

**Instructor:** Dr. Dorian J. Burnette  
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**Office Hours**  
10-11 a.m. Tue-Thu  
and by appointment

I encourage you to talk to me individually whenever you need to discuss your progress in the course or whenever you have a topic of special interest you want to discuss individually.

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### **COURSE WEBSITE**

elearn.memphis.edu (eCourseware)

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### **COURSE TEXTBOOK**

Required: None.

This course is based on notes from a variety of textbooks, National Weather Service Manuals, the peer-reviewed literature, and online modules (e.g., www.meted.ucar.edu).

Recommended for Background: *Severe and Hazardous Weather: An Introduction to High Impact Meteorology*, 4<sup>th</sup> Edition, by Rauber, Walsh, and Charlevoix

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### **ABOUT THE COURSE**

The study of extreme weather covers a variety of topics including: blizzards, ice storms, thunderstorms, tornadoes, hurricanes, floods, and heat waves. The objectives of this course are to provide students with 1) an understanding of the physical processes important in the formation of these phenomena and 2) a working knowledge of state-of-the-art tools used to observe, forecast, and reconstruct these events. Prerequisite: ESCI 6216 or permission of instructor.

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### **GRADES**

Your grade at the end of the semester will be determined based on your scores on 1) six class discussions and 2) a final discussion. Final grades will be determined from a total of 400 points:

<b>Grade</b>	<b>Points Needed</b>	<b>Average Percentage</b>
A	360	90%
B	320	80%
C	280	70%
D	240	60%

### **Class Discussions:**

There will be six class discussions during the semester worth 50 points each. All of these discussions, except storm chasing, will involve researching and reconstructing an extreme weather event relevant to the current topic. Each student will give a 10-minute talk about the event in class, which answers the following questions:

- What data did you use?
- What happened meteorologically?
- What were the impacts?

A list of suggested events on the current extreme weather topic will be given to you in class one week prior to the discussion. If there is another extreme weather that is not listed and on the current topic, then you may choose to do that one. Just mention it in class when everyone is choosing their event.

The storm chasing discussion will be a bit different, where each student will choose an online presentation and present a 10-minute summary of that presentation to the class. A list of presentations will be given to you in class one week prior to the discussion.

If you happen to be absent for a discussion class, then you can write up a three-page paper (typed, double-spaced) and turn it in to me for credit.

### **Final Discussion:**

Instead of an exam, we will have a final discussion on the final exam day, where each student will give a 15-minute talk about a major scientist in the broad field of extreme weather that summarizes 1) who they are and 2) two papers where they are the lead-author. In class on 2 April 2015, I will give you a list of well-known scientists. You can choose a name from that list or mention another name to me if you have an alternate scientist in mind that you would like to research. This discussion is worth 100 points.

### **Possible Field Trip:**

Provided the atmosphere produces severe thunderstorms at the right time, a field trip may be scheduled that will give you an opportunity to apply the coursework to thunderstorms in the real atmosphere (i.e., we will storm chase). If this field trip occurs, it will be completely optional and every attempt will be made to give you as much “heads-up” as possible (often potentially big events can be seen 4-5 days in advance). If the field trip occurs and you decide to go, you will need to sign a form that releases the University of Memphis from liability.

## **STUDENT CONDUCT**

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### **Academic Dishonesty:**

Cheating, plagiarism, or any other form of academic dishonesty will not be tolerated. Cases of academic dishonesty will be dealt with in accordance with the policies set forth in the University’s Code of Student Rights and Responsibilities available at <http://www.memphis.edu/studentconduct/pdfs/csrr.pdf>. It is your responsibility to understand these policies. A lack of understanding is not an adequate defense against a charge of academic dishonesty.

### **Cell Phones, Laptops, Tablets:**

The use of cell phones, laptops, or tablet computers for purposes other than note taking is not allowed during class. Flagrant violation of this policy will result in you being dismissed from class.

## STUDENTS WITH DISABILITIES

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Any student who may need class or test accommodation based on the impact of a disability will need to contact Student Disability Services (SDS) at 110 Wilder Tower, 678-2880. SDS coordinates accommodations for students with documented disabilities. Once you receive your documentation from SDS, you are encouraged to schedule a meeting with me to provide me with the paperwork and discuss any accommodations needed for examinations and class materials.

## COURSE SCHEDULE

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**Note:** There is always a chance that this schedule could change. Any changes will be announced in class and updated in this syllabus on the course website.

Date	Topic
20 January	Introduction, Weather Maps
22 January	Atmospheric Circulation
27 January	Atmospheric Thermodynamics
29 January	Airmasses and Fronts
3 February	Mid-Latitude Cyclone Model Theory
5 February	Event Reconstruction and Computer Tools
10 February	Winter Storms
12 February	Winter Storms
17 February	Winter Storms
19 February	Winter Storms Event Discussion
24 February	Severe Thunderstorms and Tornadoes
26 February	Severe Thunderstorms and Tornadoes
3 March	Severe Thunderstorms and Tornadoes
5 March	Severe Thunderstorms and Tornadoes Event Discussion
9-13 March	No Class – Spring Break
17 March	Storm Chasing
19 March	Storm Chasing

24 March	Storm Chasing
26 March	Storm Chasing Discussion
31 March	Tropical Cyclones
2 April	Tropical Cyclones
7 April	Tropical Cyclones Event Discussion
9 April	Floods and Mass Wasting
14 April	Floods and Mass Wasting
16 April	Floods and Mass Wasting Event Discussion
21 April	Drought and Heat Waves
23 April	Drought and Heat Waves
28 April	Drought and Heat Waves Event Discussion
5 May (8-10 a.m.)	Final Discussion