

Geography 109 – Introduction to Weather and Climate

Indiana University – Spring 2013

Class Meetings: 2:30–3:20 p.m., Tuesday and Thursday, FA 015

Instructor: Dr. Cody Kirkpatrick (codykirk@indiana.edu)

Office: MSB-II, Room 304

Office Hours: M & W, 10 a.m.–noon

Phone: (812) 855-3481

*If these office hours are not convenient, **let me know** and we can make an appointment for another time.*

Associate Instructors and their Lab Sections

Mr. Travis Matheus (tmatheus@indiana.edu; Friday sections)

Mr. John Wang (wanghu@indiana.edu; Thursday sections)

Sec. 08 8:00–8:50 a.m. Thurs., SB 131

Sec. 73 12:20–1:10 p.m. Fri., SB 131

Sec. 10 9:05–9:55 a.m. Thurs., SB 131

Sec. 74 1:25–2:15 p.m. Fri., SB 131

Sec. 76 10:10–11:00 a.m. Thurs., SB 131

Sec. 75 2:30–3:20 p.m. Fri., SB 131

Required Materials

Understanding Weather and Climate, 6th Edition, by Aguado and Burt. The 5th Edition is acceptable, but be warned: the figure and page numbers will not match up. If you buy the 5th Edition, you will be on your own to get with a classmate and get the correct page numbers for everything.

G109 Lab Manual 2012, available from Mr. Copy on 10th Street (map available on OnCourse).

Course Goal

Students who participate in the course fully will be able to explain typical daily and seasonal weather phenomena and patterns to their family and friends, imparting an appreciation for nature and its impact on our lives.

In G109, students are introduced to the fundamental principles of weather and climate. By the end of the course, students will be able to recognize and explain basic atmospheric properties, phenomena, and processes, and apply them to demonstrate the critical thinking and problem-solving skills that are expected in an introductory course at IU.

Lab Sessions

The lab portion of the course meets weekly, on Thursday and Friday. Your Associate Instructor will provide you with additional information about the lab sessions. Here, I can tell you that you need to purchase the lab manual before *your first lab session*. Details are given above.

Course Grades

Exam 1 (Tuesday, February 12 , at the usual class time)	20%
Exam 2 (Tuesday, March 26 , at the usual class time)	20%
Comprehensive Final Exam (Tuesday, April 30, 2:45 p.m.)	20%
Total lab grade	25%
Warm-up questions and occasional “quiz” questions	15%

Exams will be mostly multiple choice/matching/fill-in-the-blank, but there may be a few short answer and discussion questions.

The lab assignments, lab project, and lab exam will comprise the **lab grade**; these will be reported to me by your Associate Instructor. **You must obtain a passing grade in the lab to obtain a passing grade in the course.**

All exams will be held in the usual classroom. “Scantron” forms will be provided. Make-up exams are permitted only after written documentation (note from the clinic, approved University absence, etc.) and may be substantially different from the exam given at the usual class time (one possibility: 50-minute oral exam standing in front of the whiteboard). The final exam cannot be given early, and final exam absences will follow IU policy. The final exam cannot be given early.

Weekly reading assignments from the textbook are required for success in G109. Our class time will not be spent rehashing the reading—instead, our in-class discussions will build upon it. Prior to almost every class, I will ask you to complete (via the web) two or three **short warm-up questions** about the upcoming class discussion. These questions are designed to get you thinking about the day’s topic so that the in-class conversation will be a little more lively. Questions will be posted 24 hours prior to class, and you will have until 1 p.m. the day of class to complete them. Most every day, if you answer them—and write something beyond “I don’t know”—you will get credit. Because we will do this almost every class period, there are no “drops” or “make-ups” for missed questions. *These start on Thursday, January 10.* Six (unannounced) times during the semester, I will also ask questions that will be graded for accuracy. We may also do some similar questions in class. Most of you would call that a “**quiz**,” so that’s the word I’ll use also.

Your grade for the warm-up/quiz part of the course will be simple: total points earned divided by total points possible. For example, completing all of each day’s warm-up questions will be worth 1 point. When graded for accuracy, that will be worth one additional point. Each quiz question would be worth one point. And so on, and so on.

Working Together

You are strongly encouraged to discuss course material with your classmates. Warm-up questions, lab exercises, and studying for exams are all fair game. Science is a collaborative subject—and working with other scientists is what I do every day! Sharing ideas and asking questions of one another is something I hope you will do, and will find helpful. But keep in mind, unless specifically told otherwise, **you must submit your own answers** to all assignments.

Reasonable Accommodation

It is the policy of Indiana University to provide reasonable accommodations or academic adjustments as needed. These accommodations and adjustments will be made in a timely manner and on an individualized and flexible basis. Please review the University's ADA Policy and/or come speak to me so we can make the necessary arrangements. I am happy to help.

Cancellations

If class is canceled by the University (for whatever reason), all due dates—including exams—will be moved to the following class period.

Classroom Conduct

I have no problem with you bringing laptops, iPads, or whatever to class, as long as you are using them for a classroom purpose. Texting the girlfriend or watching football highlights on ESPN usually won't qualify. If I find students abusing this policy, I reserve the right to ask you to leave class for the day, to ban individuals from using these devices, to ban certain devices, or to ban them entirely. "Please use responsibly." Please do not answer your phone while sitting in class—I won't answer mine while standing at the front.

Also, let's please all use common sense about ringtones, headphones, and so on...

Academic Dishonesty

As members of the IU community, we are all directly affected by the "Indiana University Code of Student Rights, Responsibilities, and Conduct". The code is accessible at <http://www.iu.edu/~code/>. Cheating and plagiarism will not be tolerated under any circumstance. Don't do it.

Complaint Procedure

If you have difficulties or complaints related to this course, your first action usually should be to discuss them with me. If such a discussion would be uncomfortable for you or fails to resolve your difficulties, you should contact Professor Robeson, Chair of the Department of Geography. Professor Robeson's office is in the Student Building, Room 120. If you still are unsatisfied, you should discuss the matter with Professor Singell, Dean of the College of Arts and Sciences. Professor Singell's office is in Kirkwood Hall, Room 104.

Disclaimer

In cases of *force majeure*, I reserve the right to deviate from this syllabus. I will notify you as soon as I realize this is necessary, and I will document all changes with both the department and the Dean's office.

Motivation

I will try to make sure that everything we do in G109 keeps the course goal in mind (it's on the first page of the syllabus). With that, two questions frequently come up:

What are some of the specific properties, phenomena, and processes I will learn about?

- What are the basic constituents of the atmosphere, and why do I care
- What are the elements of weather and climate, and how are they reported and measured
- Why Earth has tropical, temperate, and polar regions
- What causes the seasons (i.e., temperatures to change globally)
- What causes temperatures to change locally
- Why the wind blows, and what forces affect air movement
- What we mean by “humidity” and how do we measure it
- Why air rises to form clouds
- What clouds are made of, and how they grow and develop
- How clouds produce precipitation
- What are the major air flows that control global and local weather patterns
- What are air masses and fronts, and why do I care
- Weather phenomena associated with a midlatitude cyclone
- Basic structure and behavior of thunderstorms
- Basic structure and behavior of tornadoes
- Basic structure and behavior of hurricanes
- How humans interact with—and influence—the Earth-atmosphere system

What are some examples of “problem-solving skills” I should learn in G109?

- How to obtain and interpret basic weather data collected by others
- Constructing line graphs and charts
- Conversion between temperature scales and other types of measurement units
- Calculating and interpreting climatological values
- Following a scientific problem from “first principles” – the absolute very basic starting point – all the way to a conclusion
- Constructing weather maps and learning how to interpret them
- How to collect weather data on your own, use it, and interpret it