

**Instructor:** Dr. Dorian J. Burnette  
**Office:** 230, Johnson Hall  
**Phone:** 901-678-4452  
**E-Mail:** djbrntte@memphis.edu  
**Website:** www.djburnette.com

**Office Hours**  
11:30 a.m.-12:30 p.m. Mon & Wed  
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.

### COURSE WEBSITE

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elearn.memphis.edu (eCourseware)

### COURSE TEXTBOOK

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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

### ABOUT THE COURSE

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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.

### GRADES

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Your grade at the end of the semester will be determined based on your scores on 1) seven class discussions and 2) a research project. Final grades will be determined from a total of 240 points:

Grade	Points Needed	Average Percentage
A	216	90%
B	192	80%
C	168	70%
D	144	60%

**Discussions:**

Given that this is a seminar class, we will be reading the scientific literature and/or reviewing conference presentations during the semester. Then during a designated day, discuss those readings and/or presentations as a group. There will be seven class discussions during the semester, and each is worth 20 points. 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.

**Research Project:**

Each student will research a meteorological event (e.g., a flood, severe thunderstorm outbreak, drought, winter storm, etc.), and prepare an abstract of no more than 250 words (typed). On final exam day, each student will give a PowerPoint presentation about this event. The presentation should last about 15 minutes and should allow 5 minutes for questions from the audience. Your presentation should include material answering the following questions:

- What data did you use to study the event?
- What happened?
- Why did it happen?
- What were the impacts?

Please consult with me on your research topic, and if you have any questions or need help finding data, please don't hesitate to come see me. The abstract is due on 23 April 2019, so it can be distributed to the rest of the class before your presentation. Please upload your abstract to Dropbox on eCourseware. This research project is worth 100 points (25 points for the abstract and 75 points for the presentation).

**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.

<u>Date</u>	<u>Topic</u>
15 January	Introduction and Weather Maps Review
17 January	<i>Discussion 1: Science Credibility</i>
22 January	Atmospheric Circulation Review
24 January	Atmospheric Thermodynamics Review
29 January	Air Masses and Fronts Review
31 January	Mid-Latitude Cyclone Model Theory Review
5 February	Event Reconstruction and Computer Tools
7 February	Winter Storms
12 February	Winter Storms
14 February	<i>Discussion 2: Winter Storm Events</i>
19 February	Severe Thunderstorms and Tornadoes
21 February	Severe Thunderstorms and Tornadoes
26 February	Severe Thunderstorms and Tornadoes
28 February	<i>Discussion 3: Severe Thunderstorm Events</i>
5 March	No Class – Spring Break
7 March	No Class – Spring Break
12 March	Storm Chasing

14 March	Storm Chasing
19 March	<i>Discussion 4: Storm Chasing</i>
21 March	Tropical Cyclones
26 March	Tropical Cyclones
28 March	<i>Discussion 5: Tropical Cyclone Events</i>
2 April	No Class – AAG Conference (work on project)
4 April	No Class – AAG Conference (work on project)
9 April	Floods and Mass Wasting
11 April	Floods and Mass Wasting
16 April	<i>Discussion 6: Flood and Mass Wasting Events</i>
18 April	Drought and Heat Waves
23 April	<i>Discussion 7: Drought and Heat Wave Events</i>
2 May (10:30 a.m.-12:30 p.m.)	Project Presentations