



Course ISNS 2368.001.16F
Course Title Weather and Climate
Steve McCauley
Professor BS Atmospheric Science, *Purdue University*
MS Atmospheric Science, *Texas Tech University*
MS Geosciences, *Mississippi State University*
Term August 22, 2016 - December 7, 2016
Meetings Friday 1:00 PM - 3:45 PM in JSOM 1.217

Professor's Contact Information

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Office Location Physics Building, TBD
Email Address Steven.McCauley@utdallas.edu
Office Hours Immediately after class AND by appointment
Other Information Responds to email within 24 hours, even on weekends.

General Course Information

Pre-requisites, Co-requisites, & other restrictions None

Course Description

Weather and Climate is a survey course of weather and climate for non-meteorology/non-science majors. The scientific method will be explained and utilized but without the rigorous mathematical treatment typically found in an introductory course in atmospheric science. This class is intended to give you an understanding of how the Earth works and to gain an appreciation of the Earth's atmosphere and how the physical and chemical processes within it make life possible on this planet while at the same time organize to produce violent weather phenomena such as severe thunderstorms, hurricanes, and tornadoes.

1. Describe and explain the earth's atmospheric structure
2. Read and interpret weather maps
3. Explain the life cycle of a hurricane
4. Differentiate between weather and climate and how and why each changes
5. Understand the concepts of humidity, saturation, and atmospheric stability which give rise to the formation of various cloud types and their associated weather.
6. Describe the properties of the electromagnetic radiation spectrum and use this information to understand the energy balance between solar and terrestrial radiation
7. Describe the physical and chemical processes that occur in the atmosphere and how those processes interact to create wind, clouds, and the various forms of precipitation.
8. Discuss the global, regional, and local atmospheric circulation patterns that give rise to smaller scale phenomena such as thunderstorms, tornadoes, and hurricanes.
9. Evaluate the evidence of global warming and global climate change and discuss its implications.
10. Investigate the vertical structure of the atmosphere
11. Understand how the Earth-Sun Geometry creates the seasons
12. Understand how the Surface Energy Budget determines heating and cooling rates
13. Learn how atmospheric moisture fuels the world's weather patterns

Learning Outcomes

14. Understand the concept of Air Saturation and its effects on Atmospheric Stability
15. Learn how Cloud Droplets form and evolve into and Raindrops
16. Learn the forces that drive Atmospheric Motion (i.e., the wind)
17. Interpret Weather Map Analysis
- 18.. Understand the life cycle of Mid-Latitude Cyclones
19. Learn the fundamentals of Weather Forecasting
20. Investigate the forces that create Thunderstorms and Tornadoes
21. Investigate the forces that create Hurricanes
22. Understand Climate Controls and how they determine global climates
23. Understand what determines Climatic Variability and Global Climate Change

Required Texts & Materials
Suggested Texts, Readings, & Materials

1-**Textbook:** *The Atmosphere*, 13th Edition, 2016 by Frederick K. Lutgens
 ISBN-10: 0321984625• ISBN-13: 978-0321984623
Weather, A Golden Guide by Lehr and Burnett; **Texas Weather** by George W. Bomar

Assignments & Academic Calendar

Class Week	Assignments for the Week
Aug 22-Aug 31	Read Chapter 1/View PowerPoint1 Take Syllabus Quiz due Sunday Night 11:59 PM Take Chapter 1 Quiz due Wednesday Night, Aug 31, at 11:59 PM
Sep 1-Sep 7	Read Chapter 2/View PowerPoint2 Take Chapter 2 Quiz due Wednesday Night 11:59 PM
Sep 8-Sep 14	Read Chapter 3/View PowerPoint3 Take Chapter 3 Quiz due Wednesday Night 11:59 PM Homework Assignment #1 due Wednesday Night 11:59 PM
Sep 15-Sep 21	EXAM I Covers Chapters 1, 2, and 3 Friday in Class Read Chapter 4/View PowerPoint4 Take Chapter 4 Quiz due Wednesday Night 11:59 PM
Sep 22-Sep 28	Read Chapter 5/View PowerPoint5 Take Chapter 5 Quiz due Wednesday Night 11:59 PM Homework Assignment #2 due Wednesday Night 11:59 PM
Sep 29-Oct 5	Read Chapter 6/View PowerPoint6 Take Chapter 6 Quiz due Wednesday Night 11:59 PM
Oct 6 - Oct 12	Read Chapter 7/View PowerPoint7 Take Chapter 7 Quiz due Wednesday Night 11:59 PM Homework Assignment #3 due Wednesday Night 11:59 PM
Oct 13 - Oct 19	EXAM II Covers Chapters 4, 5, 6, and 7 Friday in Class Read Chapter 8/View PowerPoint8 Take Chapter 8 Quiz due Wednesday Night 11:59 PM
Oct 20 - Oct 26	Read Chapter 9/View PowerPoint9 Take Chapter 9 Quiz due Wednesday Night 11:59 PM Homework Assignment #4 due Wednesday Night 11:59 PM
Oct 27 - Nov 2	Read Chapter 10/View PowerPoint10 Take Chapter 10 Quiz due Wednesday Night 11:59 PM
Nov 3 - Nov 9	Read Chapter 11/View PowerPoint11 Take Chapter 11 Quiz due Wednesday Night 11:59 PM Homework Assignment #5 due Wednesday Night 11:59 PM
Nov 10 - Nov 16	EXAM III Covers Chapters 8, 9, 10, and 11 Friday in Class Read Chapter 12/View PowerPoint12 Take Chapter 12 Quiz due Wednesday Night 11:59 PM

Nov 17 - Nov 30	Read Chapter 13/View PowerPoint13 Take Chapter 13 Quiz due Wednesday Night, Nov 30, at 11:59 PM Homework Assignment #6 due Wednesday Night, Nov 30, at 11:59 PM
Dec 1 - Dec 7	Read Chapter 14/View PowerPoint14 Take Chapter 14 Quiz due Wednesday Night at 11:59 PM Homework Assignment #7 due Wednesday Night at 11:59 PM
Exam Dates	Exam I (Sep 16, 1PM-2PM) Exam II (Oct 14, 1PM-2PM) Exam III(Nov 11, 1PM-2PM) Final Exam (TBA)

Course Policies

Grading (credit) Criteria	Method of Evaluation			<u>Point Value</u>
	Syllabus Quiz			20
	Class Attendance			20
	4 Exams @ 100 points each			400
	14 Chapter Quizzes @ 25 points each			350
	7 In-Class/Homework Assignments @ 30 points each			<u>210</u>
	Course Total Points:			1000
	Grade Scale			
	<u>Percent</u>	<u>Total Points</u>	<u>Grade</u>	
	93-100	930-1000	A	
	90-92.9	900-929	A-	
	87-89.9	870-899	B+	
	83 -86.9	830-869	B	
	80-82.9	800-829	B-	
	77-79.9	770-799	C+	
	73-76.9	730-769	C	
	70-72.9	700-729	C-	
	67-69.9	670-699	D+	
	63-66.9	630-669	D	
	60-62.9	600-629	D-	
	<59.9	599 or less	F	
<p>Special Notice Concerning TOTAL POINT and GRADES: The above grade scale is FIRM and FINAL. Because there will be several EXTRA CREDIT opportunities available throughout the semester, the above grade scale CANNOT be modified.</p> <p>For example, a student receiving 899 total points at the end of the semester will earn a B+ and not an A- regardless of performance on other assignments. <u>In other words, there will be NO "rounding up" of the grade.</u> If you miss a particular grade level by one point, you miss that higher grade level. This is the only way to be fair to all students in the class.</p> <p>Therefore, <u>you are STRONGLY ENCOURAGED to take advantage of every extra credit opportunity</u> to maximize your opportunity to earn the higher grade level. See the EXTRA CREDIT policy in this syllabus.</p>				

	<p>Also, you <u>EARN 20 POINTS</u> by showing up for class, but you can <u>LOSE 20 POINTS</u> for skipping class without notifying me. See ATTENDANCE POLICY in this syllabus for very important details on how you earn and how you can avoid losing these valuable attendance points.</p> <p><u>Attendance can make the difference between an A and an A- or a A- and a B+ (and so on down the grading scale).</u></p>
Chapter Quizzes	<p>There is a chapter quiz for each chapter in your assigned reading for a total of 14 quizzes. The questions will come from your textbook as well as the material presented during lecture. The quizzes are open book / open notes, and they are taken online. You can access the quizzes as many times as you need, but they must be submitted by Wednesday nights at 11:59 PM.</p>
Make-up Exams	<p>If you miss class on a day an exam is given, you may make up that exam <u>IF AND ONLY IF</u> the absence is due to one of the following:</p> <ol style="list-style-type: none"> 1) illness, 2) family emergency, 3) pre-approved appointment, or 4) university-approved absence. <p><u>You MUST provide documentation or similar evidence to substantiate the excused absence, and you MUST notify the instructor within 24 hours of the missed class.</u></p> <p>If you have one of the four excused absences listed above, you have 7 DAYS to make up the missed exam. It is usually most convenient to make up a missed exam during the instructor's office hours on Friday, but it is possible to make other arrangements to make up the exam on a different day. However, the missed exam MUST BE MADE UP WITHIN 7 DAYS of the original due date.</p> <p><u>IMPORTANT:</u> If you do NOT have an excused absence on a day you miss an exam, you will receive a ZERO for the missed exam. In other words, a student with an UNEXCUSED absence is NOT eligible to make up the test. This policy makes it fair to the other students who made the effort to study and to show up on exam days.</p> <p><u>Special Note on QUIZZES and HOMEWORK PROJECTS:</u> Since all quizzes and homework projects are made available at least 5 days before they are due, <u>there will be no make-up work for these assignments</u>. Therefore, do NOT wait until the last minute to start these assignments. Students who wait until the last minute to start any assignment will NOT be granted an extension and will NOT be able to make up the work if they fail to submit the assignments by the posted due date.</p>
Extra Credit	<p>There will be several extra credit opportunities given throughout the semester! This is why no quiz, no exam, and no homework score is dropped in this class. Extra Credit will consist of bonus questions on quizzes and exams and perhaps an independent project at the discretion of the instructor.</p> <p>There will also be "Pop Extra Credit" (PEC) opportunities given during class at the end of a lecture. These special opportunities will be <u>UNANNOUNCED</u>, and thus you must be in attendance in order to be eligible to earn the PEC points.</p> <p>Students who have an excused absence - such as an illness, family emergency, pre-approved appointment, or taking part in a university-approved sporting event - on a PEC day may earn the extra credit given in class by performing a special assignment.</p>

	<p>(Students without an excused absence are NOT eligible to make up PEC points.) The special assignment usually consists of writing a paper in APA format on a specific meteorological topic. The assignment must be completed within 7 days of the PEC day.</p> <p>IT IS THE RESPONSIBILITY OF THE STUDENT TO DETERMINE IF HE OR SHE HAS MISSED A POP EXTRA CREDIT (PEC) DAY.</p> <p>This means the INSTRUCTOR will NOT track down a student who missed class to let them know that they missed an extra credit opportunity. A qualified student who wishes to take advantage of any missed PEC opportunity will make arrangements with the instructor to see what he or she must do to obtain the extra credit points.</p> <p>NOTE: Students who show up for class just to keep their attendance points and then immediately leave the lecture room may not only miss out on a riveting lecture, but the student will also miss out on any possible unannounced extra credit opportunity at the end of lecture!</p>
Late Work	<p>Late work will be assigned a zero except in cases of an excused absence. If a student who requests to turn in an assignment AFTER the due date AND who also has a documented excused absence, he or she will have 7 days in which to make up the work. See the section "Make Up Exams" in this syllabus for details on what an excused absence is and what must be done to qualify for an extension..</p>
Special Assignments	<p>There are 7 in-class/homework assignments in this class. You will be given the assignment at least 5 days before it is due. Students will submit their homework assignments online. All homework assignments will be due on Wednesday nights at 11:59.</p>
Class Attendance	<p>Attendance is very important. You are required to attend lecture class as much as possible. It is unlikely you will succeed in this class without regular attendance. If you must miss lecture, please try to obtain the notes from a student who did attend class on the day you missed.</p> <p>By attending class regularly you will earn <u>20 POINTS</u> towards your final grade!</p> <p>Your instructor knows that life is what happens when you plan for other things, and thus various circumstances may prevent a student from attending every single class. If you miss lecture class - FOR ANY REASON WHATSOEVER - you <u>MUST</u> notify the instructor by email within 24 hours of the day you miss a class. You may send the email the day before, the day of, or the day after the missed class (by 1 PM). Thus you have 2 full days - from 1 PM Thursday to 1 PM Saturday - to notify the instructor of your absence.</p> <p>This requirement applies if you are ill, or if you have some emergency that causes you to miss class, or even if you simply do not want to attend class on a given day. This requirement also applies if you know you are going to miss class because of some pre-scheduled appointment or some athletic venue you need to attend (official documentation from the UTD Athletic Department is required). In any case, you <u>MUST</u> notify the instructor within 24 hours of the day you miss class. By following this simple guideline, you will retain your 20 points for attendance <u>regardless of the reason</u> why you were not in class.</p> <p>Failure to notify the instructor within 24 hours of a missed class will result in the INSTANT FORFEITURE of ALL 20 POINTS !</p> <p>Read that again: <u>If you do not notify the instructor within 24 hours of the day you miss a class, you will instantly and permanently lose ALL 20 POINTS for</u></p>

	<p>attendance even if you only miss that one day for the entire semester. The 20 points CANNOT be given back regardless of future attendance.</p> <p>Clearly, these 20 points are not only for your attendance in this class. They are points <u>you legitimately earn</u> because you are taking full responsibility as an adult and are being held accountable for your presence or absence during lecture. Attendance points can make the difference between an A and an A- in this class !</p>
Classroom Citizenship	<p>In order to not interrupt the class session, students are asked to turn off or set to vibrate all cell/smartphones at the beginning of class. There should be no texting, instant messaging, or any other forms of outside communications during the 50 minutes of lecture.</p> <p>Students are welcome to take notes during lecture on their tablets or laptop computers. However, students are asked NOT to access Internet content that is unrelated to the material being discussed. This is not only interfering with your understanding of course content, but it has been shown in student evaluations of this course to be disruptive to the learning styles of other students. It is one thing to sabotage your own learning experience, but it is unacceptable to interfere with another person's education.</p> <p>If the instructor sees a student or a group of students engaged in inappropriate use of electronic devices during lecture or engaging in a conversation that is unrelated to the topic being discussed, the instructor will return to the front of the class and remain silent for a brief amount of time until the offending student(s) correct their actions.</p> <p>Students who do not correct their inappropriate behavior in a timely manner may INSTANTLY and PERMANENTLY lose their 20 points for attendance and may be asked to leave the room.</p> <p>CLASSROOM EXPECTATIONS</p> <p>All students in this class will be treated like adults, and as such, they are expected to practice courteous, respectful, and cooperative behavior for the time they are in class. This would be the norm in any higher education or work environment.</p> <p>To avoid distractions in the classroom, students are expected to:</p> <ul style="list-style-type: none"> Arrive on time and stay until class is dismissed if at all possible. Be prepared for class discussions and/or exams. Leave all food/drinks outside the classroom. Listen courteously to one speaker at a time, with no interruptions. Never disrupt the class by engaging in unrelated conversations that can be heard by the instructor and especially by other students.
Comet Creed	<p><i>This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:</i></p> <p><i>“As a Comet, I pledge honesty, integrity, and service in all that I do.”</i></p>
UT Dallas Syllabus Policies and Procedures	<p><i>The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.</i></p> <p><i>Please go to http://go.utdallas.edu/syllabus-policies for these policies.</i></p>

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.