AOS 601-001 **Fall 2010** **2 credits**

WIND & WEATHER FOR SCIENTISTS AND ENGINEERS

Th 12:30-2:10 pm AOSS 1039

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Web page: https://learnuw.wisc.edu/ (login with your NetID to access course)

Course Materials

Required:

Wallace, J.M. and P.V. Hobbs. 2006. *Atmospheric Science: An Introductory Survey, 2nd Edition*, Elsevier, ISBN 978-0-12-732951-2.

Others:

Stull, R.B. 2000. *Meteorology for Scientists and Engineers: A Technical Companion Book*, *2nd Edition*, Brooks/Cole (Cengage), ISBN 978-0-53-437214-9

All books are on reserve at the SSEC Library (3rd floor AOSS building).

Course content

This course will cover the fundamentals of weather systems from the microscale to the planetary scale, with a specific focus on wind energy siting and forecasting, for both new graduate students in AOS and interested students in engineering or related disciplines. We will form a learning community centered on an introductory graduate-level textbook in atmospheric science (Wallace and Hobbs, 2006) and additionally develop group projects and conduct data analysis related to wind and solar energy.

Grading

50% Chapter Outlines and Presentations / 30% Course Project / 20% Participation

Course Structure

Each Thursday, students will submit an outline of the assigned chapter. One student will present his or her outline of the primary concepts in these chapters. The focus of these discussions will be to make sure each student understands the material presented. Additional lectures and journal readings on the relevance of the topic to meteorology and alternative energy will be presented. A group meteorological wind siting and forecasting analysis project will be conducted based on analysis and reporting of existing meteorological data. A written report and in-class presentation will be conducted at the end of the semester.

Course Calendar

Week 1	9/2	Course Intro	
Week 2	9/9	Intro to Atmos Sci.	(WH 1-2, S 1)
Week 3	9/16	Thermodynamics	(WH 3, S 2-3,5,7)
Week 4	9/23	Radiation	(WH 4, S 4)
Week 5	9/30	Clouds	(WH 6, S 6,8)
Week 6	10/7	Dynamics	(WH 7.1-7.2, S 9)
Week 7	10/14	General Circulation	(WH 7.3-7.5, S 11)
Week 8	10/21	Boundary Layer	(WH 9.1-9.3, S 10)
Week 9	10/28	Boundary Layer/Weather	(WH 9.4-9.6, 8.1, S 12-13)
Week 10	11/4	Weather Systems	(WH 8.2-8.4, S 14-15)
Week 11	11/11	Climate Dynamics	(WH 10.1-10.3)
Week 12	11/18	Climate Change	(WH 10.4-10.5, S 18)
Week XX	11/25	NO CLASS (THANKSGIVING)	
Week 13	12/2	Alternative Energy Discussion	
Week 14	12/9	Project presentations	
NO FINAL			

Typical Class Schedule (Weeks 2-12)

12:30 Weekly weather briefing and tutorial
12:40 Topic introduction
12:45 Outline presentation
1:00 Group discussion of readings
1:20 Break
1:30 In-class supplemental readings and activities
1:50 Group discussion of in-class material or activity

Accommodation Policy

Campus policy: "We believe in the right of all students who are enrolled at the University of Wisconsin-Madison to full and equal educational opportunity. Disability should not be the basis for exclusion from educational programs. All students are entitled to an accessible, accommodating, and supportive teaching and learning environment. … Students are expected to inform faculty, in a timely manner, of their need for special instructional accommodations."

Students requiring class accommodations due to a learning or physical disability must present documentation from the McBurney Disability Resource Center (http://www.mcburney.wisc.edu/ ; 608-263-2741, Middleton Bldg, 1305 Linden Dr) in the first two weeks of class. Accommodations will be made in consultation with the McBurney Center.

Students who require temporary accommodations due to medical or psychological reasons should acquire documentation from University Health Services. Counseling is available from Counseling Services, University Health Services (http://www.uhs.wisc.edu/ ; 608-265-5600, 333 East Campus Mall**)**.