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**Office Hours**  
12-1 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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None required. This course is based on notes from a variety of textbooks, National Weather Service Manuals, and online modules (e.g., www.meted.ucar.edu).

Recommended:

- *Synoptic Analysis and Forecasting*, First Edition, by Milrad
- *Midlatitude Synoptic Meteorology*, First Edition, by Lackmann

### 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.

### 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) seven exercises, 3) one written forecast discussion, 4) a research project, and 5) peer-reviews of the graduate student presentations at the end of the semester. Final grades will be determined from a total of 540 points:

Grade	Points Needed	Average Percentage
A	486	90%
B	432	80%
C	378	70%
D	324	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, 6 December 2018.

### **Exercises:**

There will be seven 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, 6 December 2018.

### **Forecast Discussion:**

All students will pick a day during the week of 26 November 2018 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 3 December 2018.

### **Research Project:**

In order to receive graduate credit for this course, you will need to research a historical meteorological event that interests you from a synoptic perspective. This could be a flood, severe thunderstorm outbreak, drought, winter storm, etc. You will prepare an abstract of no more than 250 words (typed), and at the end of the semester, 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 did you do to study the event?
- What happened meteorologically?

- Why did it happen?
- What were the impacts?

Please consult with me on your research topic, and if you have any questions, please don't hesitate to come see me. A sign-up sheet will be distributed on 5 November 2018, so you will know when you are scheduled to give your presentation. The abstract is due on 19 November 2018, so it can be distributed to the rest of the class before your presentation after Thanksgiving Break. 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).

### **Peer-Review of Graduate Student Presentations:**

Each student is required to write a short review of each graduate student presentation at the end of the semester, which must include a positive comment and a constructive criticism. These reviews should focus on the quality of the abstract, the observations used to reconstruct the weather event, and whether those data support the conclusions. Completing these reviews for all graduate students is worth 50 points.

### **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 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 <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>
27 August	Introduction to Synoptic Meteorology
29 August	Variables, Units, and Coordinate Systems
3 September	No Class – Labor Day
5 September	Atmospheric Circulation
10 September	Vorticity, Jet Streams and Jet Streaks
12 September	Atmospheric Thermodynamics and Soundings <i>Exercise 1 Due</i>
17 September	Soundings
19 September	Air Masses and Fronts
24 September	Weather System Theory and Evolution <i>Exercise 2 Due</i>
26 September	Surface Observations and METARs
1 October	Surface Analysis <i>Exercise 3 Due</i>
3 October	Upper-Air Charts
8 October	Upper-Air Analysis / Mid-Term Exam Review <i>Exercise 4 Due</i>
<b>10 October</b>	<b>Mid-Term Exam</b>
15 October	Fall Break – No Class
17 October	Computer Tools
22 October	Satellite Meteorology
24 October	Satellite Interpretation <i>Exercise 5 Due</i>

29 October	Satellite Interpretation
31 October	Radar Meteorology
5 November	Radar Interpretation <i>Exercise 6 Due</i>
7 November	Radar Interpretation
12 November	Numerical Weather Prediction
14 November	Numerical Weather Prediction <i>Exercise 7 Due</i>
19 November	Weather Forecasting
21 November	Thanksgiving Break – No Class
26 November	Severe Weather Forecasting
28 November	Severe Weather Forecasting
3 December	Graduate Student Presentations <i>Forecast Discussion Due</i>
5 December	Graduate Student Presentations / Final Exam Review
<b>12 December (1-3 p.m.)</b>	<b><i>Final Exam</i></b>

**\*Note: 6 December 2018 is the last day to makeup missed exams and turn in late exercises**