

# Syllabus

GEOL-011 Survey of Atmospheric Science, Spring, 2010.

Meeting time: T, Th 4:30-05:45 PM

Meeting room: Science Building C-207

Instructor: Prof. Chuixiang (Tree) Yi

Office: E-222, Science Building

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**Course Description:** Geology 11 is a PLAS course that may be used as one of the two Natural Science courses required as part of the college's general education requirements. By learning the ways in which meteorologists understand how the atmosphere works by collecting data, making a hypothesis, and using observations to validate their predictions, you will not only learn how natural scientists expand our knowledge of the world around us, you will also develop a better perspective on some of the most pressing issues currently facing our planet.

Required Textbook:

Essentials of Meteorology: An Invitation of the Atmosphere, Fifth Edition by Ahrens

- Available at the Campus Bookstore at Queens College Student Union.
- You are welcome to look online for a cheaper version of this text.

**Grading:** Homework 15%, three exams (15% each), Final Exam 25%, Class Participation 15%.

**Exam Dates:** The exams are designed to see how well you understand concepts and processes, they will be mostly short answer/essay. There will be three in-class exams plus a comprehensive final exam.

Exam #1: 02/25/2009

Exam#2: 03/25/2009

Exam#3: 05/11-2009

**Exam policy**

- Midterms—multiple choice plus essay.
- Makeup exams—instructor must be notified before the exam.
- Makeup exams cannot be taken before the exam.
- Makeup exams will be all essay that are much harder than the regular exam.

**Syllabus (may be modified as semester progresses!).**

Lecture	Date	Topic	Reading
1	01/28/10 TH	The earth's atmosphere: composition and structure	Ch 1
2	02/02/10 T	Temperature and heat transport, radiation	Ch 1 & 2
3	02/04/10 TH	Basic laws of radiation, greenhouse effects	Ch 2; <b>HW1</b>
4	02/09/10 T	Earth's heat budget; earth-sun geometry and seasons	Ch 3
5	02/11/10 TH	Daily temperature and net radiation	Ch 3; <b>HW1 due</b>
6	02/16/10 T	Relative humidity, dew point temperature	Ch 4
	<b>02/18/10 TH</b>	<b>No class</b>	
	02/23/10 T	<b>REVIEW</b>	
	02/25/10 TH	<b>EXAM#1</b>	<b>Chapters 1-4</b>
7	03/02/10 T	Adiabatic processes, dry/moist adiabatic lapse rate	Ch 5
8	03/04/10 TH	Atmospheric stability	Ch 5
9	03/09/10 T	Absolute stable/unstable, conditional stable/unstable	Ch 5; <b>HW2</b>
10	03/11/10 TH	Cloud development, level of free convection	Ch 5
11	03/16/10 T	Fog weather and condensation	Ch 4; <b>HW2 Due</b>
12	03/18/10 TH	Precipitation	Ch 5
	03/23/10 T	<b>REVIEW</b>	<b>Chapters 4-5</b>
	03/25/10 TH	<b>EXAM#2</b>	
	<b>03/29/10~04/05/10</b>	<b>SPRING RECESS</b>	
13	04/06/10 T	Wind, air pressure, surface weather map	Ch 6
14	04/08/10 TH	Pressure gradient force, Coriolis force	Ch 6
15	04/13/10 T	Geostrophic wind, gradient wind, centripetal force	Ch 6
16	04/15/10 TH	Thermal circulations, land/sea breeze, Chinook, ...	Ch 7
17	04/20/10 T	Global atmospheric circulation and precipitation pattern	Ch 7; <b>HW3</b>
18	04/22/10 TH	Jet stream, El Nino and La Nina	Ch 7
19	04/27/10 T	Air masses and fronts	Ch 8; <b>HW3 Due</b>
20	04/29/10 TH	Mid-latitude cycles	Ch 8
21	05/04/10 T	Tornadoes and Hurricanes	Ch 10-11
	05/06/10 TH	<b>REVIEW</b>	
	05/11/10 TH	<b>EXAM#3</b>	<b>Chapters 6-8, 10-11</b>
	05/13/10 T	<b>FINAL REVIEW</b>	
		<b>FINAL EXAM</b>	<b>Inclusive</b>