

**Meteorology 201**  
**Introduction to Weather Analysis**  
**Fall Semester 2005**

**Course Objective.** To provide a systematic, scientific introduction to the types of weather data available, the manner in which these data are collected, and some of the ways the data are displayed, analyzed, and used by operational meteorologists.

<b>Time/Place.</b> Lecture: Mon & Wed, 8:00 - 8:50 AM, all sections	112 Walker
Lab: Section 1, Wed 12:20 – 2:15 PM	608 Walker
Section 2, Tue 3:35 – 5:30 PM	608 Walker
Section 3, Wed 3:35 – 5:30 PM	608 Walker
Section 5, Thu 3:35 – 5:30 PM	608 Walker

**Instructor.** Dr. Jon M. Nese, 505 Walker Building, 863-4076. E-mail. [nese@meteo.psu.edu](mailto:nese@meteo.psu.edu)  
**Office hours.** Mon 9-10, Wed 10-11, Fri 11-12, most other times if the door is open.

**Teaching Assistants.**

Kathy Bailey, 406 Walker, [bailey@meteo.psu.edu](mailto:bailey@meteo.psu.edu) (Sections 1 & 5); Office hrs Mon 2-4  
Daniel Veren, 530 Walker, [dbv107@psu.edu](mailto:dbv107@psu.edu) (Sections 2 & 3); Office hrs Mon 1-2, Thu 1-2

**Required Texts.**

Grenci, L. and J. Nese, 2005: *A World of Weather: Fundamentals of Meteorology*. 4th Ed  
Gleim, I.N., 2002: *Aviation Weather and Weather Services*. 4th Ed

**Web.** Many of the lecture materials that are not in the two required texts (particularly diagrams) will be made available on the University's ANGEL system. Also, I will often use [www.meteo.psu.edu/~nese/natlwx.htm](http://www.meteo.psu.edu/~nese/natlwx.htm) as a basis for accessing weather data. You may want to bookmark it.

**Exam policy.** There will be two semester exams and a comprehensive final exam. The semester exams will be given during regular class periods, while the final exam will be scheduled by the University. **Missing an exam is a serious issue and must be discussed with me the day of the exam or beforehand.**

<b>Grading.</b> Two in-class exams	40%	(Wed Oct. 5 & Mon Nov. 14)
Final exam	30%	
Labs & Pop quizzes	30%	

**Lab assignments:** Labs must be handed in at the beginning of class on the day the lab is due. There will be a 50% penalty for any lab turned in late. No credit will be given for labs handed in after a lab has been returned. Organization, technical soundness, spelling and grammatical structure are important!! **You may work in groups and discuss the labs with other students, but the work you turn in should be your own.**

**Academic integrity.** Dishonesty will not be tolerated. This course follows the College of EMS academic integrity policy (see [www.ems.psu.edu/students/integrity/statement.html](http://www.ems.psu.edu/students/integrity/statement.html)). Specifically, the first cheating infraction will result in a zero on the exam or assignment in which the violation occurred, and a second violation will result in an F grade for the course.

**Course Outline and Readings.** Below is a course outline. Reading assignments are from the Grenzi/Nese textbook (indicated "GN") and the Gleim textbook (indicated "Gleim").

<b>Topic</b>	<b>Reading Assignment</b>
Meteorological Observations <ul style="list-style-type: none"><li>a. The observing system</li><li>b. The weather variables</li></ul>	GN: 1-14, 121-139, 203-212 Gleim: 15-20, 243-44, 377-78
Surface Data Analysis <ul style="list-style-type: none"><li>a. Station model and weather map interpretation</li><li>b. Isoplething</li><li>c. METAR code</li></ul>	GN: 14-29 Gleim: 227-242, 295-306
Large-scale Mid-latitude Surface Weather Features <ul style="list-style-type: none"><li>a. Low &amp; High pressure systems</li><li>b. Air masses and fronts</li></ul>	GN: 87-92, 212-229 Gleim: 73-82
Remote Sensing: Satellite and Radar Analysis <ul style="list-style-type: none"><li>a. Satellite imagery</li><li>b. Radar imagery</li></ul>	GN: 161-182 Gleim: 256-57, 378-79
Upper-air Data Analysis <ul style="list-style-type: none"><li>a. Constant pressure charts</li><li>b. Upper-air data &amp; Maps</li><li>c. Cross Sections</li></ul>	GN: 251-279 Gleim: 314-326
Stability and Skew-Ts <ul style="list-style-type: none"><li>a. Skew-T basics</li><li>b. Parcel theory; CAPE &amp; Stability Indices</li><li>c. Convective charts and bulletins</li></ul>	GN: 301-332 Gleim: 55-61
Cyclogenesis and Anticyclogenesis <ul style="list-style-type: none"><li>a. Surface/upper-air connection</li><li>b. Norwegian cyclone model</li><li>c. Divergence and vorticity</li><li>d. Thermal considerations</li></ul>	GN: 487-500, 519-532
Numerical Weather Prediction: The Models <ul style="list-style-type: none"><li>a. Four-panel prog basics</li></ul>	GN: 663-685
Mesoscale Weather Features <ul style="list-style-type: none"><li>a. Tropical cyclones</li><li>b. Tornadoes</li><li>c. Lake Effect Snow &amp; Cold-air damming</li></ul>	GN: 435-464 GN: 587-610 GN: 630-636