ATMO 101 – Introduction to Meteorology Syllabus SPRING 2017

Instructor: Dr. Jennifer Griswold
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Office Hours: After Class (Tues-Thur 1:30-2:30pm) or By Appointment (HIG 341)

Class Times: Tues-Thur 12:00 PM -1:15 PM
Class Location: MSB 100
Course Web address: http://jenniferdsmallphd.com/ATMO_101.html

Teaching Assistants:
Dillon Dodson, ddodson@hawaii.edu, contact for Office Hours
David DeCou, ddecou@hawaii.edu, contact for Office Hours

Required Materials
1) *Essentials of Meteorology: An Invitation to the Atmosphere*, 6th or 7th edition by Ahrens, C. Donald.
Available from the bookstore, though older editions are fine (and likely cheaper).
2) iClicker

Course Description
Welcome to Introduction to Meteorology! This is a lecture course, in which you can earn 3 units of credit. This course provides an introduction to atmospheric phenomena and weather. It is designed to provide comprehensive knowledge of the earth's atmosphere and its changing behavior as it relates to human activities and how it influences our daily lives. This course provides a first look at various aspects of meteorology including solar radiation, global circulation, environmental issues, winds, cloud formation, stability, precipitation processes, weather systems, and severe weather. The course will also cover meteorological terminology, large-scale climate processes such as El Niño, and will discuss techniques of weather forecasting. Basic physical principles and processes are emphasized that are important for understanding the world and have broad implications for students interested in weather and global environmental change and other environmental disciplines. We'll also learn about Hawaii weather as it applies to different topics throughout the course.

Lab Class (ATMO 101L): This course is taught by our class teaching assistants. They will cover some topics that I cover in a more applied, "Hands-On" way. Most students find the lab to be helpful but the lab is not required. Only material from the lecture and the book will appear on quizzes, HW and the Final Exam.

Basic Course and Classroom Conduct
1. Cell phones/iPods/etc. will remain off while in class or you will be asked to leave class.
2. Dropping the class is your responsibility. If you forget to drop the class formally, you will receive an F grade.
3. Cheating will result in a failing class grade.

Attendance Policy
Attendance is mandatory and will be taken each class through the iClicker Quizzes (see later). Students not in attendance on the first day will be dropped as a "no-show" if there are waitlisted students. You cannot make up iClicker Quizzes. You may make up the midterm **ONLY** if you inform me of the absence ahead of time via email or in person.

Reading, Exams and other Assignments
In order to succeed in this class, reading should be considered an ongoing homework assignment. Completing reading assignments will prepare you for lectures, quizzes, and exams. It is assumed that you possess the textbook, *Essentials of Meteorology: An Invitation to the Atmosphere (6th or 7thedition)*. The reading of these pages should be completed **BEFORE** the class session that will be covering that topic. You will be quizzed on the "Required Reading" sections.

Lecture and reading will generally follow the ***tentative*** course outline below. Pages are for 6th (7th) editions.

Week	Topic	Chapter	Date	Required Reading (completed before class)	Quiz
1	Course Syllabus & The Earth's Atmosphere	Ch 1	1/10 1/12	 Pgs 4-24 (Pgs 4-26)	 Quiz 1
2	Warming the Earth and The Atmosphere	Ch 2	1/17 1/19	Pgs 28-44 (Pgs 30-44) Pgs 44-54 (Pgs 44-55)	Quiz 2 Quiz 3
3	Air Temperature	Ch 3	1/24 1/26	Pgs 58-71 (Pgs 60-73) Pgs 71-79 (Pgs 73-81)	Quiz 4 Quiz 5
4	Humidity, Condensation and Clouds	Ch 4	1/31 2/2	Pgs 84-97 (Pgs 86-99) Pgs 97-113 (Pgs 100-119)	Quiz 6 Quiz 7
5	Cloud Development and Precipitation	Ch 5	2/7 2/9	Pgs 118-127 (Pgs 124-134) Pgs 128-146 (Pgs 134-153)	Quiz 8 Quiz 9
6	Review for Midterm 1 – Chapter 1-5	REVIEW	2/14	REVIEW SHEET	
	First MIDTERM EXAM	Ch 1-5	2/16		
7	Air Pressure and Winds	Ch 6	2/21 2/23	Pgs 150-165 (Pgs 158-173) Pgs 165-174 (Pgs 174-182)	Quiz 10 Quiz 11
8	Atmospheric Circulation	Ch 7	2/28 3/2	Pgs 178-193 (Pgs 186-201) Pgs 193-210 (Pgs 201-219)	Quiz 12 Quiz 13
9	Air Masses, Fronts, & Mid Latitude Cyclones	Ch 8	3/7 3/9	Pgs 214-233 (Pgs 224-244) Pgs 233-242 (Pgs 244-254)	Quiz 14 Quiz 15
10	Thunderstorms and Tornadoes	Ch 10	3/14 3/16	Pgs 274-295 (Pgs 288-311) Pgs 295-309 (Pgs 311-329)	Quiz 16 Quiz 17
11	Review for Midterm 2 – Chapter 6-10	REVIEW	3/21	REVIEW SHEET	
	Second MIDTERM EXAM	Ch 6-10	3/23		
12	**SPRING BREAK**	**No Class**	3/28 3/30		
13	Hurricanes	Ch 11	4/4 4/6	Pgs 314-325 (Pgs 334-345) Pgs 325-340 (Pgs 345-363)	Quiz 18 Quiz 19
14	Light, Color, & Atmospheric Optics	Ch 15	4/11 4/13	Pgs 434-443 (Pgs 462-471) Pgs 443-452 (Pgs 472-480)	Quiz 20 Quiz 21
15	Air Pollution	Ch 14	4/18 4/20	Pgs 406-419 (Pgs 432-445) Pgs 419-429 (Pgs 445-457)	Quiz 22 Quiz 23
16	The Earth's Changing Climate	Ch 13	4/25 4/27	Pgs 374-388 (Pgs 398-416) Pgs 388-401 (Pgs 413-428)	Quiz 24 Quiz 25
	REVIEW FOR FINAL EXAM		**5/2**	REVIEW SHEET	
Tues	**CUMULATIVE FINAL EXAM : Noon - 2 pm (class room)**		**5/9**	**FINAL EXAM**	

Notes

Through Power Point and the whiteboard I will provide you with an outline of key ideas for each class. I will verbally expand on these ideas during the lecture. The textbook supports the lectures, **not** vice versa. I teach you what I believe is important, not what any given textbook believes is important, and therefore not all the material in the text is required material, and some required material will not be available in the text (but most likely will be supported by supplemental reading, class lectures and discussions).

Quizzes – 25 quizzes worth 4 points each (100 pts total)

25 quizzes will be given throughout the semester. We will start each lecture with a 3 question quiz, you get 1 point for participation/attendance. In total the quizzes are worth **~25%** of your grade. You will find a list of vocabulary (Key Terms) at the end of each chapter. Quizzes may will be multiple choice questions and will be completed using the iClickers in class. This will also serve as your attendance for the day.

Exams – Midterm and Final

Two midterm exams will be given, worth ~**25%** of your grade and one Final worth ~**25%.** Exams will be based on lecture and assigned reading. They will be multiple choice exams using scantrons. You may not make up any exams (unless cleared with me beforehand). If you arrive late, you will not be given extra time to complete the exam. Exams will typically be announced as a reminder one week beforehand, they are already listed in the class schedule. If you would like additional help focusing on what you need to know for the exam, please see me during office hours or email me with specific questions. The practice of using cell phones to provide answers on exams has become prevalent. Therefore there will be no cell phones allowed in the class during an exam.

Extra Credit -- ** There will be no extra credit offered to any individuals. No exceptions. **

I may give out extra credit work, but if I do, it will be available for *all* students in the class.

Grading

Grading will not necessarily be "on a curve." There is no expectation of what the average grade should be, nor what the grade distribution should look like. If everyone were to demonstrate outstanding understanding of all the material, then everyone deserves a grade of A (and I would be very happy to give each one of them)! I therefore encourage you to discuss the course material with each other to get the most out of the class.

Note: the points and percentages given are approximations and may vary slightly

	Total Points	Fraction of Grade
Quizzes (25, 4 pts each)	100	1/4
Midterm Exam 1	100	1/4
Midterm Exam 2	100	1/4
Final Exam	100	1/4
Total	**300**	**100%**

Grade Structure

Letter	Percentage
A+	> 100.00
A	93.50-100.00
A-	90.00-93.49
B+	86.50-89.99
B	83.50-86.49
B-	80.00-83.49
C+	76.50-79.99
C	73.50-76.49
C-	70.00-73.49
D+	66.50-69.99
D	63.50-66.49
D-	60.00-63.49
F	59.99 and below

Adjustment of letter grade: One can receive an **upward** adjustment of letter grade for a number of reasons (e.g. very strong improvement during the semester, notable participation during class, exceptional effort). Under no circumstances will a reduction in letter grade be given, and these adjustments are made after the normal grades are assigned and therefore affect no one else's letter grade.

Dropping the Course

You are responsible for managing your courses. If you need to drop without a "W" grade the deadline is Tuesday January 17th. You can still withdraw from the course from January 18st- March 10th for in-person restricted withdrawal. You will need a signature from me on the "Drop Form" if you drop the class after January 17th. April 3rd is the last day I can give an "I" or incomplete for the course.

Title XI Statement:

The University of Hawai'i is committed to providing a learning, working and living environment that promotes personal integrity, civility, and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence, and stalking. If you or someone you know is experiencing any of these, the University has staff and resources on your campus to support and assist you. Staff can also direct you to resources that are in the community. Here are some of your options:

As members of the University faculty, your instructors are required to immediately report any incident of potential sex discrimination or gender-based violence to the campus Title IX Coordinator. Although the Title IX

Coordinator and your instructors cannot guarantee confidentiality, you will still have options about how your case will be handled. Our goal is to make sure you are aware of the range of options available to you and have access to the resources and support you need.

If you wish to remain ANONYMOUS, speak with someone CONFIDENTIALLY, or would like to receive information and support in a CONFIDENTIAL setting, use the **confidential resources available here**:

http://www.manoa.hawaii.edu/titleix/resources.html#confidential

If you wish to directly REPORT an incident of sex discrimination or gender-based violence including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence or stalking as well as receive information and support,

contact: Dee Uwono Title IX Coordinator (808) 956-2299 t9uhm@hawaii.edu.

Student Learning Objectives (SLOs): Upon completion of the course, the student should be able to:

1. Demonstrate a familiarity with the basic vocabulary of meteorology.
2. Understand the mechanics of the earth's atmosphere.
3. Describe and explain the origin, composition, structure, short-term and long-term behaviors of the earth's atmosphere.
4. Understand and analyze important environmental problems related to the earth's atmosphere.
5. Have a basic understanding of the atmosphere and its processes to enhance appreciation of our planet.
6. Critically examine the phenomena of the Solar and Terrestrial Radiation and understanding the energy transfer by radiation, conduction, convection, and evapotranspiration and explain the factors that determine the distribution of solar energy over the Earth's surface and describe global patterns of temperature.
7. Understand and critically examine the atmospheric phenomena of temperature, moisture conditions, atmospheric stability, forms of condensation and precipitation, air pressure and winds, circulation of the atmosphere, role of air masses, and weather patterns.
8. Describe the major cloud types and explain the phenomena of rainfall, fog, snow, sleet, and frost.
9. Define a cold and warm front and explain the processes leading to the formation of each and also explain the formation of cyclones and anticyclones, tornadoes, hurricanes and typhoons.
10. Understand and describe the formation of thunderstorms, lightning and thunder.
11. Describe and analyze the changing climate in the past, present and future
12. Understand the impact that people have on the atmospheric environment.
13. Differentiate between global warming and the greenhouse effect
14. Describe the phenomenon of El Nino-Southern Oscillation and the impacts it has on global precipitation and cloud patterns.
15. Describe various types of atmospheric optical phenomena including rainbows, mirages, halos, crepuscular rays, sun dogs, sun pillars, corona and glories.