

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.

COURSE WEBSITE

elearn.memphis.edu (eCourseware)

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*, 4th Edition, by Rauber, Walsh, and Charlevoix

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.

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:

| Grade | Points Needed | Average Percentage |
|--------------|----------------------|---------------------------|
| 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

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

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

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 |

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| 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 |