

## Metr 2023-010 -- Introduction to Meteorology II

A quantitative introduction to winds, mid-latitude and severe storms, as well as weather forecasting, air pollution, climate and climate change. Work includes applications of theory, introduction to weather maps and forecasting, using new technology and computers for visualization.

**Lecture:** M W F 9:00 – 9:50 AM in NWC Rm. 1350

**Instructor:** Dr. Michael Richman

Office: 5646 NWC; Office Hours: TR, 10:00-11:30, or by appointment (make 24 hrs ahead)

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**Grading:** Test 1 ..... 20% \ lowest  
Test 2 ..... 20% > test score  
Test 3 ..... 20% / dropped  
Homework ..... 20%  
Comprehensive Final ..... 30%  
Chapter Summaries ..... 5%  
Participation ..... 5%

**Books:** Meteorology Today (7th ed.) by C. Donald Ahrens

Meteorology for Scientists and Engineers (2<sup>nd</sup> ed.) by Roland B. Stull

**Mandatory work:** Read chapter in Ahrens book *prior to class*. Type paragraph detailing the highlights of each chapter will be due *prior to class* the day we start a chapter. Use Microsoft Word and turn it in the digital dropbox on D2L.

**Homework:** Show all work, be neat (or type it), *staple your homework* and use a spreadsheet for graphics.

Here are my step-by-step expectations for solving quantitative homework problems:

1. **Read the question more than once.** In fact, read it over until you are absolutely sure what is being asked.
2. When appropriate, **draw a picture** or pictures for what the question is asking.
3. Write down all the **known** quantities with their symbols, values, and units.
4. List the unknown variables that **you need to "find"** with their associated units.
5. **Determine which equation(s) contain the unknown variable** as a function of the known values.
6. **Solve the equations** using the known values, **carrying along the units. Show the intermediate steps.**
7. **Clearly identify your final answer** by underlining it, or drawing a box around it.
8. **Check your answer.** Are the units correct? Does it make sense?

**Late Homework Policy:** Subtract 50% for days 1 - 7

**Tentative syllabus (based on chapter numbers in Ahrens)**

1/17 W Introduction and Chapter 9: The Atmosphere in Motion: Air Pressure, Forces and Wind  
1/29 F Chapter 9  
1/22 M Chapter 9  
1/24 W Chapter 9  
1/26 F Chapter 10: Wind: Small-Scale and Local Systems  
1/29 M Chapter 10  
1/31 W Chapter 10  
2/02 F Chapter 11: Wind: Global Systems  
2/05 M Chapter 11  
2/07 W Chapter 11  
2/09 F Chapter 11  
2/12 M Review Session for Test 1  
2/14 W **Test 1**  
2/16 F Chapter 12: Air Masses and Fronts  
2/19 M Chapter 12  
2/21 W Chapter 12  
2/23 F Chapter 12  
2/26 M Chapter 13: Mid Latitude Cyclones  
2/28 W Chapter 13  
3/02 F Chapter 13  
3/05 M Chapter 13  
3/07 W Chapter 14: Weather Forecasting  
3/09 F Chapter 14  
3/12 M Chapter 14  
3/14 W Review Session for Test 2  
3/16 F **Test 2**  
3/19 M \*\*\*\*\*  
3/21 W Spring Break  
3/23 F \*\*\*\*\*  
3/26 M Chapter 15: Thunderstorms and Tornadoes  
3/28 W Chapter 15  
3/30 F Chapter 15  
4/02 M Chapter 15  
4/04 W Chapter 16: Tropical Meteorology and Meteorology  
4/06 F Chapter 16  
4/09 M Chapter 16  
4/11 W Chapter 17: Air Pollution  
4/13 F Chapter 17  
4/16 M Review Session for Test 3  
4/18 W **Test 3**  
4/20 F Chapter 18: Global Climate  
4/23 M Chapter 18  
4/25 W Chapter 19: Climate Change  
4/27 F Chapter 19  
4/30 M Weather Modification  
5/02 W  
5/04 F Review Session for Final Exam  
5/11 F Comprehensive **Final Exam** (8 AM)

- Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact me personally, as soon as possible, so that we can discuss accommodations necessary to ensure full participation and facilitate your educational opportunities. Be prepared to bring documentation from the Office of Disability Services (325-3852).
- Any act which improperly affects the evaluation of a student's academic performance or achievement, including but not limited to the following: (a) Cheating: the use of unauthorized materials, methods, or information in any academic exercise, including improper collaboration; (b) Plagiarism: the representation of the words or ideas of another as one's own, including: (1) direct quotation without both attribution and indication that the material is being directly quoted, e.g. quotation marks; (2) paraphrase without attribution; (3) paraphrase with or without attribution where the wording of the original remains substantially intact and is represented as the author's own; (4) expression in one's own words, but without attribution, of ideas, arguments, lines of reasoning, facts, processes, or other products of the intellect where such material is learned from the work of another and is not part of the general fund of common academic knowledge; (c) Fabrication: the falsification or invention of any information or citation in an academic exercise; (d) Fraud: the falsification, forgery, or misrepresentation of academic work, including the resubmission of work performed for one class for credit in another class without the informed permission of the second instructor; or the falsification, forgery or misrepresentation of other academic records or documents, including admissions materials and transcripts; or the communication of false or misleading statements to obtain academic advantage or to avoid academic penalty; (e) Destruction, misappropriation or unauthorized possession of University property or the property of another; (f) Bribery or intimidation; (g) Assisting others in any act proscribed by this Code; or (h) Attempting to engage in such acts. Penalties are listed in the Academic Code. For further information on academic misconduct please refer to the following link: <http://www.ou.edu/provost/integrity/>