

ATMO 2316 – Severe and Hazardous Weather

SPRING 2008

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Office hours: T/Th 11:00 AM – 12:30 PM, or by appointment via e-mail

Lectures will be M/W/F 10:00 – 10:50 AM in BA 153.

Text: *Severe and Hazardous Weather (2nd ed.)* by R. Rauber, J. Walsh, and D. Charlevoix

Class Website: <http://www.atmo.ttu.edu/weiss/ATMO2316>

Check this site often for supporting material, reading assignments, quiz and exam scores, etc...

Expected Learning Outcomes:

Upon completion of this course, students should be able to:

- 1) Understand and apply the scientific method and appropriate technology to the study of Atmospheric Science.
- 2) Develop critical thinking skills within the framework of established scientific knowledge.
- 3) Demonstrate knowledge of the major issues and problems facing Atmospheric Science.
- 4) Demonstrate knowledge of the interdependence of science and technology and their influence on society.
- 5) Explain the influences on various atmospheric state properties (e.g., temperature, moisture, wind, pressure).
- 6) Describe surface and upper-air measurement systems and properly interpret reports of these measurements.
- 7) Explain the concept of stability and how vertical variations in temperature affect this quantity.
- 8) Identify the characteristics and sources of airmasses and fronts.
- 9) Explain how extratropical cyclones form and evolve.
- 10) Describe how precipitation forms.
- 11) Explain the structure of supercell thunderstorms, and how that structure ultimately influences the development of tornadoes and other severe weather (hail, wind, lightning).
- 12) Identify typical models of tornado structure.
- 13) Describe the formation and structure of tropical systems.

Methods for Assessing Expected Learning Outcomes:

The expected learning outcomes will be assessed through the following means:

- 1) Four in-class exams
- 2) In-class quizzes
- 3) Muddy point exercises
- 4) Non-graded pre- and post-course knowledge surveys

Assignments: Assignments will consist of reading and end-of-chapter questions, both of which will be very helpful for quizzes and exams. I will not be collecting the end-of-chapter questions, but will be more than happy to discuss them with you. You are expected to **keep up** with the material by reading the assigned text and reviewing lecture presentations. Be advised that you are responsible for any material in the assigned reading even if it is not covered in lecture.

Attendance: Those who attend class regularly and complete assignments consistently outperform those who do not. If you must miss a class, please obtain a copy of the lecture notes from a reliable neighbor.

Cells/Pagers: Please turn off or silence your cell phones and pagers. If you must make or receive a call, please take it outside the classroom.

Hour Exams: There will be three in-class hour exams. Although I will not ask questions directly from previous test periods, these exams will be cumulative in the sense that I expect you to use previously learned concepts. The format of each hour exam will be a combination of objective (e.g., multiple choice, T/F) and subjective (e.g., short answer) questions, and will be ~40-50 questions in length. Please bring your student ID with you to every exam. You will be required to sign and hand in your exam booklet to receive credit.

NOTE: You may not leave the room during the exam. Make sure to use the restroom beforehand!

NOTE #2: Exams end promptly at 10:50 AM. If you show late, you will be required to hand in what is completed at that time.

Final Exam: The final exam will be cumulative, carrying about an equal weight of material from all test periods. The format will be the same as the hour exam, except 80-100 questions in length. *No alternate final will be given.*

Lowest Exam Dropped: The lowest of your four exam marks will be dropped. Therefore, if you work hard and perform well on the first three exams, you will have the option to skip the final exam. If you miss an exam, the zero will count as your dropped score.

Quizzes: There will be short (~5-10 min) unannounced quizzes given in a few lectures this semester. These quizzes should be relatively easy *if* you have been keeping up with the lecture material and reading. No makeups. If you have a valid excuse for missing the quiz, with documentation, I will drop the quiz from your total quiz grade.

Makeup Exams: Do not miss exams. A makeup will only be given if all of the following conditions are met:

- 1) You have a valid excuse (e.g., family emergency, severe illness). Invalid excuses include oversleeping, forgetting, not finding a parking spot, etc...
- 2) You have documentation supporting the excuse. For crises that may arise (e.g., death of a family member), the Center for Campus Life can provide such documentation.. See <http://www.depts.ttu.edu/centerforcampuslife/crisis/> for details.
- 3) The makeup exam is administered within one week of the original exam date. It is the student's responsibility to schedule the makeup exam with the instructor.

Grading: Grades will be determined as follows:

Hour exam #1	25%	} best 3 out of 4 = 75%
Hour exam #2	25%	
Hour exam #3	25%	
Final exam	25%	
In-class quizzes	25%	

	100%	
Above 90.0%	= A	
80.0% - 89.9999999%	= B	
70.0% - 79.9999999%	= C	
60.0% - 69.9999999%	= D	
Below 60.0%	= F	

The above represents a so-called “straight scale”. I promise that your mark in this course will *not* be worse than the straight-scale grade. If necessary, a curve may be applied to the ***FINAL*** marks, not to each exam individually.

Grade Posting: I will post grades to the class web site (see above) during the semester. The list will be ordered by your Test ID#. Please contact the Registrar if you do not know your Test ID#.

Incomplete (“I”) Grades:

From the Arts and Sciences Dean:

The grade of “I” is given only when a student’s work is satisfactory but due to reasons beyond his or her control, cannot be completed. It is not given in lieu of an “F” or “W”. The instructor assigning the grade will stipulate in writing at the time the grade is given the conditions under which the “I” may be removed. The assigned work and a change of grade must be recorded within one calendar year from the date of the “I”.

Following this policy, I will only assign an “I” if all of the following conditions are met:

- 1) You have a valid extenuating circumstance,
- 2) You have proof of this circumstance from the Center for Campus Life (see <http://www.depts.ttu.edu/centerforcampuslife/crisis/>), and
- 3) Your grade in the course is a “D” or higher at the effective time of the circumstance.

Academic Honesty: I take academic honesty very seriously. The University has a set procedure for dealing with incidents of cheating, and it can be quite painful. I will not hesitate to use these measures if I see any evidence of academic dishonesty.

Questions: Please feel free to contact me with questions at any time (e-mail is best)!

Disability accommodation: Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor's office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office at 335 West Hall or 806-742-2405.

Religious Holidays: A student is excused from attending classes or other required activities, including examinations, to observe a religious holiday and for time needed for travel for the purpose of observance of a religious holiday and is not required to give advance notice of such absence.

Schedule: Attached is a schedule of topics for the semester. This schedule is subject to change, any changes will be announced in lecture. It is the students' responsibility to be up to date on these changes.

Best wishes for a rewarding semester!

#	Date	Day	Chapter	Topic
1	9-Jan	W	1	Administrative matters, atmospheric properties
2	11-Jan	F	1	Atmospheric properties
3	14-Jan	M	1	Atmospheric properties
4	16-Jan	W	2	Measurement systems
5	18-Jan	F	2	Measurement systems
	21-Jan	M		NO CLASS (MLK DAY)
6	23-Jan	W	3	Weather maps
7	25-Jan	F	3	Weather maps
8	28-Jan	M	5	Stability
9	30-Jan	W	5	Stability
10	1-Feb	F	5	Stability
11	4-Feb	M	8	Airmasses and fronts
	6-Feb	W		HOURLY EXAM #1 (Chapters 1-3,5,8)
12	8-Feb	F	7/9	Mid-latitude cyclones
13	11-Feb	M	7/9	Mid-latitude cyclones
14	13-Feb	W	7/9	Mid-latitude cyclones
15	15-Feb	F	11	Ice storms
16	18-Feb	M	11	Ice storms
17	20-Feb	W	12	Lake effect snow
18	22-Feb	F	12	Lake effect snow
19	25-Feb	M	17	Thunderstorms
20	27-Feb	W	17	Thunderstorms
21	29-Feb	F	17	Thunderstorms
22	3-Mar	M	17	Thunderstorms
	5-Mar	W		HOURLY EXAM #2 (Chapters 7/9,11,12,17)
23	7-Mar	F	18	Tornadoes
24	10-Mar	M	18	Tornadoes
25	12-Mar	W	18	Tornadoes
26	14-Mar	F	18	Tornadoes
	17-Mar	M		NO CLASS (SPRING BREAK)
	19-Mar	W		NO CLASS (SPRING BREAK)
	21-Mar	F		NO CLASS (SPRING BREAK)
	24-Mar	M		NO CLASS (EASTER HOLIDAY)
27	26-Mar	W	18	Tornadoes
28	28-Mar	F	19	Hail
29	31-Mar	M	19	Hail
30	2-Apr	W	19	Hail
31	4-Apr	F	20	Lightning
32	7-Apr	M	20	Lightning
33	9-Apr	W	20	Lightning
34	11-Apr	F	21	Downbursts
35	14-Apr	M	21	Downbursts
	16-Apr	W		HOURLY EXAM #3 (Chapters 18-21)
36	18-Apr	F	22	El Nino
37	21-Apr	M	22	El Nino
38	23-Apr	W	23	Tropical cyclones
39	25-Apr	F	23	Tropical cyclones
40	28-Apr	M	23	Tropical cyclones
	6-May	Tu		FINAL EXAM 5/6 1:30-4:00 PM (BA 153)