

# METR 1014

## Introduction to Weather and Climate

Spring 2016  
TR 1:30 - 2:45 PM  
Nielsen Hall Rm. 270



### Instructor

**Dr. Jason C. Furtado**

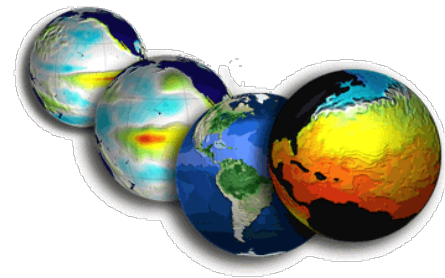
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### **Grader**

**Yaoyao Zheng**

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### Course Description

***Weather affects our everyday lives - from what we wear to what activities we choose to do. Climate has a longer-lasting impact on our lives. It affects how we live, energy production, food availability, and our overall cultural values and practices.***

**METR 1014** is a survey course of weather and climate for *non-meteorology majors*. In this class, we will cover a wide variety of topics that have direct impacts on our lives, such as El Niño, hurricanes, extratropical storm systems, and climate change. The aim is to make you understand **how** and **why** the Earth climate system behaves like it does under certain conditions.

As with any science, you will develop **critical thinking skills** about weather and climate so that you can understand discussions about the Earth climate system. **Extreme weather** and **climate change** are becoming front-and-center on social media and traditional news, so having these skills will make you a more informed citizen on these topics.

# GOALS

By the end of the course, students will be able to:

1. Explain basic atmospheric phenomena from a physical and scientific perspective.
2. Interpret and relay information presented in weather forecasts commonly seen on TV or online.
3. Understand the dominant patterns of climate variability in the Earth climate system and what impacts they have on weather we experience.
4. Apply the physical knowledge of meteorology gained to solve problems using analytical methods.

## Required Text

*Essentials of Meteorology: An Invitation to the Atmosphere*. 7th Edition. C. Donald Ahrens.

- The 5th edition or higher is acceptable for the course. However, you are responsible for any differences in the material between earlier editions and the 7th edition.

## Course Web Page

The web page will be accessible via <https://learn.ou.edu> (log on using your OU 4+4). There you will find course materials (e.g., lectures), grades, and news and announcements about the course.

## Grading

<b>Two (2) Exams (15% each):</b>	30%
<b>Comprehensive Final Exam:</b>	20%
<b>Lab Assignments:</b>	25%
<b>Weekly Weather Journal:</b>	15%
<b>Pre-Class Quizzes:</b>	10%

**Lab Assignments.** Labs are intended to compliment the lecture and provide the student with a well-rounded experience in the class. These labs are mandatory (a co-requisite). Some lab assignments will expound on or present topics we do not have time in class to cover. So, as much as we try, sometimes the lab assignments will not exactly coincide with class lecture. Also, please attend the lab section for which you signed up and only that section unless given permission to do otherwise.

**Weekly Weather Journal.** Science is not just about reading textbooks and calculating quantities - it requires effective oral and written communication skills. As part of this course, you will write a weekly journal entry (on D2L) about happenings in the world of weather and/or climate. The entries must be **no less than 100 and no more than 250 words**. More information will be provided in class.

**Pre-Class Quizzes.** Before the start of a new chapter in lecture, there will be a short quiz that must be completed online via D2L. It will only be open for 24 hours before the next class. These quizzes are timed and are aimed to make sure you are keeping up with the reading assignments and following along in class. If you read the chapters ahead of time, you will perform fine.

## Course Style

The overall structure of the class will consist of traditional lectures covering the major topics. Questions and interactions during class are welcome and **highly encouraged**. If you don't ask questions when things are unclear, then neither of us benefit from classroom lecture. Occasionally, I will pose questions/problems in class and have you work with a small group of students before collectively discussing the answers. These types of interactions foster collaborative learning, which is important in the sciences. While not graded, the interactions will help you learn the concepts, and the material covered is fair game for exams.



- Arrive to class on time, prepared to learn, and stay for the entire time period.
- Submit assignments timely and take exams on the assigned date. **No late submissions or makeup exams are allowed without prior approval.**
- Be courteous to other students. Place all phones on vibrate/silence, do not text/use social media during class, and keep talking to a minimum.
- Take an **active role** in learning and **ask questions** when needed.
- Seek assistance from the professor and teaching assistants during office hours / by appointment if you do not understand the material.

## EXPECTATIONS OF THE STUDENT

## Reasonable Accommodation Policy

The University of Oklahoma is committed to providing reasonable accommodation for all students with disabilities. Students with disabilities who require accommodation in this course are requested to speak with me as soon as possible. Students with disabilities must be registered with the Office of Disability Services ( prior to receiving accommodations in this course. The Office of Disability Services is located in Goddard Health Center, Suite 166 (Phone: 405.325.3852 or TDD only 405.325.4173).

## **Academic Misconduct**

Cheating is strictly prohibited at the University of Oklahoma. Simply put, it devalues your degree and ends up marring your character and reputation. For specific definitions on what constitutes cheating, review the Student's Guide to Academic Integrity at <http://integrity.ou.edu/students.html>. If you are caught cheating, I am obligated to report it. Sanctions for academic misconduct can include expulsion from the University and an F in this course. **BOTTOM LINE:** Don't cheat - it's not worth it.

To be successful in this class, all work on quizzes, exams, and assignments must be **yours and yours alone**. All exams are **closed book**, and you will be allowed the use of a **non-programmable calculator only** as an aid.

## **Religious Holidays**

It is the policy of the University is to excuse absences of students that result from religious observances and to provide without penalty for the rescheduling of examinations and additional required classwork that may fall on religious holidays. Any student who has a religious holiday fall on one of the exam days, please see me no later than one week before the exam so as to make other arrangements.

## **Title IX Resources and Reporting Requirement**

For any concerns regarding gender-based discrimination, sexual harassment, sexual assault, dating/domestic violence, or stalking, the University offers a variety of resources. To learn more or to report an incident, please contact the Sexual Misconduct Office at 405.325.2215 (8 AM to 5 PM, Monday-Friday) or [smo@ou.edu](mailto:smo@ou.edu). Incidents can also be reported confidentially to OU Advocates (405.615.0013) 24 hours a day, 7 days a week. Please be advised that a professor/GA/TA is required to report instances of sexual harassment, sexual assault, or discrimination to the Sexual Misconduct Office. Inquiries regarding non-discrimination policies may be directed to: Bobby J. Mason, University Equal Opportunity Officer and Title IX Coordinator at 405.325.3546 or [bjm@ou.edu](mailto:bjm@ou.edu). For more information, please visit <http://www.ou.edu/eoo.html>.

## **Adjustments for Pregnancy/Childbirth Related Issues**

Should you need modifications or adjustments to your course requirements because of documented pregnancy-related or childbirth-related issues, please contact me or the Disability Resource Center at 405.325.3852 as soon as possible. Also, see <http://www.ou.edu/eoo/faqs/pregnancy-faqs.html> for answers to commonly asked questions.

## Tentative Schedule for Spring 2016 (Subject to Change)

Week	Dates	Topic	Readings
1	Jan. 19, 21	Introduction & Course Expectations Origin of the Earth and its Atmosphere	Chapter 1
2	Jan. 26, 28	Structure of Earth's Atmosphere Temperature and Heat Transfer	Chapter 1 & 2
3	Feb. 2, 4	Energy Balance & The Greenhouse Effect	Chapter 2
4	Feb. 9, 11	Temperature	Chapters 2 & 3
5	Feb. 16, 18	Atmospheric Moisture & The Hydrologic Cycle	Chapter 4
6	Feb. 23, 25	Humidity & Clouds <b>EXAM #1</b>	Chapter 4
7	Mar. 1, 3	Atmospheric Stability Precipitation	Chapter 5
8	Mar. 8, 10	The Atmosphere in Motion	Chapter 6
9	Mar. 22, 24	Global Circulation Patterns	Chapter 7
10	Mar. 29, 31	Synoptic Weather	Chapter 8
11	Apr 5, 7	Synoptic Weather / Extreme Weather <b>EXAM #2</b>	Chapter 8
12	Apr 12, 14	Thunderstorms & Tornadoes	Chapter 10
13	Apr 19, 21	Hurricanes Global Climate	Chapters 11 & 12
14	Apr 26, 28	Global Climate & Climate Change	Chapters 12 & 13
15	May 3, 5	Climate Change Final Exam Review	Chapter 13

**FINAL EXAM: WEDNESDAY MAY 11, 2016 1:30 - 3:30 PM Nielsen Hall Rm. 270**