ATM S 101, WINTER Quarter 2004
Weather

Instructor: Professor David S. Battisti
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420 Atmospheric Sciences Bldg., 543-6627

Schedule:

Lectures: 10:30-11:20 MTWTh, ARC 147

Sections: Please see Time Table

"Sections" may include a laboratory demonstration, a discussion of the lecture material or a de-briefing on the homework questions.

General Description:

The course deals with the science of the Earth's atmosphere. My goal in this course is to provide you with a better understanding of the processes occurring in the atmosphere that are responsible for the weather and climate we experience. I will focus on why and how things happen, rather than have you memorize climate classifications and statistics. We will also learn how to read the sky and weather maps, and we will discuss the cause of selected natural and anthropogenically induced climate variations, such as El Nino, Greenhouse Warming, Acid Rain and the Ozone Hole.

WWW page:

http://www.atmos.washington.edu/2004Q1/101/
Here you will find the course outline, homework, syllabus, and handouts. You will also find some interesting weather and climate links.

Course Grading:

Homework 20%
Two midterms 24% each
Final 32%

Evaluation:

Homework: Homework will generally consist of five questions, each with multiple parts. Three of the five questions will be graded in depth, and the rest will be skimmed through quickly. Homework will be handed out on Thursdays and is due at the lecture on the following Thursday. Late homework is devalued at 50% per day. You will be allowed one free drop for the quarter (worst grade, sick, etc.).

Exams: The content of the exams will be based on class discussions, section discussions and activities, reading assignments and homework. The final exam will cover the entire course. The format of the exams is short answer and closed book. Makeup exams will consist of a seriously viscous essays assigned by Dr. Battisti.

Two Midterm Exam Dates: Tuesday January 27 and Wednesday February 26
Final Exam Date: Monday 8:30 - 10:20, March 15, 2004

Forecast Contest: an opportunity for extra credit. Forecasting will begin the sixth week of the quarter. Students who submit a minimum of 15 forecasts will have 6 extra credit points added to their final. Students who do well on their forecasts, and submit at least 15 forecasts, are eligible for up to 6 additional points of extra credit on the final. (Total possible extra credit is 12 points added to a 100-point final.)

Required Text:

Aherns, C. Donald, 2001: Essentials of Meteorology: an invitation to the atmosphere. Wadsworth Publishing

Books on reserve at the Undergraduate Library:

Aherns, C. Donald, 2001: Essentials of Meteorology: an Invitation to the Atmosphere. Wadsworth Publishing

Aherns, C. Donald, 1994: Meteorology Today: An Introduction to Weather, Climate and the Environment. West Publishing (or Wadsworth Publishing), 616p.

Lutgens, Frederick K. and Edward J. Tarbuck, 1992. The Atmosphere. Fifth Ed., Prentice Hall. 430p.

Tentative Schedule:

Date	**Topic**	**Readings***
Jan 5-8	Introduction; Origin of Earth's Atmosphere; Heat and Temperature; Radiation; Concepts in EM Radiation; Solar Radiation and the Earth; Greenhouse Effect	pg 1-23, 31-42, class notes, Appendix A and B
Jan 12-15	Vertical Structure of the Atmosphere; Composition and changes; Heat forms and transport; Seasonal Temperature Cycles	pg 26-40, 42-51
Monday Jan 19	Holiday	
Jan 20-22, 26	Daily and Seasonal Temperature Cycles (cont.); Density and Pressure; Ideal Gas Law; Humidity and Water Vapor	pg 53-73, 140-146, 75-86, Appendix B
Tuesday Jan 27	1st Midterm	
Jan 28, 29	Ozone Hole; Surface Condensation; Atmospheric Stability	pg 86-92, 109-118, 317-323
Feb 2-5	Cloud Development and Classification; Precipitation Processes; Acid Rain; Atmospheric Optics	pg 93-107, chart, 119-137, 333-335, 399-418
Feb 9-12	Forces and Winds; Local Circulations; Geostrophic Wind; Jet Streams	pg 165-178, 146-153, class notes, 154-163, Appendix B
Monday Feb 16	Holiday	
Feb 17-19, 23	General (Global) Circulation; Air Masses and Fronts	pg 179-187, 341-346, 197-215, Appendix C
Feb 24 -25	Mid latitude Cyclones	pg 215-225
Wed Feb 26	2nd Midterm	
Feb 27, Mar 1, 2	Tornadoes; Hurricanes; Thunderstorms	pg 253-309
March 3,4,8,9	Weather Forecasting; Puget Sound Weather	pg 227-251, class notes
March 10-11	El Nino or Climate Change/Greenhouse Warming	pg 190-194, class notes
Monday March 15, 8:30 – 10:20	Final	

* Readings in Ahrens Essentials of Meteorology, unless otherwise indicated