Department of Geography and Environmental Science - Hunter College (CUNY)

PGEOG 13000 - WEATHER AND CLIMATE LAB

Fall 2024 Syllabus

Meeting Time: Thursdays

Section:
2L02 (2:30 – 4:20 PM)

Mode of Instruction: In Person
Room: 1028 (Hunter North)

Instructor: Natalie Monterrosa
Email: nmonterrosa@hunter.cuny.edu

Please include the Lab section number in the subject line and include your full name in the body of the email. I will try my best to answer all emails within 24 hours, and within 48 hours on the weekends.

Office/Hours: 1032 (Hunter North)
Mondays 11:30 AM – 12:30 PM (We can schedule a Zoom meeting based on need and availability.)

COURSE DESCRIPTION:

This is the lab section of the PGEOG 13000 Weather and Climate course, which has a lecture and laboratory component worth 4.0 credits (5 hours). The course fulfills the Hunter Common Core C, Life and Physical Sciences, and the General Education Requirements GER 2/E (Natural Science). There are no prerequisites. The course (lecture and lab) is an introduction to meteorology and atmospheric sciences. It includes the structure and composition of the atmosphere and the elements that affect it, such as pressure, humidity, and temperature. It examines the development of various weather phenomena, such as cloud formation, fronts, storm systems, severe weather, and reviews essential weather forecasting and analysis techniques. The course explores short- and long-term climate processes and their impact on the environment and people. It also demonstrates how different regions of the world have been and will be impacted by climate change in the past, present, and future. This is a laboratory science course, and the concepts covered in the lecture will be demonstrated

with hands-on and technology-based activities using a variety of exercises and observations. In several lab exercises, we will be using mathematical formulas, calculations, and graphs. Lab exercises are designed to further your understanding of these concepts through application and analysis.

EXPECTED LEARNING OUTCOMES:

Upon successful completion of PGEOG 13000, Weather & Climate Lab, students should be able to:

1. Describe and explain the basic elements that determine everyday weather, severe weather patterns and climatological features across the earth.
2. Explain the relationship between the Sun and the Earth and the Sun's planetary impact on weather and climate.
3. Recognize the interaction between the elements of the atmosphere, including (a) the composition and the structure of the atmosphere; (b) the atmospheric and oceanic circulation processes, fronts, storm systems, and severe weather; (c) interpret methods of weather forecasting and create basic weather maps.
4. Distinguish, analyze, and evaluate climate processes and how they relate to the past, present, and future climate, and their impact on biogeography, including (a) current technology and science in predicting meteorological outcomes, (b) natural and anthropogenic climate change, and (c) the impact created by shifts in climate zones.

MATERIALS:

Required Text:

Greg Carbone, *Exercises for Weather and Climate, 9th ed.* Pearson, 2016 ISBN-10: 0134041364, ISBN-13: 9780134041360

We will be working on exercises from the lab manual in class. The e-text is not recommended if you want to print a hardcopy due to alignment and other printing errors. There is also a reserved copy of the manual in the **Hunter Library (Call Number: QC981.C34 2016)** if you want to make copies. Please note that hard copies of the lab exercises will not be provided in class. You must have (purchase/rent/copy) the required materials before the first day of class.

Recommended but optional materials: Calculator, pencils, paper, protractor, colored pencils.

CLASSROOM POLICIES:

It is important that you attend every session to work on lab exercises and to prepare for Blackboard assignments. If the material is covered in class, there is a high probability it will be a question on the Blackboard assignment. In addition, there will be a short lecture (20 – 30 minutes) at the beginning of every session. I encourage you to ask questions and participate in discussions during this time. Please adhere to the following guidelines during class sessions:

- Lecture and class notes should be taken using pen or pencil and paper.
- All cell phones must be silenced.
- Texting and other non-class related smart phone activities are not allowed. Students should quietly excuse themselves from the classroom if substantial external electronic communication is required.
- Tape recording is not permitted (proper documentation must be provided to grant an exception)
- Laptops, iPads, tablets, and other electronic devices may be used **ONLY** for lab assignments during class time.

Please be respectful of yourselves and each other. Inappropriate behavior in our language and/or conduct will not be tolerated. At times we will be working in groups and all students are expected to abide by classroom policies to provide a more productive learning environment.

All people have the right to be addressed and referred to in accordance with their personal identity. In this class, we will have the chance to indicate the name that we prefer to be called and, if we choose, to identify pronouns with which we

would like to be addressed. I will do my best to address and refer to all students accordingly and support classmates in doing so as well. If there is a name or pronoun(s) you prefer to be addressed by, please approach me in class, send me an email, or mention it to me privately during office hours and I will add this information to my course roster.

Due to the ongoing COVID-19 pandemic, we must continue to adhere to all guidelines from CUNY. COVID-19 Info – The City University of New York (cuny.edu). You are no longer required to wear a mask. However, since we will be working in groups, wearing a mask is highly recommended. **If you are not feeling well, please do not come to class.** Send an email and we can discuss how and when you can make up any missed assignments. If you have any other health or wellness related questions or concerns, please let me know as soon as possible so we can find the appropriate resources to help you.

GRADING:

Lab Coursework:

- **In class (60%)** - This includes all lab exercises completed in class as well as individual participation, and group activities.
- **Lab assignments (40%)** - All assignments completed on Blackboard including tests and discussion questions.

This is a combined course, including both lecture and lab. There will be two separate grades given for each component and a final combined course grade. Please see your lecture syllabus and/or contact your lecture professor for more details. (Lecture: Prof. Thomas Carboni. Email: Thomas.Carboni72@myhunter.cuny.edu)

The final lab grade represents 30% of the combined course grade. To calculate your final lab grade, think of it in terms of points (30% = 30 points)

For example: If your final lab grade is an 80, you multiply that by .30 (30%). The result = 24. That means you earned 24/30 points for the lab component.

EXTRA-CREDIT:

***Eco*-Credits (Outdoor activities):**
Our student club the Greenbelt Society, in collaboration with institutions such as the NYC Parks and Recreation Department and the American Littoral Society will be organizing and/or participating in several outdoor activities such as tree planting, restoration, coastal clean-ups and hiking during this semester. See the tentative calendar below. We will discuss in more detail the potential to earn extra credit towards the final lab grade. If you are interested in participating with us or becoming a member, please let me know!

Greenbelt Society

Our mission is to provide a platform for members to actively participate in projects, events and other activities in environmental science and sustainable development. We seek to promote intellectual and professional development through discussion, interdisciplinary collaboration, and external networks.

LAB ASSIGNMENTS:

Lab exercises from the manual will be completed in class, individually or in groups. **All assignments and discussion questions posted on Blackboard (graded) will be due the following week. Due dates will be posted on Blackboard.** If

you must turn in a physical lab to be graded, please make sure your handwriting is legible and you use proper grammar in your responses. (Example: use "because" instead of "b/c" or "at" instead of "@"). Discussion questions should be answered with at least 3 – 5 complete and thoughtful sentences to receive full credit. If you miss a class session, you are still expected to complete the assignment and submit it on time. Please let me know if you have any questions or concerns.

You will be allowed **ONE** late lab. Any late labs thereafter will be subject to a 10 point/day penalty (including weekends). No labs will be accepted after the last day of class. Exceptions will be made on a case-by-case basis and must be addressed immediately.

I take academic responsibility and honesty very seriously. Please be mindful of assignments and due dates. Although we will be working in groups, your responses must be your own. This includes lab assignments as well as discussion questions given on Blackboard. My penalty for plagiarism or cheating will result in giving you an automatic zero for the assignment for the first time, an F for the course if it is repeated. The college may also take further disciplinary action which can negatively impact your academic standing.

If you find the work challenging or need extra help with lab assignments, there are resources available to help you. Tutoring is normally offered for this course every semester, and I encourage you to utilize it when available. In addition, I will post additional resources after class sessions to assist you in completing the "test" assignment given on Blackboard. I will also be available during office hours and via email if you need further help.

STATEMENT ON THE USE OF ARTIFICIAL INTELLIGENCE (AI)-BASED TECHNOLOGIES

- Artificial intelligence-based technologies, such as ChatGPT, must not be used to generate responses for your assignments.
- Unauthorized use of artificial intelligence software or word mixing software to complete assignments or disguise plagiarized work is considered unauthorized assistance in this course.
- Use of an AI text generator when an assignment does not explicitly call or allow for it without proper attribution or authorization is plagiarism.

HUNTER COLLEGE STATEMENT ON ACADEMIC INTEGRITY

Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures. Plagiarism, dishonesty, or cheating in any portion of the work required for this course will be punished to the full extent allowed according to Hunter College regulations.

ADA POLICY

In compliance with the American Disability Act of 1990 (ADA) and with Section 504 of the Rehabilitation Act of 1973, Hunter College is committed to ensuring educational parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (Emotional, Medical, Physical, and/or Learning) consult the Office of AccessABILITY, located in Room E1214B, to secure necessary academic accommodations. For further information and assistance, please call: (212) 772- 4857 or (212) 650-3230.

HUNTER COLLEGE POLICY ON SEXUAL MISCONDUCT

In compliance with the CUNY Policy on Sexual Misconduct, Hunter College reaffirms the prohibition of any sexual misconduct, which includes sexual violence, sexual harassment, and gender-based harassment retaliation against students, employees, or visitors, as well as certain intimate relationships. Students who have experienced any form of sexual violence on or off campus (including CUNY-sponsored trips and events) are entitled to the rights outlined in the Bill of Rights for Hunter College. a. Sexual Violence: Students are strongly encouraged to immediately report the incident by

calling 911, contacting NYPD Special Victims Division Hotline (646-610-7272) or their local police precinct, or contacting the College's Public Safety Office (212-772-4444). b. All Other Forms of Sexual Misconduct: Students are also encouraged to contact the College's Title IX Campus Coordinator, Dean John Rose (jtrose@hunter.cuny.edu or 212-650-3262) or Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complimentary services through the Counseling and Wellness Services Office, Hunter East 1123. Sexual-Misconduct-Policy.pdf (cuny.edu)

SYLLABUS CHANGE POLICY

Except for changes that affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice. All changes will be announced on Blackboard, by email, and/or in class.

COURSE CONTENT AND CALENDAR

(Reference Chapters are in the Lecture Textbook: **The Atmosphere: An Introduction to Meteorology**, 14th edition, Lutgens, Tarbuck, Herman, Tasa. ISBN-13: 9780134758589)*

Week	Date	Lab Exercise #	Question #	Ref. Chapter
01	Aug 29	Lab 1A (See Blackboard)	All	n/a
02	Sept 5	Lab 1- Vertical Structure of the Atmosphere	1-22	1
03	Sept 12	Lab 2 – Earth-Sun Geometry	1-6, 9-12, 17	2
04	Sept 19	Lab 3 - Surface Energy Budget Lab 4 – Global Energy Budget	1-4, 11-15 1-5, 11-15	3-4
05	Sept 26	Lab 5 - Atmospheric Moisture	10-29	4
06	**Oct 3**	**NO CLASS**		
07	Oct 10	Lab 6 - Saturation and Atmospheric Stability	1-16, 18-25	4
08	Oct 17	Lab 9 - Weather Map Analysis*	1-3, 5, 8	8-9
09	Oct 24	Lab 10 - Mid-latitude Cyclones	1-17	9
10	Oct 31	Lab 12 - Thunderstorms and Tornadoes	1-17	10
11	Nov 7	Lab 13 – Hurricanes	1-17	11
12	Nov 14	Lab 14 - Climate Controls	1-22	15
13	Nov 21	Lab 16 – Climate Variability and Change	1-23	14
14	Nov 28	NO CLASS – THANKSGIVING		
15	Dec 5	Lab 17 - Simulating Climate Change	1-16	14
16	Dec 12	Group Activity/Review		
17	**Dec 19**	**NO LAB (FINALS WEEK)**		

* No Blackboard assignment