

**GEOGRAPHY 1900**  
**Extreme Weather and Climate**  
**Fall Semester 2017**

*Instructor:* **Jim DeGrand**

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*Office Hours:* Mondays and Wednesdays, 2:00-3:00 PM OR **by appointment**

*Teaching Assistants:*

**Emily Sambuco**

*Office:* 1155 Derby Hall (DB)

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*Office Hours:* Monday, 11:00 am -12:00 pm and 4:00 pm – 5:00 pm OR by appointment

**Mary Grace Thibault**

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*Office Hours:* Wednesday, 11:00 am -12:00 pm and 4:00 pm – 5:00 pm OR by appointment

**Jerry Zou**

*Office:* 1155 Derby Hall (DB)

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*Office Hours:* Fridays, 12:00 – 2:00 pm OR by appointment

**Course Details**

*Lecture:* Monday, Wednesday, Friday; 12:40 PM to 1:35 PM; Jennings Hall (JE) 001

*Labs:*

Section 0020 (15843) - Monday, 9:35 – 10:55 AM in Derby Hall (DB) 0070 (Emily Sambuco)

Section 0030 (15844) - Monday, 2:20 – 3:40 PM in Derby Hall (DB) 0070 (Emily Sambuco)

Section 0040 (15845) - Wednesday, 9:35 – 10:55 PM in Derby Hall (DB) 0070 (Mary Grace Thibault)

Section 0050 (15846) - Wednesday, 2:20 – 3:40 PM in Derby Hall (DB) 0070 (Mary Grace Thibault)

Section 0060 (15847) - Friday, 9:35 – 10:55 PM in Derby Hall (DB) 0070 (Jerry Zou)

Section 0070 (20883) - Friday, 2:20 – 3:40 PM in Derby Hall (DB) 0070 (Jerry Zou)

## Course Materials

*Text:* Aguado, E. and J. E. Burt, 2012. Understanding Weather and Climate, 7th edition. Pearson Education, Inc. Upper Saddle River, NJ. (ISBN: 9780321769633) (**Strongly Suggested**)

*Lab Manual:* Course packet distributed by UniPrint at <http://uniprint.osu.edu>, available at OSU Bookstores (at Central Classroom and South Campus Gateway Barnes & Noble) (**Required**)

The Carmen course management system <http://carmen.osu.edu>

## Course Description

This course will serve as an introduction to the study of the atmosphere. The primary objective of this course is to provide students with a comprehensive understanding of the atmosphere and the processes that govern its behavior. In this course students will be exposed to various aspects of meteorology, including the structure and behavior of the atmosphere, global energy balance and transfer, atmospheric circulation, precipitation processes, weather systems and severe weather. This course will emphasize the inter-relationship existing between the atmosphere, hydrosphere, biosphere and lithosphere and will illustrate how the movement of matter and energy between these “spheres” is responsible for the weather, climate and environments we experience on Earth.

## Science GEC Course

Natural Science coursework fosters students’ understanding of the principles, theories, and methods of modern science, the relationship between science and technology, the implications of scientific discoveries and the potential of science and technology to address problems of the contemporary world.

1. Students understand the basic facts, principles, theories and methods of modern science.
2. Students learn key events in the history of science.
3. Students provide examples of the inter-dependence of scientific and technological developments.
4. Students discuss social and philosophical implications of scientific discoveries and understand the potential of science and technology to address problems of the contemporary world.

## Student Evaluation

**Labs:** Laboratory exercises will be conducted during the lab periods. Attendance is required. Students should read through each lab and be prepared **PRIOR** to the lab session. It is the responsibility of each student to turn in the required laboratory exercise at the beginning of class on the due date. All lab exercises must be completed **INDIVIDUALLY**, although working in groups is encouraged.

**Exams:** There will be three exams (two midterms and a final). Material presented in lecture and/or lab is fair game for the exams. Exams, including the final, are mostly non-cumulative but questions about some important themes/concepts will present in more than one exam. These themes/concepts will be clearly communicated to the class prior to exams. Make-up exams are only allowed in the event of a documented emergency or through **PRIOR** consent of the instructor. All exams will take place at the regular lecture room. Midterm exams occur during

regular lecture hours and the final exam will take place in the regular lecture room on Thursday, December 14, from 2:00 to 3:45 PM.

***Final grade determined as follows:***

<b>Lab:</b>	<b>35%</b>
<b>Midterm Exam 1:</b>	<b>21%</b>
<b>Midterm Exam 2:</b>	<b>22%</b>
<b>Final Exam:</b>	<b>22%</b>

**Extra Credit**

Normally I don't offer extra credit in courses I teach. I will make an exception in this course for students who regularly participate in atmospheric science related citizen science programs throughout the semester. I am prepared to award up to 7% of total points to students who participate in approved (by me) programs. Extra credit points awarded will be pro-rated by student participation in the program. For example, a student who participates regularly in a program for 9 of the 18 weeks in the semester would receive an extra 5% of the total points available in the course added to their final score. Two programs that I would be willing to give credit for are:

1. "CoCoRaHS": The Community Collaborative Rain, Hail and Snow network ([www.cocorahs.org](http://www.cocorahs.org)). In this program volunteers setup a rain gauge on their property and post daily observations of precipitation receipts.
2. "S'Cool": Students' Cloud Observations On-line (<http://scool.larc.nasa.gov/rover.html>). In this project volunteers make daily observations of clouds which are uploaded to a NASA website and used in ground validation of satellite based estimations of cloud type and cloud coverage.

There are probably other programs I would consider if they are related to atmospheric science and require regular volunteer participation. However, under no circumstances will I award extra credit for participation in a program without my prior approval of the program.

**Academic Misconduct**

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct webpage (<https://trustees.osu.edu/index.php?q=rules/code-of-student-conduct/>).

**Disability Services**

Students with disabilities that have been certified by the Office for Disability Services (098 Baker Hall 113 W. 12th Ave, telephone 292-3307) will be appropriately accommodated, and should inform the instructor of their needs at the **beginning of the term.**

## Classroom etiquette

Without exception, we will observe the following policies which are designed to maximize learning opportunities for all students:

1. The use of cell phones, smart phones and other mobile devices during class is prohibited. Please turn them off before class begins. If I perceive that you are using a cell phone during class or if your cell phone rings, I will ask you to leave the class for the remainder of the period.
2. Laptops or tablet computers are permitted in class solely for the purpose of taking notes. If I perceive that you are using your device to surf the web, check your email, etc during class I will ask you to leave the room for the remainder of the class period.
3. I welcome your participation during class in the form of questions regarding the course material. I insist that all such interactions be conducted in a manner that is not disrupting to the class and is respectful to me and to your peers. If your conduct in class is disrupting or disrespectful I will ask you to leave the class and we will have a conference about your continued enrollment in the course.
4. We will honor the posted signs outside the auditorium prohibiting food and drink in the class room.

## Schedule\*

Week	Dates		Topic	Readings	
1	23-Aug	25-Aug	Atmospheric Composition	Chap 1	
2	28-Aug	30-Aug	1-Sep	Energy, Radiation and Seasons	Chap 2
3	4-Sep	6-Sep	8-Sep	Energy Balance, Temperature	Chap 3
4	11-Sep	13-Sep	15-Sep	Pressure and Wind	Chap 4
5	18-Sep	20-Sep	22-Sep	Review; Exam I	
6	25-Sep	27-Sep	29-Sep	Atmospheric Moisture	Chap 5
7	2-Oct	4-Oct	6-Oct	Cloud formation, Precipitation	Chap 6, 7
8	9-Oct	11-Oct	13-Oct	Atmospheric Circulation	Chap 8
9	16-Oct	18-Oct	20-Oct	Air Masses and Fronts	Chap 9
10	23-Oct	25-Oct	27-Oct	Review; Exam II	
11	30-Oct	1-Nov	3-Nov	Midlatitude Cyclones	Chap 10
12	6-Nov	8-Nov	10-Nov	Severe Thunderstorms	Chap 11
13	13-Nov	15-Nov	17-Nov	Severe Tropical Storms	Chap 12
14	20-Nov	22-Nov	24-Nov	Climate and climate change	Chap 15, 16
15	27-Nov	29-Nov	1-Dec	Air Pollution	Chap 14
16	4-Dec	6-Dec		Review	
17	14-Dec			Exam III	

\*This is a tentative schedule. While exam dates will not change, the actual material presented in lectures at the time of any exam might not mirror the schedule precisely. The material covered in each exam will be clearly defined and communicated to the class by the instructor.