

METR 324: Weather Analysis and Forecasting (3 credit hours)

Time: Tuesday/Thursday, 8:00 am – 9:20 am, Virtual

Instructor: Dr. Greg Goodrich, Associate Professor
Department of Geography & Geology
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Office: Virtual

Main Office: 270 745 4555

Office Hours: Monday/Wednesday 2:00 pm – 3:00 pm
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Required Text: *Synoptic Analysis and Forecasting* by Shawn Milrad. (Buy/rent options available at bookstore – Amazon has it cheaper, especially to rent, although it is a keeper)

Course Objective: Weather Forecasting and Analysis will build on physical and dynamical processes to enable students to understand real-world atmospheric behavior of mid-latitude weather systems. Weather forecasting techniques using surface and upper air data are also examined. **You must earn a C or better in this course to advance to the upper-division meteorology course sequence (METR 431 and METR 432).**

Course Format: Two 80 minute sessions per week. All class sessions will be through Zoom at the regular class time.

Class Attendance: Attendance in lecture is expected and will be recorded. Students are allowed three unexcused absences for any reason. Four or more unexcused absences will result in automatic failure for the course. If you experience life-altering circumstances and cannot attend class, contact me about withdrawing from the course.

If a student will miss a class period due to a university-sanctioned activity, Western Kentucky University requires that the student: (1) identify himself/herself prior to missing the class, (2) provide the instructor with a copy of their travel schedule, and (3) discuss with the instructor the procedure to make up missed work.

Disability Services: In compliance with university policy, students with disabilities who require accommodations (academic adjustments and/or auxiliary aids or services) for this course must contact the Student Accessibility Resource Center in room 1074 of the Downing Student Union. The SARC telephone number is 270 745-5004 (TTD 270 745-3030). Per University policy, please DO NOT request accommodations directly from me without a letter of accommodation from SARC.

COVID-19: If a student misses a discussion due date or quiz for COVID-19 related reasons no points will be lost. Contact me to make arrangements for the missed work.

Required Materials: Bring a #2 pencil, good eraser, colored pencils, scientific calculator, and ruler along with the textbook to each class.

Student Evaluation: One mid-term exam (25%) and one final exam (25%) will comprise 50% of the grade for this course. Homework assignments, map discussions, and the weather journal (30%) and a research project (20%) will comprise the remaining 50%. The exams will consist of short answer, map analyses, and long answer. By the nature of this course, all exams will be cumulative.

There will be no extra credit of any kind given on an individual basis in this course.

There is no provision for undocumented make-up exams. Exceptions will be made only for documented serious illness or family/medical emergencies. **You must inform me or the departmental secretary within 36 hours of the scheduled exam that will be/was missed. If you fail to receive approval for a make-up exam within this time frame you will not be allowed a make-up for any reason. A grade of “0” will be given in these instances.**

Grades:	A	90-100%	All grades subject to curve at end of semester
	B	80-90%	
	C	70-80%	
	D	60-70%	
	F	<60%	

Departmental Drop Policy: The Department of Geography and Geology strictly adheres to the course drop policy found in the Undergraduate and Graduate Catalogs. It is the sole responsibility of individual students to meet the cited deadlines for dropping a course. In exceptional cases, the deadline for schedule changes (dropping a course) may be waived. The successful waiver will require written description of extenuating circumstances and relevant documentation. Poor academic performance, general malaise, or undocumented general malaise, or undocumented general stress factors are not considered as legitimate extenuating circumstances. Since granting of waivers are rare, we urge you to follow the established guidelines.

1/26: Last day to drop a course w/o grade. **3/25:** Last day to drop a course with a W.

Please turn off cell phones during class!!

Academic Honesty: Cheating absolutely will not be tolerated. Students are expected to adhere to the Western Kentucky University Code of Student Conduct.

Any updates to this syllabus, including the course outline, will be given in class

Tentative course outline

Date	Tuesday	Thursday	Reading*
1/18-1/22	Introduction	Math review	CH. 1
1/25-1/29	Numerical weather prediction	Forecast tools and models/ Units/HW 1	CH. 15
2/1-2/5	How to do map discussion	Surface map analysis and interpretation/HW 2	CH. 2/6
2/8-2/12	Map discussion/Upper air plotting and charts	Upper air plotting and charts/HW 3/Wx Journal	CH. 4/5
2/15-2/19	Map discussion/Stability analysis	Stability analysis and stability indices	CH. 13
2/22-2/26	Thermodynamic diagrams	HW 4	CH. 14
3/1-3/5	Research project/ Clipper rules	Teleconnections – ENSO, NAO, PDO	
3/8-3/12	Exam review	Exam 1	
3/15-3/19	Governing equations and dynamics	Map discussion/Forecast techniques	CH. 7
3/22-3/26	Governing equations and dynamics	Map discussion/HW 5	CH. 8
3/29-4/2	Global circulation and Rossby waves	Map discussion/Forecast techniques/	CH. 9
4/5-4/9	Mid-latitude cyclone structure	Map discussion/HW 6	CH. 10
4/12-4/16	Frontal dynamics and jet streaks	Map discussion/ketchup	CH. 11/12
4/19-4/23	Cyclogenesis – lee, explosive, nor'easters	Map discussion/Exam review	
4/26-4/30	Exam 2	8:00 – 10:00 am	Friday, 4/30

*** All readings should be done prior to that day's class**