

Geography 111: Introduction to Weather and Climate

Fall 2014 10-1050am MWF 201 Chapman Hall

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Professor Konrad is also the Director of the Southeast Regional Climate Center (SERCC) and has a second office in 204 Coates Building (across Franklin St. from the Morehead Planetarium).

Text: Aguado and Burt, Understanding Weather and Climate. 6th edition (Older editions are acceptable)

Course Description

This course describes the nature and causes of weather and climate. During the first half of the semester, we will examine the basic processes that produce daily weather and long-term climate. During the second half of the semester, we will focus on the ways atmospheric processes and patterns come together to produce different types of weather, including ice storms, snowstorms, tornadoes, and hurricanes. We will study weather maps associated with different types of weather events. In addition, we will examine their climatology, specifically where they typically occur (i.e. geographical distribution) and when they typically occur (i.e. time of day and season). Finally, we will discuss the impacts and dangers of extreme events and how to interpret forecasts of their occurrence.

Over the course of the semester, we will explore wide range of web-based weather resources that provide a synopsis of the current state of the atmosphere. We will examine weather forecasts and learn how to make the best use of them. Finally we will use various web-based climate resources that, among other things, reveal how recent weather trends compare with the past. The first three to ten minutes of the lecture will typically be devoted to the current weather situation and forecasts over the next several days.

Weather Quizzes

A weather quiz will be posted on Sakai on most Wednesdays during the semester (beginning on 9/3). It will be due the following Sunday evening at 1159pm. The quiz will consist of 30 questions that address recent lecture topics and recent weather described in class. You may work together to answer the quiz questions using any resources at your disposal (e.g. lecture notes, web resources etc.).

Weather Project

You will follow the daily weather across the southeastern U.S for an 8 week period (9/22-11/17) using a variety of web-based weather resources. Specifically, you will document and describe

occurrences of unusual weather (e.g. coldest temperature, heaviest rainfall, strongest wind etc.) with the goal of finding the most extreme conditions during the study period. You will earn extra credit points if you identify a greater extreme than anyone in the class in a given weather category. Details on this project will be provided in a few weeks.

Grading

Tests	50% (Highest two of three on the tests, each counting 25%)
Test 1 (9/19)	
Test 2 (10/13)	
Test 3 (11/17)	
Final Exam (12/12 @8am)	20 %
Weather quizzes	15 %
Weather project	<u>15 %</u>
Total	100 %

Tests and the Final Exam

Each test will consist of 40 multiple-choice questions that are drawn from the lecture material, weather quizzes, and in class weather discussions. These questions will be answered on a scantron sheet, which can be obtained from the bookstore.

The final exam will include a take home section in which you will use web-based resources to interpret weather maps, forecasts, and climatologies.

Lectures

Power Point outlines of each lecture will be provided on the Sakai course website. These outlines will include all graphics/maps presented in the lecture.

You are expected to attend class each day and take notes. The Power Point outlines are not a substitute for the notes; they provide an organizing frame for the lecture details, which you will distill in your own words.

You are expected to turn off all electronic devices during the lecture, except for those that are being used for classroom activities. Laptop use will periodically be monitored to ensure that they are being used properly.

Syllabus

Date	Topic (Preliminary)	Text Pages
8/20	Course Introduction	---
8/22	<i>Introduction to weather forecasts</i>	382-388
8/25-8/27	Solar and terrestrial radiation	35-42
8/29	Earth-sun geometry	43-51
9/1	LABOR DAY BREAK	
9/3-9/5	Heat transfer	33-34; 56-70; 76-77
9/8-9/10	The greenhouse effect and climate change	69-70; 487-491,495-498; 86-89
9/12-9/15	Temperature relationships	70-81; 152; 230-232
9/17	Review	---
9/19	TEST 1	
9/22	<i>Introduction to web-based weather resources</i>	
9/24-9/26	Air pressure and wind	92-115; 233-234; 240-242
9/29-10/1	Water in the atmosphere	122-136
10/3	Vertical air motions	160-172
10/6-10/8	Clouds and precipitation	172-179; 190-195
10/10	Review	
10/13	TEST 2	
10/15	Circumpolar vortex and jet stream	224-230
10/17	FALL BREAK	
10/20	Circumpolar vortex and jet stream (continued)	
10/22	Cold outbreaks	261-263; 197-198

10/24-10/27	Wave cyclones	265-272; 281-299
10/29-10/31	Ice storms	203
11/3-11/5	Snow storms	196-197
11/7-11/10	Thunderstorms	308-325
11/12	Tornadoes	326-340
11/14	Review	
11/17	TEST 3	
11/19	Tornadoes (continued)	---
11/21-11/24	Hurricanes	345-375
11/26-11/28	THANKSGIVING BREAK	
12/1-12/3	Wrap up and Review	
12/10	READING DAY: Review session	---
12/12 @8am	FINAL EXAM	---