

**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

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[elearn.memphis.edu](http://elearn.memphis.edu) (eCourseware)

### COURSE TEXTBOOK

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*Synoptic Analysis and Forecasting*, 1<sup>st</sup> Edition, by Milrad

The textbook will be supplemented with free modules from MetEd ([www.meted.ucar.edu](http://www.meted.ucar.edu)).

### ABOUT THE COURSE

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This course examines the atmospheric systems found at the synoptic (regional) scale. A working knowledge of the physical processes of the atmosphere will be presented. This theory will then be applied to the analysis and interpretation of synoptic scale atmospheric systems by using weather maps, upper-air soundings, satellite imagery, radar imagery, and computer model output. Students will write a forecast discussion as part of their grade and be introduced to techniques used in weather forecasting. Prerequisites: ESCI 1010, MATH 1710, and PHYS 2010 or permission of the instructor.

### GRADES

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Your grade at the end of the semester will be determined based on your scores on 1) the mid-term and final exams, 2) six exercises, and 3) one written forecast discussion. Final grades will be determined from a total of 370 points:

Grade	Points Needed	Average Percentage
A	333	90%
B	296	80%
C	259	70%
D	222	60%

### Exams:

Two exams are scheduled for this course—a mid-term and a final. Each exam is worth 100 points and will take the format of fill-in-the-blank and discussion questions. While each chapter can

build on previous chapters, exams only cover the new material presented. In other words, material on the mid-term exam will not show up on the final exam.

Exams can be made up, but you must have a legitimate, verifiable, and an unavoidable reason. If you know you are going to be absent, then please make arrangements for a makeup before the exam. If you miss an exam because of an unforeseen emergency, arrangements to make it up must be made as soon as you return to campus. Please note that while makeup exams will be in the same format and cover the same material, they may not ask the same questions. The last day to makeup an exam is Study Day, 30 April 2020.

### **Exercises:**

There will be six exercises worth 20 points each and are due at the beginning of class on the date listed. You may work on these exercises in groups if you wish, but each student must turn in their own set of answers.

It is better to hand in exercises late than not at all. Any exercises turned in late, however, are subject to a grade penalty. The later an exercise is, the stiffer the penalty. For each class period that an exercise is late, 10% of the maximum points will be subtracted. Please note, the last day to turn in late exercises is Study Day, 30 April 2020.

### **Forecast Discussion:**

All students will pick a day between 23 April and 29 April 2020 to write a National Weather Service-style forecast discussion that covers the next seven days. The discussion is meant to give you the opportunity to synthesize the course material and show what you have learned about the weather forecasting process. Your discussion should include each of the following weather analysis and forecasting questions as they relate to Memphis, TN:

- What is happening currently?
- Why is it happening?
- What is/are the main forecast challenge(s)?
- What is going to happen over the next seven days?
- Why is it going to happen?

Your discussion should be around two to three typed, double-spaced pages, and is worth a total of 50 points. Discussions are due to Dropbox on eCourseware by 11:59 p.m. on 29 April 2020.

### **Attendance:**

I will not call roll. I am assuming that you can make your own decisions about class attendance and how it might influence your performance. However, it is in your own best interest to attend class for a couple of reasons. First, this is a 4/6000-level course and there is no required textbook, so the way to get the information and see how it all fits together is to come to class. Second, I will memorize your names and faces and will know who comes to class regularly. I may use such information to give the benefit of doubt to borderline grade situations. My experience has shown students who miss a number of days, do not perform as well on exams as they could have had they attended class.

## 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 [www.memphis.edu/osa/pdfs/csrr.pdf](http://www.memphis.edu/osa/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, 901-678-2880, [www.memphis.edu/drs/](http://www.memphis.edu/drs/). SDS coordinates accommodations for students with documented disabilities. A registration form is available on their website.

## 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.

<b>Date</b>	<b>Topic</b>	<b>Chapter</b>
21 January	Introduction to Synoptic Meteorology	
23 January	Variables, Units, and Coordinate Systems	1
28 January	Surface Observations	2
30 January	METAR Code	3
4 February	Upper-Air Observations	4
6 February	Isopleths and Upper-Tropospheric Charts	5
11 February	Lower-Tropospheric Charts	6
13 February	Upper-Tropospheric Processes	7
18 February	Lower-Tropospheric Processes	8
20 February	Putting It All Together	9
25 February	Putting It All Together	9
27 February	Fronts and Drylines	10
3 March	Mid-Term Exam Review	
<b>5 March</b>	<b>Mid-Term Exam</b>	
10 March	No Class – Spring Break	
12 March	No Class – Spring Break	
17 March	Satellite Meteorology	11
19 March	Satellite Interpretation	11
24 March	Satellite Interpretation	11
26 March	Radar Meteorology	12
31 March	Radar Interpretation	12

2 April	Guest Lecture	
7 April	Radar Interpretation	12
9 April	Thermodynamic Diagram Basics	13
14 April	Thermodynamic Diagram Interpretation	14
16 April	Thermodynamic Diagram Interpretation	14
21 April	Weather Forecasting Basics	15
23 April	Weather Forecasting Basics	15
28 April	Final Exam Review	
<b>5 May (1-3 p.m.)</b>	<b>Final Exam</b>	

**\*Note: 30 April 2020 is the last day to makeup missed exams and turn in late exercises**