

ENVI 250: Seminar: Understanding Climate Change in Alaska



Fall 2020

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Online / Web Delivery - Blackboard webpage: <https://classes.uaf.edu>

Lectures Times: Monday and Wednesday, 8:00am to 9:25am.

Credits: 3 (lecture)

Prerequisites: All prerequisites will be waived for this course

Office Hours: by appointment

Blackboard Collaborate link: Connect through <https://classes.uaf.edu>

Required Text:

- American Meteorological Society *etextbook*: Our Changing Climate: Introduction to Climate Change, by Chand Kauffman

• **Extra Reading** - will be referred to by instructor

- RealTime Climate Portal: A Weekly Climate News reader that investigates the details of current climate related events. Prepared by Dr. Edward J. Hopkins (University of Wisconsin - Madison). <http://www.ametsoc.org/amsedu/login.cfm> (Requires login)\
- The Climate of Alaska by Martha Shulski and Gerd Wendler
- The Discovery of Global Warming <https://www.aip.org/history/climate/20ctrend.htm> by Spencer Weart
- United Nations Framework Convention on Climate Change <http://unfccc.int/2860.php>

Course Description:

This introductory climate science course will focus on causes of climate change and how rapidly warming is influencing nature and society. The course is innovative and interactive, using up latest information from the National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), and American Meteorological Society (AMS) to introduce students to the dynamic Earth climate system. By focusing on broad geographical and ecological systems that drive how and why climate changes, the course also investigates many of the contemporary environmental issues Alaskan society must face in a warming world.

Teaching Methods:

This American Meteorological Society approved course presents recent data collected by university and government labs. It consists of synchronous online lectures, demonstrations, videos, assignments and

discussions all integrated on the Blackboard and Collaborate toolkit. Weekly online assignments will be done using The American Meteorological Society's eInvestigations Manual - The RealTime Climate Portal.

Lecture Attendance and Course Readings

As this is a demanding introductory science course where you will learn many new terms and concepts, lecture attendance is mandatory. As one topic builds on another, getting behind will result in poor performance. You will be required to complete the required reading and assignments on time (this will make learning easier). Most of the lecture topics are discussed in the course textbook, thus I encourage having the text available as I may refer to it.

Learning Objectives:

Upon successful completion of this course, students will be expected to:

- Use the scientific method to learn about climatic processes
- Describe the water cycle and its role in weather and climate
- How to critically read and evaluate an article related to climate science
- Explain a relationship between climate change and species diversity: Discover how top predators, such as polar bears, are affected by climate change.
- Calculate your carbon footprint and contributions to GHG emissions.
- Discuss how the culture of western Alaska will be influenced by climate change
- Understand the basics of ice ages and the drivers of climate change

Course Outline: ENVI 293 Course Schedule

<i>Week</i>	<i>Dates</i>	<i>Text Chapter</i>	<i>Topic</i>
1	Aug 26	Ch 1	Introductions, Earth's Climate as a Dynamic System
2	Aug 31, Sept 2	Ch 1	Earth's Climate as a Dynamic System
2	Sept 7		<i>Labor Day (no classes)</i>
3	Sept 7, 9	Ch 2	Observing Earth's Climate System
4	Sept 14, 16	Ch 3	Tools for Investigating Earth's Climate System
5	Sept 21, 23	Ch 4	Radiation and Heat in the Climate System
6	Sept 28	Exam 1	
6	Sept 30	Ch 5	Water in the Earth's Climate System
7	Oct 5, 7	Ch 5	Water in the Earth's Climate System
8	Oct 12, 14	Ch 6	Global Atmospheric Circulation
9	Oct 19, 21	Ch 7	Atmosphere-Ocean Relationships
10	Oct 26	Exam 2	
10	Oct, 28	Ch 8	Natural and Anthropogenic Drivers of Climate Change
11	Nov 2, 4	Ch 8	Natural and Anthropogenic Drivers of Climate Change
12	Nov 9, 11	Ch 9, 10	Paleoclimatic Investigations: Relevancy to the Present State
13	Nov 16	Ch 10	Past and Present and Future State of Climate
13	Nov 18	Exam 3	
14	Nov 23	Ch 11	Human and Ecosystem Vulnerabilities to Climate Changes
14	Nov 25-29	<i>Thanksgiving Break</i>	
15	Nov 30-Dec 2	Ch 11	Human and Ecosystem Vulnerabilities to Climate Changes
16	Dec 7-9	Ch 12	Energy and Geopolitical Issues and Review
	Dec 14	Exam 4: Final Essay	

Exams:

There will be three exams and a Final. Exam format will typically be timed, open book, and include a mixture of multiple choice, short answer, fill in the blank, diagrams and maps. There will be

comprehensive “**Final Essay Questions**” that will test if you can put together all that you learned. I will give hints at what these questions will be throughout the semester. This will allow answers to be researched, completed, refined, and practiced during the course of the semester.

Evaluation and Assessment:

- Climate science is a complex topic. Class attendance and participation is required in order understand course material. ***Course Credit Hours = 3***

Individual assignments and group projects Students will do individual assignments investigating one aspect of climate change in their community, these student data will be compiled as a group project to look at a regional scope of social-ecological change.

Course Grading Scale:

All grades use the plus (+) and minus (-) letter grade system and determined on an absolute score (with no curve) according to the following:

A= 90-100 percent: outstanding work, mastery of topic

B = 80-89 percent: above average work, all assignments completed

C = 70-79 percent: average, all assignments completed, satisfactory

D = 60-69 percent: pass, some unsatisfactory or missing work

F = less than 60 percent: failure to meet requirements of course

Grades are calculated using the following percentages:

15% - Exam 1

15% - Exam 2

15% - Exam 3

24% - Final Exam 4

25% - individual assignments and group projects

6% - Attendance and class participation

Late Policy: Any homework assignment turned in after the due date may be deducted by 10% per day. There will be no makeup projects or assignments.

Extended absence policy: The University of Alaska Fairbanks recognizes that students may need to miss more classes than allowed by a particular instructor as specified in course policies.

Extended absences are defined as missed classes or course work by students beyond what is permissible by the instructor’s written course policies. Students may need to miss class and/or course work for a variety of reasons, including, but not limited to: • Bereavement • Personal illness or injury • Serious illness of a friend, family member or loved one • Military obligations • Jury service • Other emergency or obligatory situations For more information, go to the Students Handbook or the Center for Students Rights and Responsibilities.

COVID 19 Course info:

The UAF Faculty Senate Administrative Committee approved the following required component for the UAF syllabus: Students should keep up-to-date on the university's policies, practices, and mandates related to COVID-19 by regularly checking this website:

Covid-19 addition and policy: <https://sites.google.com/alaska.edu/coronavirus/uaf/uaf-students?authuser=0>

Further, students are expected to adhere to the university's policies, practices, and mandates and are subject to disciplinary actions if they do not comply.

Support and Disability Services:

Student Supports Services can be found at: <http://www.uaf.edu/sssp>

Or at University of Alaska Fairbanks Bristol Bay Campus Student Services at:

PO Box 1070,

Dillingham, Alaska 99576

907-842-5109, 800-478-5109, Fax: 907-842-5692

Library services are available at <http://www.uaf.edu/library> or call the toll free library information number at 1.800.478.5348 and ask for the off-campus librarian.

In Compliance with UAF Faculty Senate Resolution/2004

Title IX

University of Alaska Board of Regents have clearly stated in BOR Policy that discrimination, harassment and violence will not be tolerated on any campus of the University of Alaska. If you believe you are experiencing discrimination or any form of harassment including sexual harassment/misconduct/assault, you are encouraged to report that behavior. If you report to a faculty member or any university employee, they must notify the UAF Title IX Coordinator about the basic facts of the incident.

Your choices for reporting include:

- 1) You may access confidential counseling by contacting the UAF Health & Counseling Center at 907-474-7043;
- 2) You may access support and file a Title IX report by contacting the UAF Title IX Coordinator at 907-474-6600;
- 3) You may file a criminal complaint by contacting the University Police Department at 907-474-7721.
<https://uaf.edu/oco/civil-rights/aa-co/>

UAF has a Disability Services office that operates in conjunction with the College of Rural and Community Development (CRCDD) campuses and UAF's Center for Distance Education (CDE). Disability Services, a part of UAF's Center for Health and Counseling, provides academic accommodations to enrolled students who are identified as being eligible for these services. If you believe you are eligible, please visit <http://www.uaf.edu/chc/disability.html> on the web or contact Disability Services on the Fairbanks Campus at (907) 474-7043 or

Contact UAF via the Internet at <http://www.uaf.edu/sssp/> or BBC by calling the toll free number at 1.800.478.5109.

“The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. The instructor will work with the Office of Disabilities Services (203 WHIT, 474.7043) to provide reasonable accommodation to students with disabilities.”