

# Geography 1900 - Extreme Weather and Climate

## Autumn 2021 Syllabus

**Course Description:** The objective of this course is to introduce students to the study of the atmosphere and the processes governing its behavior. We will cover a variety of topics in 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 interactions 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. Listed below are the 4 outcomes of the Natural Science GEC courses and how this course will achieve them:

1. Students understand the basic facts, principles, theories and methods of modern science.
  - a. Discussions in class, readings and course assignments will provide students with opportunities to learn about the basic facts, principles and theories of meteorology and climatology
  - b. Labs will demonstrate and give hands on experience with basic methods, and reinforce understanding of principles with experiments
2. Students learn key events in the history of science.
  - a. References will be made in readings and class discussions to the progression of our understanding of the atmosphere over time from both meteorological and climatological perspectives
3. Students provide examples of the inter-dependence of scientific and technological developments.
  - a. Lab exercises will reinforce how technology infuses understanding, and how instrumentation to measure atmospheric phenomena has changed over time
  - b. Class discussions and readings will highlight specific examples of how technology has enhanced theoretical understanding and vice versa.
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.
  - a. Through class discussions and readings about climate change and severe weather students will engage with the social implications of scientific discovery and the range of social responses to environmental hazards.

**Lecturer: Ben Gelber**

About: <https://www.nbc4i.com/author/ben-gelber/>

Email: [bgelber@wcmh.com](mailto:bgelber@wcmh.com)

Office Hours: Zoom By Appointment / Mondays 6-8 p.m.

Do not use Carmen messaging functionality! That inbox is not monitored.

**Lecture Class Session**

GEOG 1900-200 (13713) Tuesday 4:10 p.m. - 6:50 p.m., Derby Hall 1080

## Lab Instructor: Rebecca Chapman

About: <https://geography.osu.edu/people/chapman.751>

Email: [Chapman.751@buckeyemail.osu.edu](mailto:Chapman.751@buckeyemail.osu.edu) - preferred

Office Hours: Zoom only: Wednesdays, 2:00 – 4:00 p.m. OR by appointment

<https://osu.zoom.us/j/98927222046?pwd=SUx2ZnVaNnYxMEgxSENaWEFpNk51QT09>

Zoom Password: 1900

## Lab Class Session

GEOG 1900-201 (13714) Tuesday 7:05 P.M. - 8:55 P.M., Derby Hall 070

GEOG 1900-202 (13715) Thursday 7:05 P.M. - 8:55 P.M., Derby Hall 070

\*! Please come to your scheduled recitation time. If you need to switch on a permanent basis, change your schedule online at <http://buckeyelink.osu.edu>

## Student Evaluation- All graded components of the course:

30% 10 Labs

20% 1 Midterm (multiple choice)

30% 1 Final (multiple choice)

20% 14 Pop quizzes at the end of each lecture (total number subject to change)

+6% 2 Extra Credit Opportunities

\*Missed or late labs should be arranged with assistant, Rebecca

\*Missed quizzes must be made up within 1 week, and arranged with lecturer, Ben

## Course Materials

- Textbook: Aguado, E. and J. E. Burt, 2012. Understanding Weather and Climate, 7th edition. Pearson Education, Inc. Upper Saddle River, NJ. (ISBN: 9780321769633) (*Suggested*)
- Lab Manual: Made available as PDFs in Carmen as labs progress.
- Website: The Carmen course management system <http://carmen.osu.edu>

## External Weather Resources

<https://www.weather.gov/iln/>

<https://www.spc.noaa.gov/>

<https://weather.cfaes.osu.edu/?id=14>

<https://www.wpc.ncep.noaa.gov/#page=ovw>

## Lab Guidelines

### 1. Collection of Assignments:

You will have at least a week to complete each lab and submit online in Carmen. All assignments are due the following Friday at 11:59 p.m. unless otherwise noted. You will receive an electronic copy of the lab manual as a fillable pdf which you will submit in Carmen. All responses should be typed. Do not submit handwritten scans or digital pen edits.

Work turned in after the published due date and time will be assessed a penalty equal to 10% per day the assignment is late. 1 minute late counts as 1 day late. For example, if an assignment is due at 11:59 p.m. 9/17/2021 and you turned your work in at 12:00 a.m. on 9/19/2020, that assignment is 2 days late.

- \*\*Do not e-mail lab, use Carmen assignment for lab submission.
- \*\*Special circumstances must be discussed with us prior to due dates.

## 2. Laboratory Policy:

You are required to be present during the experiment to receive credit for data. Makeups will **NOT** be permitted except for documented illness or official OSU conflict (with prior notice). Arrangements must be made within **one week** of the original class.

Misbehavior during labs will not be tolerated. If you fool around, you will be asked to leave the classroom and you will receive an automatic zero for that day's lab.

Cell phone use (talking, texting, email, etc.) is not permitted during lab. Phones must be on vibrate or silenced during lab.

## 3. Plagiarism:

You are welcome to discuss the assignments and encouraged to work with one another. However, you must formulate your own answers to questions. Word for word copying of assignments is plagiarism and subject to Academic Misconduct. All figures and graphs must be your own original work.

## Extra Credit Opportunities

- **+4%** Citizen science cloud observations (up to 4 extra credit points):  
In this individual effort, up to 4 extra credit points on the final course grade will be awarded to students who act as observers for the "Student Cloud Observations Online (S'COOL)" project. This is a NASA led citizen science initiative aimed at collecting cloud cover data in order to improve satellite-based observations.  
The amount of extra credit received will be determined by the total number of reports handed in. Each report is worth 0.08 points. These are accumulated until 4 extra credit points are obtained (50 reports). Students are encouraged to perform more than 50 observations, but those who do will still receive the maximum 4 extra credit points. To be valid, reports must be based on observations performed between August 24<sup>th</sup> to December 3<sup>rd</sup>. Students will be able to submit up to two valid observations per day as long as they are performed more than 2 hours apart. For full credit reports must be submitted to Carmen by December 3<sup>rd</sup> at 11:59pm. More details on how to perform observations and complete reports are found on the Extra Credit section in Carmen.
- **+2%** The Weather Creative:  
Create and submit a piece of art related in some way to the content of the course. Here are the guidelines for this project:
  - You may work alone or you may collaborate with up to 2 other classmates.
  - The form of your creation is open: it can be poetry, prose, music, dance, photography, painting, sculpture, etc.
  - Your submission must be made by Friday, December 3<sup>rd</sup> at 11:59pm.
  - A representation of the work must be uploaded to Carmen. This is not a problem if your submission is written. If your submission is visual or performance based, then an image or a video will be required.
  - Video or audio submissions should have a duration no longer than 2 ½ minutes.
  - Submissions which, by their nature do not include written words, must be accompanied by a brief (less than 100 words) statement as to how the submission relates to the course.

## ***Tentative Lecture Schedule***

<b>Date</b>	<b>Lecture</b>	<b>Textbook Chapter</b>
24-Aug	Intro to the Course with Rebecca (TA)	n/a
31-Aug	Atmosphere, Radiation, Seasons	1,2
7-Sep	Energy, Temperature, Water Vapor	3,4
14-Sep	Moisture, Clouds, Stability	5,6
21-Sep	Precipitation Processes, Pressure	7,8
28-Sep	Circulation, Air Masses, Fronts	9
5-Oct	Midlatitude Cyclones	10
12-Oct	Thunderstorms, Tornadoes	11
19-Oct	Midterm	-
26-Oct	Tropical Weather, Hurricanes	12
2-Nov	Weather Analysis, Forecast	13
9-Nov	Human Influences on Climate	14
16-Nov	Earth's Climates	15
23-Nov	Earth's Climate History	16
30-Nov	Atmospheric Optics	17
7-Dec	Final Review	-

\*Lecture schedule subject to change. We will let you know via Carmen and/or email if a change in lecture topic is necessary.

## ***Tentative Lab Schedule***

<b>Date</b>	<b>Lab</b>	<b>Due</b>
8/30/2021- 9/5/2021	Instrumentation and Measurements (Lab 1)	-
9/6/2021- 9/12/2021	<b>Labor Day (No Lab)</b>	Laboratory 1
9/13/2021- 9/19/2021	Vertical Profiles of the Atmosphere (Lab 2)	-
9/20/2021- 9/26/2021	Heat Transfer (Lab 3)	Laboratory 2
9/27/2021- 10/3/2021	Surface Elements (Lab 4)	Laboratory 3
10/4/2021- 10/10/2021	Forces in the Atmosphere (Lab 5)	Laboratory 4
10/11/2021- 10/17/2021	<b>Autumn Break (No Lab)</b>	Laboratory 5

10/18/2021- 10/24/2021	Moisture and Relative Humidity (Lab 6)	-
10/25/2021- 10/31/2021	Condensation (Lab 7)	Laboratory 6
11/1/2021- 11/7/2021	Microclimates (Lab 8)	Laboratory 7
11/8/2021- 11/14/2021	<b>Veteran's Day (No Lab)</b>	Laboratory 8
11/15/2021- 11/21/2021	Air Masses and Fronts (Lab 9)	-
11/22/2021- 11/28/2021	<b>Thanksgiving Break (No Lab)</b>	-
11/29/2021- 12/5/2021	Weather Analysis (Lab 11)	Laboratory 9
12/6/2021- 12/12/2021	<b>No Lab</b>	Laboratory 11 (to Mailbox)

\*\*This schedule may change if weather prohibits the safe completion of a lab during the given session. We will let you know via Carmen and/or email if a change in lab order is necessary.

# University Policies

## Disability Services

The university strives to make all learning experiences as accessible as possible. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's request process ([slds.osu.edu/covid-19-info/covid-related-accommodation-requests/](https://slds.osu.edu/covid-19-info/covid-related-accommodation-requests/)), managed by Student Life Disability Services. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: [slds@osu.edu](mailto:slds@osu.edu); 614-292-3307; [slds.osu.edu](https://slds.osu.edu); 098 Baker Hall, 113 W. 12th Avenue.

## Academic Misconduct

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's Code of Student Conduct, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct and this syllabus may constitute Academic Misconduct.

The Ohio State University's Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: Any activity that tends to compromise the academic integrity of the University, or subvert the educational process. Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an excuse for academic misconduct, so I recommend that you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

## Getting a ride home

Lyft Ride Smart at Ohio State (<https://ttm.osu.edu/ride-smart>) offers eligible students discounted rides, inside the university-designated service area, from 9 p.m. to 3 a.m. Each month, 10,000 discounted rides will be made available on a first-come, first-served basis with the average cost expected to be \$2 or less. Prices may be impacted by distance, traffic, time of day, special events and prime time surcharges. To qualify for program discounts, users must select "shared ride" when booking in the Lyft

app. When using ride sharing, remember to visually confirm vehicle info/descriptions in the company app and ask the driver to say who they are picking up.

### **Grievances**

According to University Policies, if you have a problem with this class, you should seek to resolve the grievance concerning a grade or academic practice by speaking first with the instructor or professor. Then, if necessary, take your case to the department chairperson, college dean or associate dean, and to the provost, in that order. Specific procedures are outlined in Faculty Rule 3335-8-23. Grievances against graduate, research, and teaching assistants should be submitted first to the supervising instructor, then to the chairperson of the assistant's department.

### **Harassment, discrimination, sexual misconduct**

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Office of Institutional Equity:

Online reporting form at [equity.osu.edu](http://equity.osu.edu),  
Call 614-247-5838 or TTY 614-688-8605,  
Or Email [equity@osu.edu](mailto:equity@osu.edu)

The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Office of Institutional Equity to ensure the university can take appropriate action:

All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.

The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member.

### **Mental Health**

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more

about the broad range of confidential mental health services available on campus via the Office of Student Life Counseling and Consultation Services (CCS) by visiting [ccs.osu.edu](http://ccs.osu.edu) or calling (614) 292-5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on-call counselor when CCS is closed at (614) 292-5766 and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-(800)-273-TALK or at [suicidepreventionlifeline.org](http://suicidepreventionlifeline.org)