

## **Syllabus: ATMO 305 Meteorological Instrumentation and Observations**

Instructor: Prof. Alison D. Nugent

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Time and Location: MW 11:30-12:20 PM in HIG 311, F 10:30-1:20PM in HIG 310

Office Hours: after class or by appointment in HIG 333

Spring 2019: Instruction January 7<sup>th</sup> to May 1<sup>st</sup>, Final Presentations May 3<sup>rd</sup>

### **Course Description**

ATMO 305 is designed to provide students with the history, operation, and use of meteorological instruments that monitor the atmosphere. The emphasis is on practical applications and understanding the challenges of accurate atmospheric observation. The instructor will provide hands-on experience with instrumentation where possible. This course is a required class for students majoring in Atmospheric Sciences at the Univ. of Hawai‘i at Mānoa. It is the only Writing Intensive (WI) course in the Atmospheric Sciences department, and as such, it has a focus on learning through laboratory reports, data analysis, and scientific writing.

### **Learning Objectives**

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

1. Describe the methods for meteorological measurement
2. Describe uncertainties inherent in meteorological observation
3. Create graphics to display scientific data
4. Write concise reports to describe scientific experiments
5. Plan an experiment, using knowledge of experimental design and logistics
6. Present experimental results in written and oral form

### **Topics Covered**

The meteorological fields covered include temperature, pressure, humidity, wind, rain, cloud microphysics, atmospheric profiles, and a few others (by choice of the class!). We will also design and implement a field experiment as a class, and do research on various types of field experiments.

Please see the course webpage here: <http://adnugent.wixsite.com/alisonnugent/atmo-305-spring-2019> for updated information throughout the semester, or navigate there through [www.alisonnugent.com/](http://www.alisonnugent.com/) and the “Teaching” page.

### **Tips for Success**

1. Come to class! Participation counts for 10% 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 laboratory reports on time. Ten points will be removed from the final lab report grade per each day late.
4. Take notes.
5. Ask questions.
6. Stay on top of course material.
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.

### **Writing Intensive**

This class is *Writing Intensive* and uses writing to promote the learning of course materials. The hallmarks of a ‘W’ focus class are:

W1. The class uses writing to promote the learning of course materials.

W2. The class provides interaction between the instructor and students while students do assigned writing. This includes feedback to the students on their work in-progress both from the instructor and from their peers.

W3. Written assignments contribute significantly to each student’s course grade.

W4. The class requires students to do a substantial amount of writing—a minimum of 4,000 words, or about 16 pages.

W5. To allow for meaningful professor-student interaction on each student’s writing, the class is restricted to 20 students.

The writing assignments for this class fall into three categories, (i) written lab assignments (~10 assignments, minimum 2 pages each), (ii) written sections in exams (midterm and final, 2-3 pages each), and (iii) written research paper (maximum 9 pages). All writing assignments should be typed and submitted in pdf format. Supplementary handouts for writing materials will be provided in class to communicate expectations to students. Writing assignments will be graded for the quality of the technical writing (content and clarity). Drafts of the research paper will be returned to students for revisions and further improvement. Grades for each step are logged and used to determine a final writing grade for the course. Students must adequately complete all writing assignments to pass the course with a D grade or better. Students who do not complete all writing assignments will get a D- or an F and will not earn W Focus credit.

### **Textbook and Resources**

No purchases necessary!

Course materials will be provided for each lecture. The following references below will be used by the instructor to supplement lectures:

Meteorological Measurement Systems, by Fred V. Brock and Scott J. Richardson, Oxford University Press, 2001.

Instructor's Handbook on Meteorological Instrumentation, by Fred V. Brock (Editor) and Carol E. Nicholaidas (Assistant Editor), NCAR/TN-237+IA, 1984.  
Federal Meteorological Handbook No. 1 (FMH-1), by OFCM, 1995.

## Grading

Your final grade will be determined based on laboratory reports, written exam(s), a final paper and presentation, as well as participation.

Written Lab Assignments	50% W
Research Paper & Oral Presentation	20% W
Exam(s)	20% W
Participation	10%
Total	100%

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

Grading will not 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.

## Course Schedule

There are roughly 16 weeks in the semester, approximately 10 labs, up to 2 exams, and one final research paper and oral presentation.

1/7 First Day of Class

1/21 No Class, Martin Luther King Jr. Day

2/18 No Class, Presidents Day

3/18-3/22 No Class, Spring Break!

3/26 No Class, Kuhio Day

4/19 No Class, Good Friday

5/1 Last Day of Instruction

5/3 Final Presentations

## Notes on Course Content

Through Power Point, the whiteboard, group activities, and class discussion, 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. Active participation in lecture and lab is expected.

## **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](http://www.hawaii.edu/kokua)  
KOKUA Program • 2600 Campus Road • 808-956-7511 • [kokua@hawaii.edu](mailto: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.**

**→ This means that I am a mandatory reporter. You cannot speak to me anonymously.**

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](mailto:t9uhm@hawaii.edu).