

Physics of the Weather
EAS 2750 (3 credit hours)
Fall 2020

Course Meeting Times: 9:30 – 10:20 AM MWF

Course Location: Room 16, College of Computing

Course Instructor

Dr. Greg Huey

Office: 1168 Ford ES&T Building

Email: greg.huey@eas.gatech.edu

Virtual Office Hours: 1:30 – 3 PM WF or by appointment; Virtual office hours. I will have an open Bluejeans link.

Course TA

Young Ro Lee

Office: Ford ES&T Building 3122

Email: ylee678@gatech.edu

Office Hours: 1:30 – 3 PM TR or by appointment; Virtual office hours with Bluejeans or in-person if necessary.

Required Text

- 1) Emanuel, Kerry (2018), What We Know About Climate Change; ISBN-13: 978-0262535915.

Recommended (but not required) Texts

- 1) Ahrens, D.C. (2016), Meteorology Today, 12th edition, Cengage Learning; ISBN-13: 9781337616669.
- 2) Stull, R. B. (2017), Practical Meteorology: An Algebra-based Survey of Atmospheric Science, Univ. of British Columbia; ISBN-13: 9780888651761. URL: https://www.eoas.ubc.ca/books/Practical_Meteorology/

Course Description

You have experienced many weather events and the changing seasons throughout your life. In this class we will focus on the basic physical principles that underlie the climate system as well as meteorological phenomena. The goal of this course is to help you understand, both qualitatively and quantitatively, the behavior of the atmosphere on a variety of time scales. This includes (but is certainly not limited to) seasons, climate differences between locations, thunderstorms, hurricanes, winter storms, hail and more mundane phenomena such as non-precipitating clouds, fog, prevailing wind directions, and clear skies.

In this course, we will apply scientific principles to develop an understanding of meteorological phenomena through learning meteorological theory, critical analysis of data and application of material within the context of actual “case study” events. You will also read a book about what we know about climate change by an expert on atmospheric dynamics and hurricanes.

Scientific Skill Development

Our goal is to develop the following scientific skills below in the context of course material:

- 1) Understand the basic physical principles of climate and meteorology
- 2) Demonstrate understanding of “why” and “how” meteorological phenomena develop
- 3) Access, analyze and physically interpret meteorological data
- 4) Apply your understanding of meteorology towards critically analyzing data and drawing conclusions supported by physically accurate scientific evidence.

Grading

Your grade in this course will be based on your performance within the following categories:

- Class Participation – 20% of grade
 - Deadly Season – Reading and Assignments – 10% of grade
 - Either:
 - 4 Mid Term Exams (17.5% each) and Cumulative Final Exam Dropped – 70% of grade
- OR
- 3 Mid Term Exams (15% each) with lowest exam dropped and Cumulative Final Exam (25%) – 70% of grade

Class Participation (20% of grade)

You are expected to attend every class period. OK what does that really mean in the era of COVID-19? I request that you either attend class in person or you log in to Bluejeans for the broadcast of the lecture. Class participation grades will be based on a series of quizzes. The quizzes will be available on Canvas for 48 hours and will be announced in class as well as by email.

Your final participation grade will be out of 100 points. There will be more than 100 points of participation available this semester; once you have reached the 100 point limit, you will have maximized this portion of your grade. As a result, no participation “make-up” assignments will be allowed.

Reading Assignments (10% of grade)

As a class, we will be reading along to the book “What We Know About Climate Change.” There will be questions for you to answer for each chapter of the book and are due via online Canvas submission by the start of class on their due date. We will have one class period near the end of the semester where we will have a book discussion.

Module Exams (70% of grade OR 45% of grade if cumulative final exam included)

There will be 4 midterm exams These exams are non-cumulative and will cover the material covered prior to exam dissemination. The lowest module exam grade will be dropped if your cumulative final exam score improves your grade (see “Cumulative Final Exam” below for details).

Cumulative Final Exam (25% of grade if included)

A cumulative final exam will be administered during the course final examination period; see course schedule for date and time of final exam. This final exam will be cumulative, assessing your understanding of course material from each module. Questions will be structured similarly to questions from each midterm exam.

The cumulative final exam will be dropped if the score on this exam does not improve your module exam average score. As a result, your exam grade in this class will be based on either your 4 module exam scores without the final exam included OR your top 3 module exams plus the cumulative final exam (see grading section above for details).

All exams will be closed note and will be administered online during the normal class meeting time.

Grading Scale

The **grading** for the course is as follows:

Grade	Percentage
A	100 – 90
B	89.99 – 80
C	79.99 – 70
D	69.99 – 60
F	<60

Depending on the distribution of student scores at the end of the course, the scores may be curved to reflect the scale described above (**up to the instructor's discretion**).

Lecture Notes

We will post relevant lecture notes/recordings/slides from class, the course syllabus, course schedule and other relevant course information/resources on the course Canvas website.

Cheating

Cheating will not be tolerated in this course. Cheating includes the following: 1) copying answers from another student, 2) using unauthorized resources to study for course quizzes and assessments, which includes the use of electronic devices, 3) posting solutions to course quizzes and assessments on the Internet, and/or 4) any other activity that would be considered “academic misconduct”.

Academic Honor Code

The instructor and students are expected to abide by Georgia Tech's Academic Honor Code. Plagiarism of any kind (including the reproduction of materials found on the internet) is strictly prohibited and will be reported to the Office of Dean of Students for academic misconduct. The

complete text of the Academic Honor Code may be found at:
<https://policylibrary.gatech.edu/student-affairs/academic-honor-code>

Access and Accommodations

At Georgia Tech, we strive to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, you are welcome to let me know so that we can discuss options. You are also encouraged to contact the Office of Disability Services to explore reasonable accommodations.

The Office of Disability Services can be contacted by:

Phone: 404-894-2563

Email: dsinfo@gatech.edu

Website: <http://disabilityservices.gatech.edu/>

If our class meets at a campus location: Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable.

Course Schedule

The course schedule is available on the course Canvas website. Please consult this schedule for all course due dates and other key relevant information. *The course schedule is subject to change at the instructors' discretion.*