

# GEO165 METEOROLOGY SPRING 2010

11:15 - 1:05 Tu/Th 19 SCI

INSTRUCTOR: STEVE HORSTMAYER

Office: 19a Science Building

Office Hours: BY APPOINTMENT

**Grading:**            2 tests - 75 points each  
                            Final Exam - 105 points, quasi-comprehensive  
                            8 lab exercises - 15 points each  
                            **Total                            300 points**

**Textbook:** Get one from an online used book dealer, you can probably find one for a total investment, including shipping for \$10. If you want, share a textbook.

Lutgens and Tarbuck, *The Atmosphere*.

Get the 7<sup>th</sup> (1997) or 8<sup>th</sup> (2000) Edition. The 7<sup>th</sup> will cost less.

ONLINE USED BOOK DEALERS: [www.abebooks.com](http://www.abebooks.com)    <http://www.alibris.com>

Class Website: [www.shorstmeyer.com/msj/geo165/info.html](http://www.shorstmeyer.com/msj/geo165/info.html)

Contact Me via email            [steve@shorstmeyer.com](mailto:steve@shorstmeyer.com)

Be sure to put GEO165 in the subject field

## A Few Necessary Statements

1. Class attendance is mandatory.
2. The following syllabus is dynamic i.e. it can change based on many factors .
3. Laboratory information and materials will be found at the following URL:  
[www.shorstmeyer.com/msj/geo165/info.html](http://www.shorstmeyer.com/msj/geo165/info.html)
4. Lab exercises have been structured to help you develop the basic skills of a meteorologist, utilize software to analyze data sets and develop a working knowledge of how weather systems work.
5. Tests will consist of a mixture of question types and yes the dreaded short answer essay will be included. **YOU WILL NOT SEE A SINGLE MULTIPLE CHOICE QUESTION DURING THIS CLASS.**
6. A typical class session (typical time)
  - a. Answer questions, busy work, etc. (5 minutes)
  - b. Weather map/forecast discussion (10 minutes)
  - c. Lecture/Lab (85 minutes)
  - d. Wrap Up (5 minutes).

## (Flexible) Schedule of Topics/Exams

	TOPIC(S)
Jan. 12/14	Introduction Required organizational Activities Introduction to your instructor A brief history of meteorology Technological and conceptual advances leading to modern meteorology Is forecasting a science? What is science? Composition of the atmosphere, vertical structure of the atmosphere <b>Lab #1 Vertical Structure of the Atmosphere</b>
Jan. 19/21	Horizontal scales of atmospheric motion Vertical scales of atmospheric motion Kinetic theory of gases Condensation, evaporation and humidity Clouds and Precipitation <b>Lab #2 Atmospheric humidity</b>
Jan. 26/28	The Atmospheric Energy Cascade Seasons General circulation of the atmosphere Jet streams in detail Air masses, fronts <b>Lab #3 Crossing a Front and a FROPA</b>
Feb 2/4	Weather Maps - The middle latitude cyclone The role of the jet stream Atmospheric temperature What controls temperature Weather maps - temperature patterns <b>Lab #4 High and Low Pressure Lab</b>
Feb. 9	Moisture the great energy transporter Review for 1 <sup>st</sup> Test
<b>Feb. 11</b>	<b>FIRST TEST</b>
Feb. 17/19	Forces in the atmosphere Vertical Motion Atmospheric stability - what goes up Will come down (but some where else usually)

Cloud microphysics  
**Lab #5 Weather Map I**

- Feb. 24/26 Clouds, Types of precipitation  
Severe Storms and Tornadoes
- Mar. 2/4 Severe Storms and Tornadoes, cont.
- Mar. 9/11 **SPRING BREAK WEEK**
- Mar 16/18 Finish Severe Weather  
Tropical Weather, Hurricanes  
**Lab #6 Severe Weather**
- Mar. 23 Finish up, Review for Test #2
- Mar. 25 SECOND TEST**
- Mar. 30/Apr. 1 Hurricane Movie  
West African/Indian/SE Asian Monsoon System  
**Lab #7 Weather Map II**
- Apr. 6/8 El Niño/La Niña  
Little Ice Age - movie
- Apr. 13/15 Intro to climate and climate change
- Apr. 20/22 Paleoclimatology  
**Lab #8 Climate Change**
- Apr. 27/29 Climate Change/Anthropogenic Global Warming

**FINAL EXAM**

**TUE. MAY 4, 10:30AM - 12:20PM**