Syllabus: ATMO 200 Atmospheric Processes and Phenomena

Instructor: Prof. Alison D. Nugent
Email: anugent@hawaii.edu
Time and Location: MWF 11:30-12:20 PM in HIG 311
Office Hours: after class or by appointment, HIG 333
Fall 2019: August 26th to December 20th
Final Exam Date: Friday Dec 20th, 12-2

Course Description

ATMO 200 is designed to provide students with a physical understanding of the atmosphere as an important part of the Earth system. The course can best be described as a quantitative survey course. ATMO 200 is the first required course for students majoring in Atmospheric Sciences at the Univ. of Hawai‘i at Mānoa. As such, it is designed to provide students with the background they need for further atmospheric study. It is also a required course for the Global Environmental Studies major (GES). With this in mind, it is designed to bring together Earth Science concepts from many subdisciplines, all connected by the same environmental drivers. The course uses algebra extensively, and introduces equation derivations with calculus. Required calculus and physics courses may be taken concurrently.

Learning Objectives

By the end of this course, students will be able to...

1. Describe the importance of the atmosphere to life on Earth and the role the solar system (sun, Earth’s rotation etc.) has in setting weather and climate patterns across the globe
2. Connect basic equations to atmospheric structure and properties
3. Apply physical principles to interpret typical atmospheric phenomenon experienced day-to-day, as well as severe weather events
4. Describe the difference between weather and climate

Topics Covered

Atmospheric structure and variables (temperature, pressure, density, humidity etc.), gas laws, radiation balance and processes, thermodynamics, conservation laws, laws of motion, clouds and precipitation, convection, atmospheric circulations, mid-latitude and tropical weather systems, severe weather, forecasting, and climate. Note that an introduction will be given to the above topics, but in-depth knowledge will be further developed in advanced ATMO courses.

Please see the course webpage here: https://adnugent.wixsite.com/alisonnugent/atmo-200-fall-2019 for updated information throughout the semester, or navigate there through www.alisonnugent.com/ and the “Teaching” page.

Tips for Success

1. Come to class! Participation counts for 20% of your grade. To receive an excused absence, send me an email in advance explaining why.
2. Don't use your cell phones and other electronic devices during class.
3. Read the assigned material and do the problem sets on time.
4. Take notes.
5. Ask questions.
6. Stay on top of course material and prepare for exams in advance.
7. Work with your fellow students, not against them. We are learning together as a community.
8. With tip 7 in mind, group work is recommended, but you must do your own work. Cheating and plagiarism are taken seriously.

Textbook and Resources

No purchases necessary!

- Our very own ATMO 200 textbook: http://pressbooks-dev.oer.hawaii.edu/atmo/ The ATMO 200 chapters follow along with Roland Stull's *Practical Meteorology* textbook (see below) and were created by an ongoing OER project. The chapters emphasize and describe important concepts which are a subset of the information provided by Roland Stull's text. The OER resources are provided as an "interactive" resource and your feedback throughout the semester will be requested.
- *Practical Meteorology: An algebra-based survey of atmospheric* science by Roland Stull. The book is an open education resource (OER). You can find the pdf at the following link: https://www.eoas.ubc.ca/books/Practical_Meteorology/
- You may also find *Essentials of Meteorology* (any edition) by C. D. Ahrens to be useful, but it is not required and will not be referenced in class.

Course Schedule

There are roughly 16 weeks in the semester, 10 problem sets, and 4 exams.
8/26 First Day of Class
9/2 No Class, Labor Day
11/11 No Class, Veterans Day
11/29 No Class, Thanksgiving
12/11 Last Day of Class
Final Exam Date: Friday December 20th, 12-2 PM set by the university calendar.

For a day-to-day class schedule, please check the course webpage:
https://adnugent.wixsite.com/alisonnugent/atmo-200-fall-2019
It will be updated throughout the semester.

Notes on Course Content

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, and work with these ideas during in-class activities. A strong background in algebra is expected, as well as some knowledge of calculus. Fundamental equations will be introduced in the reading, practiced in class, and required for problem sets and exams.

Grading

Your final grade will be determined based on problem sets, exams, and participation. Problem sets will be assigned weekly or bi-weekly depending on the topic. Late problem sets will count against your participation grade. Exams occur approximately once per month with 4 total exams, including your final exam. The lowest grade will be dropped, and the remaining 3 averaged to determine your Exam grade (all 4 must be taken).

10 Problem Sets	50%
4 Exams	40%
Participation	10%
	100%

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.

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

Disability Access:

If you have a disability or related access need, I will make every effort to assist and support you. For confidential services students are encouraged to contact the Office for Students with Disabilities (known as "KOKUA") located on the ground floor (Room 013) of the Queen Lili'uokalani Center for Student Services: www.hawaii.edu/kokua
KOKUA Program • 2600 Campus Road • 808-956-7511 • kokua@hawaii.edu

Title IX

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.