

Instructor: Matt Bekker
Office: 672C SWKT
Phone: 422-1961
Email: matthew_bekker@byu.edu
Office hrs: MW 1-3 or by arrangement

Course Description

This course provides an introduction to the processes that produce spatial and temporal variability in climate. We will examine the distribution of different climatic characteristics across the Earth, and the effect of scale on these characteristics. We will also investigate past climatic variability, discuss and evaluate the tools used to reconstruct past climates, and explore the potential for and implications of future climatic change. A theme throughout the course will be how climate interacts with other elements of the Earth System.

Learning Outcomes

Upon completion of this course, students should be able to:

- Demonstrate an understanding of the processes responsible for producing spatial and temporal variation in the Earth's climates
- Identify the characteristics of climate in different areas of the world
- Explain the effects of scale on the characteristics of climate
- Demonstrate an understanding of how and why climate has varied in the past, and describe and evaluate the methods used to reconstruct past climates
- Be able to make informed decisions about human activities that affect atmospheric processes
- Appreciate the importance of water to Utah and the Intermountain West
- Read and interpret weather maps

Requirements

Attendance and Participation

Please come to class, and be willing to ask questions and make comments. We all have something to learn from each other, and your comments are as valuable as anybody's (including mine). Attendance & participation will count toward your final grade.

Readings and Quizzes

The required text for the course is *Understanding Weather and Climate* by Aguado and Burt. Your understanding of the course will be greatly enhanced if you complete the assigned readings *before* the class period for which they are assigned. In addition, our ability to discuss the material, rather than having me talk at you, will be largely dependent on whether or not you have done the reading. You will be required to take a short, timed quiz on Blackboard before each class period for which there is an assigned reading (I will let you know at least one lecture period in advance when a quiz is coming). There will be a total of 14 quizzes given (one for most, but not all chapters) and

I will drop the bottom 4 scores. No make-up quizzes will be given for any reason. Other supplementary readings, (e.g. an occasional journal article designed to supplement material in the text) may also be given.

Examinations

Exams may include some combination of multiple choice, short answer/short essay, T/F, or matching questions. Midterm exams will only include material covered since the previous one. However, scientific concepts tend to inherently build upon each other, so you will need to maintain a thorough understanding of some basic concepts and approaches introduced throughout the course. A comprehensive final exam will also be given at the scheduled time. All exams will be given in class.

Group Report and Presentation

You will be required to work in a group of 2-3 persons to complete a report on some topic related to climatology, and present your findings to the class near the end of the semester. You will have about 10 minutes for the presentation, plus time for questions. You will be able to choose your topic from a list of several options, which I will present early in the semester.

Exercises

Four exercises will be given that are designed to help you synthesize the concepts covered in lecture and the readings, and put them into practice. The assignments will be introduced in class, and you will have at least a week to complete each one.

Grading

I will use the standard 90-A, 80-B, 70-C, etc. scale in determining letter grades (including +/-). I may tweak this scale slightly if necessary, but only in your favor (i.e. if everybody earns 90%, everybody gets an A, but if nobody earns over 90%, you won't all get Bs and Cs). There will be a total of 400 points possible in the class, broken down as follows:

Midterm Exams (2@ 50 points each)	100 pts	(25%)
Final Exam	60 pts	(15%)
Group Report & Presentation	70 pts	(18%)
Quizzes (10 @ 5 pts each)	50 pts	(13%)
Exercises (4 @ 20 pts each)	80 pts	(20%)
Attendance and Participation:	40 pts	(10%)

Blackboard

In addition to the reading quizzes explained above, I will use Blackboard to post an outline of my lecture notes, as well as course announcements, links to supplementary readings, grades, and possibly the laboratory assignments. Although I will do my best to avoid surprises, **IT IS YOUR RESPONSIBILITY** to check the course site often for announcements and other postings. I strongly recommend that you print off a copy of my lecture notes before coming to class. This will make it easier for you to follow along, and will allow you to pay more attention to what I am saying, rather than writing every word down.

Expected Course Schedule

Week	Topic	Chapter
1 (1/4, 1/6)	The Atmosphere and Radiation	1,2
2 (1/11, 1/13)	Earth's Energy Balance and Temperature	3
3 (1/18, 1/20)	Atmospheric Pressure and Air Circulation	4,8
4 (1/25)	Overflow & Review	
4 (1/27)	Exam 1 (Covering weeks 1-4, chapters 1-4 and 8)	
5 (2/1, 2/3)	Moisture in the Atmosphere	5
6 (2/8, 2/10)	Air Stability, Clouds and Precipitation	6,7
7 (2/15, 2/17)	Synoptic Climatology	9,10
8 (2/24)	Severe Weather Events	11
9 (3/1)	Severe Weather Events	12
9 (3/3)	Overflow & Review	
10 (3/8)	Exam 2 (covering weeks 5-10, chapters 5-7 and 9-12)	
10 (3/10)	Principles of Weather Forecasting	13
11 (3/15)	Climate Classification	15
11 (3/17)	Reconstructing Past Climates	16
12 (3/22)	Future Climatic Change	16
12 (3/24)	Perspectives on drought in Utah	
13 (3/29, 3/31)	Student Presentations	
14 (4/5, 4/7)	No Class – AAG Meetings	
15 (4/12)	Overflow & Review	

Final Exam: Saturday, April 16, 11:00 A.M. – 2:00 P.M. (comprehensive, in-class)

General Policies

Late Assignment Policies

Late assignments will be docked 20% per weekday that they are late. Exercises may be turned in early. Make-up exams will ONLY be given in extreme circumstances for which adequate documentation is given in advance.

Geography Department Statement on Academic Dishonesty

The faculty of the Geography Department fully supports the Honor Code of Brigham Young University. You should know that in cases of academic dishonesty it is department policy to give an E on that part of the course (paper, homework, quiz, etc) in which academic dishonesty was involved. If the dishonesty involves a major portion of the course requirements, such as a midterm or final exam, the student may be given an E for the entire course. If the dishonesty involves copying someone else's work, unless they had no control over the situation, action will also be taken against the person allowing their work to be copied. Academic dishonesty of any type will be reported to the University Standards office. Please check the Internet site at:

<http://campuslife.byu.edu/honorcode/>

Preventing Sexual Harassment

Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds. The act is intended to eliminate sex discrimination in education. Title IX covers discrimination in programs, admissions, activities, and student-to-student sexual harassment. BYU's policy against sexual harassment extends not only to employees of the university but to students as well. If you encounter unlawful sexual harassment or gender based discrimination, please talk to your professor; contact the Equal Employment Office at 422-5895 or 367-5689 (24-hours); or contact the Honor Code Office at 422-2847.

Students With Disabilities

Brigham Young University is committed to providing a working and learning atmosphere that reasonably accommodates qualified persons with disabilities. If you have any disability that may impair your ability to complete this course successfully, please contact the University Accessibility Center (422-2767). Reasonable academic accommodations are reviewed for all students who have qualified documented disabilities. Services are coordinated with the student and instructor by the UAC. If you need assistance or if you feel you have been unlawfully discriminated against on the basis of disability, you may seek resolution through established grievance policy and procedures. You should contact the Equal Employment Office at 422-5895, D-282 ASB.