



Course ISNS 2368.001.17F
Course Title Weather and Climate
Professor Steve McCauley
BS Atmospheric Science, *Purdue University*
MS Atmospheric Science, *Texas Tech University*
MS Geosciences, *Mississippi State University*
Term August 21, 2017 - December 6, 2017
Meetings Friday 1:00 PM - 3:45 PM in GR 3.420

Professor's Contact Information

Office Phone 972-883-2883
Other Phone NA
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.

Learning Outcomes

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

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

Required Texts & Materials 1-**Textbook:** *The Atmosphere*, 13th Edition, 2016 by Frederick K. Lutgens
ISBN-10: 0321984625 • ISBN-13: 978-0321984623

Suggested Texts, Readings, & Materials **Weather, A Golden Guide** by Lehr and Burnett; **Texas Weather** by George W. Bomar

Assignments & Academic Calendar (Does NOT include Extra Credit Opportunities)

Class Week (Friday to Thursday)	Assignments for the Week
Aug 25 - Aug 31	Read Chapter 1 Take Chapter 1 Quiz Online Take Syllabus Quiz Online
Sep 1 - Sep 7	Read Chapter 2 Take Chapter 2 Quiz Online Due Thursday Night 11:59 PM
Sep 8 - Sep 14	Homework #1 Due Friday 1:00 PM Read Chapter 3 Take Chapter 3 Quiz Online Due Thursday Night 11:59 PM
Sep 15 - Sep 21	Exam I (Chapters 1, 2, and 3) Read Chapter 4 Take Chapter 4 Quiz Online Due Thursday Night 11:59 PM
Sep 22 - Sep 28	Homework #2 Due Friday 1:00 PM Read Chapter 5 Take Chapter 5 Quiz Online Due Thursday Night 11:59 PM
Sep 29 - Oct 5	Exam II (Chapters 4 and 5) Read Chapter 6 Take Chapter 6 Quiz Online Due Thursday Night 11:59 PM
Oct 6 - Oct 12	Homework #3 Due Friday 1:00 PM Read Chapter 7 Take Chapter 7 Quiz Online Due Thursday Night 11:59 PM
Oct 13 - Oct 19	Read Chapter 8,9 Take Chapter 8/9 Quiz Online Due Thursday Night 11:59 PM
Oct 20 - Oct 26	Homework #4 Due Friday 1:00 PM Exam III (Chapters 6, 7, 8, and 9) Read Chapter 10 Take Chapter 10 Quiz Online Due Thursday Night 11:59 PM
Oct 27 - Nov 2	Read Chapter 11 Take Chapter 11 Quiz Online Due Thursday Night 11:59 PM

Nov 3 - Nov 9	Homework #5 Due Friday 1:00 PM Read Chapter 12 Take Chapter 12 Quiz Online Due Thursday Night 11:59 PM
Nov 10 - Nov 16	Exam IV (Chapters 10, 11, and 12) Read Chapter 13 Take Chapter 13 Quiz Online Due Thursday Night 11:59 PM
Nov 17 - Nov 23	Homework #6 Due Friday 1:00 PM Read Chapter 15 Take Chapter 15 Quiz Online Due Thursday Night 11:59 PM
Nov 24 - Nov 30	Read Chapter 14 Take Chapter 14 Quiz Online Due Thursday Night 11:59 PM
Dec 1 - Dec 6	Homework #7 Due Friday 1:00 PM Review for Final Exam
Exam Dates	Exam I (Sep 15, 1PM-2PM) Exam II (Sep 29, 1PM-2PM) Exam III (Oct 20, 1PM-2PM) Exam IV (Nov 10, 1PM-2PM) Final Exam (TBA)

Course Policies

	Method of Evaluation		<u>Point</u>
	<u>Value</u>		
Grading Criteria	Syllabus Quiz		
	10		
	Class Attendance		
	20		
	4 Exams @ 100 points each		
	400		
	Final Exam @ 150 points		
	150		
	14 Chapter Quizzes @ 20 points each		
	280		
	7 Homework Assignments @ 20 points each		
	<u>140</u>		
	1000		Course Total Points:
	Grade Scale		
	<u>Percent</u>	<u>Total Points</u>	<u>Grade</u>
	97-100	970-1000	A+
	93-96.9	930-969	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+

	<p>63-66.9 630-669 D 60-62.9 600-629 D- <59.9 599 or less F</p> <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 earning 899 total points at the end of the semester will receive a B+ and not an A- regardless of performance on other assignments. In other words, there will be NO "rounding up" of the grade. 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. Also, using this grading policy, you earn the next higher grade level rather than the instructor just "giving" it to you.</p> <p>Therefore, you are STRONGLY ENCOURAGED to take advantage of every extra credit opportunity to maximize your opportunity to earn the higher grade. See the EXTRA CREDIT policy in this syllabus.</p>
Homework	<p>There will be 7 homework assignments worth 20 points each for a total of 140 points. Due dates for these assignments are given in the course calendar in this syllabus. The assignments will be made available on eLearning 7 days before they are due. You will either upload your completed homework assignment on eLearning, or you will hand in a physical copy at the beginning of class. Part of the Friday lecture before a homework assignment is due will be dedicated to going over the material required to successfully complete the assignment.</p>
Chapter Quizzes	<p>There is a chapter quiz for each chapter in your assigned textbook reading for a total of 14 quizzes worth 20 points each for a total of 280 points. 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 ALWAYS taken online. There is NO TIME LIMIT on these quizzes other than the due date. This means you can access the quizzes on eLearning as many times as you need, but they must be submitted by Thursday night at 11:59 PM. eLearning will automatically assign a ZERO to any quiz that is not taken by the due date.</p> <p>All quizzes will consist of multiple choice and true/false questions.</p> <p>If a technical issue prevents you from taking an online quiz, or if you lose your Internet connection while taking a quiz, or if you accidentally submit your quiz before answering all of the questions, contact the instructor by email IMMEDIATELY. The instructor MAY be able to reset the quiz for you, but be aware it may be a different quiz.</p> <p>DO NOT wait until the last minute to complete a quiz. If something goes wrong at the last minute, there may not be enough time to find a solution to the problem before the quiz is due!</p>
Exams	<p>There will be 5 exams - including the final exam. The first four exams will be given in class on the dates outlined in the course calendar in this syllabus. You will have one hour to complete each of these exams. Exams are closed book, and no notes are allowed. Normal lecture will resume after a 10-minute break after the exam is completed.</p> <p>The FINAL EXAM will be given on a date to be determined by the university. Although the final exam is NOT technically comprehensive, the concepts presented throughout the semester will need to be understood in order to do well on the final.</p>

	<p>All exams will consist of multiple choice, true/false, fill-in-the-blank, and short-answer questions.</p> <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>You MUST provide documentation or similar evidence to verify the excused absence, and you MUST notify the instructor within 24 hours of the missed class.</p> <p>If you have one of the four excused absences listed above, you have 7 DAYS to make up the missed exam.</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>Special Note on QUIZZES and HOMEWORK PROJECTS: Since all quizzes and homework assignments are made available 7 days before they are due, there can be no make-up work for these assignments. 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>
<p>Extra Credit</p>	<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. 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. (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 is due 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</p>

	<p>arrangements with the instructor to see what he or she must do to obtain the extra credit points.</p> <p><u>NOTE:</u> Students who show up for class just to keep their attendance points and then leave the lecture room before class has officially ended may not only miss out on a riveting lecture and class discussion, 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. Late work cannot be accepted for unexcused absences.</p>
Class Attendance	<p>Attendance is very important. You are required to attend 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. Students who obtain class notes when they miss lecture perform MUCH BETTER on exams.</p> <p>By attending class regularly you can earn up to 20 POINTS towards your final grade!</p> <p>For each day you attend class and stay throughout the entire lecture, 2 points will be ADDED to your total points for the class, up to 20 points! For each class period you miss, 2 points will be SUBTRACTED from your total points.</p> <p>Clearly, these 20 points are not only for your attendance in this class. They are points you legitimately earn because you are taking full responsibility as an adult and are being held accountable for your presence or absence during lecture.</p> <p>Attendance can make the difference between an A and an A- or an A- and a B+ (and so on down the grading scale).</p>
Classroom Citizenship	<p>In order to not interrupt the class session, students are asked to turn off or set to vibrate all phones at the beginning of class. There should be no texting, instant messaging, or any other forms of outside communications during 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 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> <p>Arrive on time and stay until class is dismissed if at all possible. Be prepared for class discussions and/or exams. 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.</p>
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> <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. 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.