class and consult it frequently if you have any questions. Finally, there is the *course schedule*, which is a detailed, day-by-day description of the topics we'll cover and any assignment due dates. This *course schedule* is subject to change, especially given the uncertainty of the pandemic, to adapt to current events or change the balance of topics we cover, but I'll inform you in advance whenever there are any changes to our plan.

Overview

The goal of the course is to provide you with the opportunity to gain an understanding of the Earth's surface and atmosphere and how they are constantly being transformed and altered. Together we will develop a holistic knowledge of the various components of what we call the Earth System and start to view landscapes as physical geographers do – as the result of interactions between climate, water, vegetation, and landforms through time and across space.

There are three broad categories of knowledge, skills, and competencies that we'll cover during this class. First, we'll deal with developing factual knowledge about the Earth's various interacting systems – climate and the atmosphere, water in its many forms, vegetation, and the solid earth -- so that we come to understand and use terminology and deploy fundamental facts about all these different components of the landscape around us. Second, we want to extend our knowledge to important concepts – this includes things like understanding interactions, relationships, and feedbacks between parts of the earth system. Finally, the major objective is to be able to apply these facts and concepts in the framework of geographic analysis. This means being able to take what you've learned in general and apply it in new situations – this is the *really* fun

part. Discussion (Lab) sections will give you the opportunity to explore these categories in more depth with the guidance of your Discussion (Lab) Instructor.

Ultimately, I want you to be able to 'read' a landscape and all its component parts and understand them as a momentary condition, a point in time of transition and change on a dynamic Earth. I also want you to be able to add information and ways of knowing to your growing set of skills and knowledge, ones that will serve you no matter what career path you follow.

For those of you continuing on in geography and other earth and environmental sciences, this course can serve as a foundation from which you can go on to expand your knowledge into the details of the various individual systems we'll study together, develop even more powerful analytical tools, and establish a broad base in earth systems sciences.

Planning for the unknown – this class and the COVID-19 pandemic

Life is really difficult right now, even a year after the novel coronavirus appeared on the world stage. Some of us are doing better than others, but everyone is struggling with something during this pandemic - that's because most things in our lives have experienced a sudden and, in some cases, catastrophic shift away from what we were used to and what we expected. We feel unbalanced. We've got new and difficult responsibilities. The things that bring us joy may not be possible or may be a long way away still, even as vaccines become available. You may have had COVID-19 yourself. You may know people that have tested positive, have been really sick, or perhaps have even died. You all have new and changing work responsibilities or increased responsibilities at home -- or more likely both. You are likely feeling really uncertain about a lot of things, and you're not alone.

In the midst of all this, I'm fully committed to making sure that you get everything you wanted from this class. I will do my best to make any accommodations I can to help you finish the coursework and to learn and understand all of the course materials. I will be as flexible as I possibly can be regarding assignments - so if you are having trouble for any reason at all, please reach out to me. You don't have to share any personal information with me, but you are always welcome to reach out if you need help inside or outside of this class. (I hope you'll also give me some latitude if I'm forgetful or things don't work quite right the first time we try them - like you, there are days I still really struggle).

I want you to learn a ton of awesome things about the earth system in this class, how it came to be, and how it is changing, but my overarching goal is also that you all remain healthy, safe, and secure this semester. For that reason, we'll take it week-by-week and evaluate conditions on campus. I'm committed to giving you the best possible experience online.

If you have any concerns, questions, fears, ideas, or would just like to chat, please contact me (kanchukaitis@arizona.edu) and setup a time for us to get together.

This is going to be a challenging semester – **let's support each other and be generous with one another.**

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Earth's surface and atmosphere are constantly being transformed and altered. Changes in the physical environment often result from complex interactions among earth's four principle spheres: the atmosphere (air), lithosphere (rocks), biosphere (the living stuff), and the hydrosphere (water). While meteorologists, geologists, biologists, and hydrologists often deal with each system separately, physical geographers are interested in the relationships and interactions among climate, water, vegetation, landforms, etc. We study the totality of *landscapes* – how they form, how they change. Many physical geographers are also interested in how human activities and practices influence—and are shaped by—environmental processes.

This is a Tier 1 Natural Sciences course, as well as a core course for the B.S. in Geography. Though lectures and discussions, this course introduces students to the study of the physical landscape from a geographic perspective. It focuses on how and why the earth's surface varies over space and time and examines the complex relationships that create such changes.

Check out the cool things geographers are doing at the U of A: geography.arizona.edu

Communications concerning class via official UA email addresses.
Course materials online via D2L (<http://d2l.arizona.edu>)

Teaching Team

Lecture Instructor: **Dr. Kevin Anchukaitis**
Associate Professor, School of Geography, Development, and Environment
Email: kanchukaitis@arizona.edu
Office Hours: Monday between 3pm to 5pm by appointment (made via D2L)

Discussion Instructor: **Padmendra Shrestha**
Lab Sections: TBA
Email: padmendra@email.arizona.edu
Office Hours: TBA

Course Materials and Communications

All communications concerning class are via official UArizona email addresses.
All course materials online via D2L (<http://d2l.arizona.edu>)

Locations and Times

The course operates in a Live Online mode. The Zoom link for the class is:

Join Zoom Meeting (copy link into your browser)
<https://arizona.zoom.us/j/84704327367?pwd=ODE1ZFo0eXJFbDBpSTI5d1FQVzNWUT09>

Password: 598768

Course Format and Learning Outcomes

The course is divided into three sections. Each section covers four or five broad topics pertinent to studying and understanding physical geography. Each week is structured around two lectures. Typically, we will spend at least two or three class periods on a given topic in order to hammer home the concepts. You can expect to understand the basic processes driving spatial variability of the lithosphere, atmosphere, hydrosphere and biosphere. You can expect to master the basic physics behind energy and mass movements on Earth. You can expect to learn how to think critically, using converging lines of evidence to solve new problems and speculate about open questions.

In addition to the weekly lectures, you will have a 50-minute discussion/laboratory section once a week.

The labs are a major component of this course and enable you to apply the concepts/topics from lecture in a more specific context. **Your Discussion (Lab) Instructor is always your first point of contact for all course issues (e.g., excused absences, grading, etc.). Your Discussion (Lab) Instructor can also sign Course Schedule Changes.**

For Geography undergraduate majors, this course addresses the following learning outcomes:

1. Demonstrate knowledge of core principles of physical geography in climatology and water resources
2. Recognize the key factors influencing global and regional climate in the past, present, and future.
3. Evaluate linkages between the natural environment and human systems
4. Demonstrate ability to create, refine, and interpret graphical data.
5. Understand human dimensions of environmental issues
6. Understand causes and effects of regional and global environmental change.
7. Understand concepts required for success in an environmental profession

Course Materials

Recommended Lecture Textbook: Christopherson, Robert W. 2018. *Elemental Geosystems*. Upper Saddle River, N.J.: Prentice Hall (9th edition). A previous edition is also OK.

Discussion (Laboratory) Exercises are made available to you at no additional charge via D2L.

Required Clicker or Clicker App: You will need to buy either: (i) a registration for the free TurningPoint mobile app (which you should download from your phone's app store, and then follow the registration and payment instructions) – the registration also works for the web version at <https://tppoll.com>; You will use your phone/computer in almost every lecture class for interactive feedback and learning support. See further information below for more about clickers/devices.

Methods of Evaluation

Engagement & Participation (EP: 10% of Course Grade)

Class lecture meetings will be mixtures of presentations, interactive classroom response, brief discussions and other learning-support activities. Lecture participation promotes mastery, so lecture attendance is key to your success. *Good participation correlates with good grades!* Engagement will be graded on simple presence (answering at least one in-class response on the classroom response system). You will automatically have participation dropped for 4 lecture classes in case you are away, sick, forgot your clicker, etc. (no need for a formal excuse) Students are responsible for their own attendance. Never attempt to respond for an absent classmate. It is a breach of academic integrity and will be treated accordingly.

Writing Assignments (15% of Course Grade)

Writing assignments are an integral part of this course. Two short (3-5 pages, double-spaced, typewritten, not plagiarized from the internet) writing assignments will be required. Each writing assignment will constitute 7.5% of the course grade (for a total value of 15%). You will receive feedback on writing assignments (logic, organization, grammar, etc. using a rubric). You will be offered the opportunity to revise and resubmit the first of the 2 writing assignments. Due to the revise and resubmit timing, *we cannot accept late Writing Assignments*. Due dates for Writing Assignments 1 and 2 are on the course schedule. University computing labs (<https://it.arizona.edu/service/oscr-computer-labs>) can be used as a resource for Internet access, data analysis and word processing/printing. *Plagiarism will result in a zero for all involved.*

Tests (45% of Course Grade)

You will take three tests during the semester. Because this is a large class, each test will consist of multiple choice questions taken from the lectures and the quizzes. Tests are not cumulative. (See the Course Schedule for test dates). Due to COVID-19, all exams will be online via D2L.

Discussion (Lab) Sections (30% of Course Grade)

You will get a separate syllabus for your lab section from your Discussion Instructors. All labs meet in ENR2 S495. You will have weekly (or almost weekly) lab assignments during the

semester. We will drop the lowest lab score. Unless otherwise noted, you will have one week to complete each lab. The labs will be turned in at the beginning of lab class the week after they are assigned. *No late lab assignments will be accepted! You must attend the lab you for which you register. All students must do their own laboratory assignments.*

Grading Policy

University policy regarding grades and grading systems is available at:
<https://catalog.arizona.edu/policy/grades-and-grading-system>

Grade Distribution for this Course:

- A: 90% and above
- B: 80% to 89%
- C: 70% to 79%
- D: 65% to 69%
- E: below 65%

Requests for incompletes (I) and withdrawal (W) must be made in accordance with university policies which are available at <https://catalog.arizona.edu/policy/grades-and-grading-system#incomplete> and <https://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal> respectively.

Requests that I reconsider the grading of any individual assignment must be made within 24 hours of that assignment being returned.

COVID-19: Modality and online teaching

This class is scheduled to be taught in the 'Live Online' modality. This means that you are expected to attend and participate in class activities during each regularly scheduled course time, both for lectures and Discussion sections. Any changes to this modality or schedule will be communicated in advance. Please ensure you check your official University of Arizona and the D2L site

COVID-19: Life challenges

If you are experiencing unexpected barriers to your success in your courses, please note the Dean of Students Office is a central support resource for all students and may be helpful. The [Dean of Students Office](#) can be reached at 520-621-2057 or DOS-deanofstudents@email.arizona.edu.

COVID-19: Physical and mental-health challenges

If you are facing physical or mental health challenges this semester, please note that Campus Health provides quality medical and mental health care. For medical appointments, call (520-621-9202. For After Hours care, call (520) 570-7898. For the Counseling & Psych Services (CAPS) 24/7 hotline, call (520) 621-3334.

COVID-19: Equipment and software requirements

For the online portions of this class you will need daily access to the following hardware: laptop or web-enabled device with webcam and microphone; regular access to reliable internet signal; ability to download and run the following software: web browser, Adobe Acrobat or similar PDF viewer.

COVID-19: Remain flexible

As pandemic conditions warrant, the University may change modalities or operations. If that is the case, we will notify you by D2L Announcement and email.

COVID-19: Class Recordings

For lecture recordings, which are used at the discretion of the instructor, students must access content in D2L only. Students may not modify content or re-use content for any purpose other than personal educational reasons. All recordings are subject to government and university regulations. Therefore, students accessing unauthorized recordings or using them in a manner inconsistent with UArizona values and educational policies are subject to suspension or civil action.

Test and Assignment Policy

Failure to take an exam on the date it is scheduled, unless excused in advance, will result in 0 points. Failure to turn other assignments by their due date and time, including laboratory or discussion assignments and elements of the two writing assignments, will result in 0 points. Exceptions to this policy are at the discretion of the instructors. **If you foresee an absence, you should contact your Discussion instructor in advance of the anticipated absence to make arrangements.**

The UA's policy concerning Class Attendance, Participation, and Administrative Drops is available at:

<http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop>

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable:

<http://policy.arizona.edu/human-resources/religious-accommodation-policy>

Absences pre-approved by the UA Dean of Students (or the Dean's designee) will be honored.

Participating in the course and attending lectures and other course events are vital to the learning process. As such, attendance is expected at all class meetings. If you anticipate being absent, are unexpectedly absent, or are unable to participate in class online activities, please contact your Discussion Instructor as soon as possible.

To request a disability-related accommodation to this attendance policy, please contact the Disability Resource Center at (520) 621-3268 or drc-info@email.arizona.edu. If you are experiencing unexpected barriers to your success in your courses, the Dean of Students Office is a central support resource for all students and may be helpful. The Dean of Students Office is located in the Robert L. Nugent Building, room 100, or call 520-621-7057.

COVID-19: Late Work Policy

In general, work will not be accepted late except in case of emergency or illness. You may request an exception if you feel you have a compelling reason for turning work in late. However, the instructors will attempt to accommodate you as best as possible during the pandemic.

Classroom Response Devices, Laptops, and other devices in the classroom

Clickers and related mobile or web apps enable your participation in our class interactive student response system. They allow you to participate in demonstrations, find out whether you understand a concept or idea, and examine your preferences and opinions. Clickers also assist me as the instructor to get a snapshot of whether most students in the class understand concepts, and which areas I need to spend more time on or go back over.

Classroom Behavior

The Arizona Board of Regents' Student Code of Conduct, ABOR Policy 5-308, prohibits threats of physical harm to any member of the University community, including to one's self. See: <http://policy.arizona.edu/threatening-behavior-students>.

Honors Credit

Unfortunately, Honors credit is not available this semester for GEOG170A. However, if you're interested in exploring additional opportunities in physical geography and earth system sciences, please make an appointment to discuss these with Kevin.

Accessibility and Accommodations

It is the University's goal that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, please let me know immediately so that we can discuss options. You are also encouraged to contact Disability Resources (520-621-3268) directly to

establish reasonable accommodations. For additional information on Disability Resources and reasonable accommodations, please visit <http://drc.arizona.edu/>.

If you have reasonable accommodations, please plan to meet with me by appointment or during office hours to discuss accommodations and how my course requirements and activities may impact your ability to fully participate.

Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable.

Student Code of Academic Integrity

Students are responsible for ensuring their own work and conduct meets the University's Standards.

Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See: <http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity>.

The University Libraries have some excellent tips for avoiding plagiarism available at: <http://www.library.arizona.edu/help/tutorials/plagiarism/index.html>.

Selling class notes and/or other course materials to other students or to a third party for resale is not permitted without the instructor's express written consent. Specifically, use of Chegg or a similar service is prohibited. Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions. Additionally, students who use D2L or UA email to sell or buy these copyrighted materials are subject to Code of Conduct Violations for misuse of student email addresses. This conduct may also constitute copyright infringement.

Additional Resources for Students

UA Non-discrimination and Anti-harassment policy:

<http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>

UA Academic policies and procedures are available at:

<http://catalog.arizona.edu/2015-16/policies/aaindex.html>

Student Assistance and Advocacy information is available at:

<http://deanofstudents.arizona.edu/student-assistance/students/student-assistance>

Confidentiality of Student Records

University policies are available here: <http://www.registrar.arizona.edu/ferpa/default.htm>

Subject to Change Statement

Information contained in the course syllabus and course schedule, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.

<u>Date</u>	<u>Sphere</u>	<u>Lecture</u>	<u>Topic</u>	<u>Reading</u>	<u>Thursday Lab Activities and Assignments</u>	<u>Assignments Due</u>
Wednesday, January 13	All 4 Spheres	1	Introduction to Physical Geography	Ch. 1	NO LAB MEETING THIS WEEK	Sign up for TurningPoint
Monday, January 18			<i>Martin Luther King Jr Day - No class</i>			
Wednesday, January 20	Atmosphere	2	Energy in the Earth System	Ch. 2a	NO LAB MEETING THIS WEEK	Sign up for TurningPoint
Monday, January 25	Atmosphere	3	Energy in the Earth System II	Ch. 2b		
Wednesday, January 27	Atmosphere	4	Earth's Energy Balance	Ch. 3a	Lab #1: Earth-Sun Relationships	Nothing
Monday, February 1	Atmosphere	5	Temperature Controls and Patterns	Ch. 3b	Lab #2: Global Temperature Patterns	Lab #1 Due
Wednesday, February 3	Atmosphere	6	Winds and Atmospheric Circulation	Ch. 4a	Lab #3: Atmospheric Circulation	Lab #2 Due
Monday, February 8	Atmosphere	7	<u>Exam #1 Review</u>		Writing Exercise #1 assigned	Lab #3 Due
Wednesday, February 10	Atmosphere	E1	Exam #1			
Monday, February 15	Atmosphere + Hydrosphere	8	Water , humidity, clouds, convection	Ch 4b		
Wednesday, February 17	Hydrosphere	9	Atmospheric Stability, large-scale circulation	Ch. 5a		
Monday, February 22	Hydrosphere	10	Hydrologic Cycle & Water Resources	Ch. 5b		Nothing
Wednesday, February 24	Hydrosphere + Lithosphere	11	Water Resources in the West	Ch. 6		
Monday, March 1	Hydrosphere	12	Earth's Climate Regions	Ch. 7		
Wednesday, March 3	Hydrosphere + Biosphere	13	Climate Change	Ch. 8	Lab #4: Atmospheric Stability	Nothing
Monday, March 8			<i>No class</i>			Writing #1 Draft Due
Wednesday, March 10			<i>Reading Day - No class</i>		Lab #5: Arizona Water Balance	Lab #4 Due
Monday, March 15	Hydrosphere	14	<u>Exam #2 Review</u>		Lab #6: Climate Change	
Wednesday, March 17	Hydrosphere	E2	Exam #2		Lab #7: Global Climate Systems	Lab # 5 Due
Monday, March 22	All 4 Spheres	15	Earth's History and Structure	Ch. 9		
Wednesday, March 24	Lithosphere	16	Tectonic Processes, Earthquakes & Volcanoes	Ch. 10	Lab #8: Plate Tectonics	Lab # 6 Due
Monday, March 29	Lithosphere + Atmosphere	17	Volcanos and Climate			
Wednesday, March 31	Lithosphere	18	Weathering, Erosion, and Topography	Ch. 11		Lab #7 Due
Monday, April 5	Lithosphere + Hydrosphere	19	River Processes & Landforms	Ch. 12	Writing Exercise #2 assigned	Writing #1 Final Revision Due
Wednesday, April 7	Lithosphere + Hydrosphere	20	Coastal & Wind Processes & Landforms	Ch. 13		
Monday, April 12			<i>No class - Teaching team at AAG meeting</i>			
Wednesday, April 14			<i>No class - Teaching team at AAG meeting</i>			Lab #8 Due
Monday, April 19	Lithosphere	21	Glacial & Cryosphere Processes & Landforms	Ch. 14	Lab #9: Landscapes from Space	Writing #2 Due
Wednesday, April 21	Biosphere	22	Ecosystems & Ecological Principles	Ch. 16a		
Monday, April 26	Biosphere	23	Biogeographic Controls & Patterns	Ch. 16b	Lab #10: Biogeography	Lab #9 Due
Wednesday, April 28	Biosphere	24	Terrestrial Biomes	Ch. 17		
Monday, May 3	All 4 Spheres	25	The Anthropocene			
Wednesday, May 5	Lithosphere + Biosphere	26	<u>Exam #3 Review (Lab #10 due in lecture)</u>			Lab #10 Due
Wednesday, May 11-12th		E3	Exam #3			