



METR 2603H Severe and Unusual Weather

Fall 2013

Monday/Wednesday/Friday, 9:00 AM, NWC 5930

Lecture 1a

Course Schedule

Most recent posting: Saturday, 3 August 2013



Week 1: Module 1 – The Basics of Weather and Climate

M 19 Aug - L1: Welcome and Course Orientation

L1a: Course Schedule

L1b: Honoring Our Commitment – policy summary from the Provost

L1c: Reasonable Accommodation Policy

L1d: Religious Services Policy

W 21 Aug -- L2: Module 1 - The Basics of Weather and Climate

– L2a: INSOLATION – FIR – Energy Balance

F 23 Aug – L3: Composition, Temperature and Pressure, and Vertical Structure Of the Atmosphere

L3a: Weekly Review Paper - sample

Week 2: Module 1 – The Basics of Weather and Climate

M 26 Aug – L4: Water in the Atmosphere

W 28 Aug – L5: Air Parcels and Lapse Rates

F 30 Aug – L6: Clouds and Precipitation

After this lecture, read through the following on your own:

L6a: A Cloud Menagerie

L6b: Satellite Observations of Clouds

Write a paragraph on what you learned from reading L6a; do similarly for L6b. The two paragraphs together should be no more than one page of text. These are due in the D2L Dropbox before 9 AM on Tuesday, 3 September.

Week 3: Module 1 – The Basics of Weather and Climate

M 2 Sep – Labor Day: Holiday/no class

W 4 Sep – L7: **Air Masses and Fronts**

F 6 Sep – L8: **The Winds 1**

Week 4 : Module 1 – The Basics of Weather and Climate

M 9 Sep – L9: The Winds 2

W 11 Sep – L10: The General Circulation of the Atmosphere; Ridges and Troughs

F 13 Sep – L11: Jet Streams and Streaks

Week 5: Module 1 – The Basics of Weather and Climate

M 16 Sep – L12: Local and Regional winds

W 18 Sep – L13: Upslope and Downslope Winds

F 20 Sep – L14: Surface Pressure Systems

Week 6: Module 1 – The Basics of Weather and Climate

M 23 Sep – L15: **Named Cyclones**

W 25 Sep – L16: **Monsoons**

F 27 Sep – L17: **Winter Weather**

L17a: **Snow**

L17b: **Lake Effect Snows**

L17c: **Ice Storms**

Around Noon this date, I will post to D2L the following:

L17d: **Exam over Module 1 – The Basics** – take home; turn in via the D2L
Dropbox before 5 PM on 4 Oct

Week 7: Module 2 – Severe Thunderstorms 1

M 30 Sep -- L18: Module 2 - Deep Convection in the Atmosphere

L18a: Stability and instability; convection 1

Reading assignments and instructions for the Research Paper are to be found in L18b, L18c, and L18d

W 2 Oct – L19: Stability and instability; convection 2

F 4 Oct – L20: Deep convection in the atmosphere 1 -- severe thunderstorms; squall lines; MCCs, etc...

Exam over Module 1 – The Basics: Due! – turn in via the D2L Dropbox before 5 PM this day

Week 8: Module 2 – Severe Thunderstorms 2

M 7 Oct – L21: Deep convection in the atmosphere 2

Before 5 PM this day, turn in via the D2L Dropbox the topic that you have selected for your paper. Include a brief discussion of why you selected this topic over the others on your list, and a brief discussion on how you plan to proceed to further research your selected topic.

First draft of your Research Paper due not later than 5 PM on Friday 18 Oct.

Final copy of your Research Paper due not later than 5 PM on Friday 25 Oct.

W 9 Oct – L22: Deep convection in the atmosphere 3

F 11 Oct – OU/Texas Break: Holiday/No Class

Week 9: Module 2 – Severe Thunderstorms 3

M 14 Oct – L23: **Tornadoes 1 – formation and structure**

L23a: **Tornadoes 2 – Climatology and Impacts**

N.B.: There is a lot of information and detail in the two PowerPoint decks for this lecture. My intent is to cover as much possible, getting through L23 for certain. If there are parts to L23a that we don't get to before the clock runs out, then take these parts on as additional assigned reading

W 16 Oct – L24: **In-class discussion** of *Deadly Season: Analysis of the 2011 Tornado Outbreaks*, by Kevin M. Simmons and Daniel Sutter, and Andrew Revkin's nine *Dot Earth* articles from the New York Times on the 2011 storms

We will begin at 8:30 AM this day. Coffee and donuts provided

F 18 Oct – L25: **The Convective Advisory Process: Products from the Storm Prediction Center (SPC) and the National Weather Service Forecast Office (WFO) – Patrick Marsh, guest lecturer**

First draft of your Research Paper due not later than 5 PM on this day. Turn in via the D2L Dropbox

Final copy of your Research Paper due not later than 5 PM on Friday 25 Oct.

Week 10: Module 3 – Weather Threats to the East Coast 1

M 21 Oct – L26: Module 3 – Weather Threats to the East Coast

Tour WFO, SPC, and HWT – Daphne Thompson, guest tour guide Before the tour, read L26a

Begin reading *The Perfect Storm* by Sebastian Junger

W 23 Oct – L27: Tropical Cyclones 1 – Characteristics and General Properties; Climatology for the North Atlantic

F 25 Oct – L28: Tropical Cyclones 2 – Structure, Formation, and Forecasting

Final copy of your Research Paper due not later than 5 PM this day. Turn in via the D2L Dropbox.

Week 11: Module 3 – Weather Threats to the East Coast 2

M 28 Oct – L29: Tropical Cyclones 3 - Forecasting, continued; Watches and Warnings; Naming Conventions; Dangers

W 30 Oct – L30: finished Tropical Cyclones 3

F 1 Nov – L31: Nor' Easters and “Bombs” 1 (fire drill)

Week 12: Module 3 – Weather Threats to the East Coast 3

M 4 Nov – L32: Nor’ Easters and “Bombs” 2

First draft of your review of *The Perfect Storm* due not later than 5 PM this day. Turn in via the D2L Dropbox.

W 6 Nov – L33: Watch the extracts of the movie “The Perfect Storm” followed by in-class discussion of the video

We will begin at 8:30 AM this day. Coffee and donuts provided.

F 8 Nov – L34: In-class discussion of *The Perfect Storm* by Sebastian Junger

Week 13: Module 4 -- Regional Scale Climate Change 1

M 11 Nov – L35: Module 4 – Regional Scale Climate Change – The Dirty ‘30s and the Dust Bowl

L35a: High Impact Weather in a Changing Climate

Poster project instructions are in L36b, L36c, L36d, and L36e

Begin reading The Worst Hard Time: The Untold Story of Those Who Survived the Great American Dust Bowl, by Timothy Egan.

W 13 Nov – L36: Drought; Dust and Sand Storms Quantifying drought - the Crop Moisture Index and the Palmer Drought Index (PDI)

F 15 Nov – L37: The Dust Bowl of the 1930s

Final draft of your review of *“The Perfect Storm”* due not later than 5 PM this day. Turn in via the D2L Dropbox

Week 14: Module 4 – Regional Scale Climate Change 2

M 18 Nov – L38: **No class this day. Your assignment is to watch the two part series “The Dust Bowl”, by Ken Burns. This two-part (four-hour) production premieres on PBS Sunday 18 November (Part 1) and Monday 19 November (Part 2). You are to write and submit by e-mail to jsnow@ou.edu by 5 pm on Friday 23 November a brief review/summary (minimum of one page) of this video.**

W 20 Nov – L39: **Causes and Effects: Southern Oscillation/el Nino + la Nina**

F 22 Nov – L40: **“... and now the rest of the story!”**

-- One-page review/summary of “The Dust Bowl” is due not later than 5 pm this date – e-mail to jsnow@ou.edu

-- Poster topic due not later than 5 PM this date – e-mail to jsnow@ou.edu

Week 15: Module 4 – Regional Scale Climate 3

M 25 Nov – L41: **In-class discussion of The Worst Hard Time**. Please complete your reading of this book and related materials by this class meeting.

L41a: **Final Examination** posted – take home; **due not later than 10:00 AM, 11 Dec**

-- By 5 PM this day turn in via the D2L Dropbox a first draft of your poster

W 27 Nov – **No Class/Thanksgiving Break**

F 29 Nov – **No Class/Thanksgiving Break**

Week 16: Last Week of Classes/Module 4 – Regional Scale Climate Change 4

M 2 Dec – L42: **Reflections on the Dust Bowl – Gary McManus, guest lecturer (JTS in San Francisco)**

W 4 Dec – L43: **Increasing atmospheric CO₂, a warming climate, and the implications for all of us, but especially you** (read on your own; JTS in San Francisco)

-- **No class meeting**; work on your posters

Th 5 Dec -- **Your completed poster due not later than 5 PM this day. Turn the full size paper copy in to Becky Steely in the School of Meteorology Office. Send an electronic copy to the D2L Dropbox**

F 6 Dec – L44: **Presentation and Discussion of Posters**

We will begin at 8:30 AM this day in NWC 5720. Coffee and donuts provided. Everyone will have to spend five minutes discussing his/her poster – see instructions in L44

Week 17: Final Examination Week 1

W 11 Dec, 8 AM to 10 AM – **Scheduled final exam period.**

**-- Final examination due not later than 10 AM this day.
Deposit your completed final exam in the D2L Dropbox.**