ATMOS 1010
Severe and Unusual Weather
Fall Break 2016

M-F 8:00am-5:00pm (Lecture)
10/10 – 10/14
University of Utah Sandy Center

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1. Course Description:

Severe and Unusual Weather is a three-credit, introductory course in atmospheric sciences. The only prerequisite to this course is an interest in learning about the atmosphere in which we live and a willingness to participate in class discussions. This descriptive course requires only the most basic math skills and will use very few equations. The objective of this class is to develop an understanding of the fundamental laws of nature and apply them to the atmosphere. This course is not a weather forecasting course. We will follow the textbook closely as we explore a wide range of topics including clouds, precipitation, wind patterns, thunderstorms, tornadoes, hailstorms, lightning, downbursts, hurricanes, and lake effect snowstorms. During the study of these topics we will make use of the following basic scientific laws and concepts:

- The laws of thermodynamics and mechanics
- The structure of matter
- The interaction of matter and energy
- The behavior of the atmospheric system through time
- Systems of classification
- Physical processes in the atmospheric environment

Scientific knowledge continually evolves. Thus, we will focus on understanding the *scientific process* and developing *critical thinking skills* required to be a good consumer of scientific information.

ATMOS 1010 is a *concept* based course, not a fact based course. You will be expected to explain *why* and *how*, not just *what*. You will also be expected to apply your knowledge to solve or explain new processes or phenomena not explicitly covered during lectures.

This course builds upon itself. You must understand previous material before you will be able to understand new material. Consequently, if you do not attend class regularly or fall behind on the reading assignments, you will find this course very difficult. If you do fall behind, be sure to take advantage of the resources that are available to you (see **Student Expectations**).

ATMOS 1010 is a Physical/Life Sciences Intellectual Exploration (SF) course and adheres to university policies regarding course content.

2. Prerequisites: None

3. Required Textbook:

- Rauber, R.M., J. E. Walsh, and D. J. Charlevoix, Severe & Hazardous Weather: An Introduction to High Impact Meteorology (Fourth Edition), Kendall/Hunt Publishing Company, ISBN 978-0-7575-9772-5, 2012. [Note: e-Book edition of the textbook is acceptable as well as are the 2nd and 3rd editions.]

4. Other Useful References:

- http://severewx.atmos.uiuc.edu (Textbook Website)

5. Tentative Course Outline:

Lecture	Date	Topics	Assigned Reading
1.1	10/10	Introduction, Class Overview/Policies, Chapter 1: Properties of the Atmosphere	Chapter 1 (1st half)
1.2	10/10	Chapter 1: Properties of the Atmosphere	Chapter 1 (2nd half)
1.3	10/10	Chapter 2: Meteorological Measurements	Chapter 2 (1st half)
1.4	10/10	Chapter 2: Meteorological Measurements	Chapter 2 (2nd half)
1.5	10/10	Chapter 2: Meteorological Measurements	
2.1	10/11	Chapter 5: Climate and Global Change	Chapter 5 (1st half)
2.2	10/11	Chapter 5: Climate and Global Change	Chapter 5 (2nd half)
2.3	10/11	Atmospheric Moisture/Cloud Types	Handout #1
2.4	10/11	Precipitation Formation	Handout #2
2.5	10/11	Chapter 9: Airmasses and Fronts	Chapter 9
3.1	10/12	Chapter 6: Atmospheric Stability	Chapter 6 (1st half)
3.2	10/12	Chapter 6: Atmospheric Stability	Chapter 6 (2nd half)
3.3	10/12	Introduction to Air Pollution	Handout #3
3.4	10/12	Chapter 18: Thunderstorms	Chapter 18 (1st half)
3.5	10/12	Chapter 18: Thunderstorms	Chapter 18 (2nd half)
4.1	10/13	Chapter 19: Tornadoes	Chapter 19 (1st half)
4.2	10/13	Chapter 19: Tornadoes	Chapter 19 (2nd half)
4.3	10/13	Chapter 20: Hailstorms	Chapter 20
4.4	10/13	Chapter 21: Lightning	Chapter 21 (1st half)
4.5	10/13	Chapter 21: Lightning	Chapter 21 (2nd half)
5,1	11/14	Chapter 22: Downbursts	Chapter 22
5.2	11/14	Chapter 13: Lake Effect Snowstorms	Chapter 13 (1st half)
5.3	11/14	Chapter 13: Lake Effect Snowstorms	Chapter 13 (2nd half)
5.4	11/14	Chapter 24: Tropical Cyclones	Chapter 24 (1st half)
5.5	11/14	Chapter 24: Tropical Cyclones	Chapter 24 (2nd half)

6. Tentative Daily Class Schedule

Time Block	Activities
8:00 – 8:30	Weather Discussion, Review of Concepts
8:30 – 9:40	Lecture Module 1.1
9:40 – 9:50	Break
9:50 – 11:00	Lecture Module 1.2
11:00 – 11:25	Interactive Exercises
11:25 – 12:00	Lecture Module 3.3a
12:00 – 1:00	Lunch Break
1:00 – 1:40	Lecture Module 3.3b
1:40 – 2:50	Lecture Module 3.4
2:50 – 3:00	Break
3:00 – 3:20	Interactive Exercises
3:20 – 4:40	Lecture Module 3.5
4:40 – 5:00	Review of Concepts

7. Grading:

Grades will be based upon your performance on the chapter quizzes, in-class exercises, and the comprehensive final exam. The weighted contribution of each of these items to your final grade is given below:

	Weight
Quizzes (based on the best 10 scores)	40%
In-Class Exercises	20%
Comprehensive Exam	40%
	100%

We will be completing active learning exercises during class that will help prepare you for the quizzes and the final exam. The main purpose for doing the active learning exercises is to help *YOU* learn the material. Thus, attendance is required and failure to attend class each day will result in a failing grade for the course.

Final grades are based on the following scale:

Score	Grade
> 92.5%	A
90% - 92.5%	A-
87.5% - 90%	B+
82.5% - 87.5%	B
80% - 82.5%	B-
77.5% - 80%	C+

Score	Grade
72.5% - 77.5%	C
70% - 72.5%	C-
67.5% - 70%	D+
62.5% - 67.5%	D
60% - 62.5%	D-
<60%	E

Sometimes cutoff points are lowered to produce more natural break-points and a reasonable distribution of grades, but please don't count on it.

7. Student Expectations:

History shows that the following minimum behaviors are necessary to receive a "C" or better in this course:

- Timely attendance to all classes
- Completion of all quizzes and exams
- Read pertinent material prior to class
- Seek help immediately when needed

Students that do not follow the above recommendations usually end up with an undesirable grade. While there is no guarantee that doing all of the above will result in a good grade, it certainly increases the probability. If you cannot fulfill the minimum expectations you should consider dropping this course. Remember that the above list should be considered the minimum required effort. Students that want an "A" or "B" generally must go the extra mile.

8. Other Class Policies:

Students must take every quiz and exam with exceptions governed by University Policy. Plagiarizing, copying, cheating or otherwise misrepresenting ones' work will not be tolerated and will be dealt with as harshly as permitted under University Policy.
Do not break the scientific code of honor.

9. Use of Canvas:

This course depends on students using Canvas to access class content, submit assignments, participate in online discussions, etc. Students not familiar with Canvas are expected to complete the online tutorials, contact support at classhelp@.utah.edu, or call 581-6112 immediately.

10. ADA Statement:

"The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations." (http://www.hr.utah.edu/oeo/ada/guide/faculty/)

Note: This syllabus is not a binding legal contract. It may be modified by the instructor when students are given reasonable notice of the modification.