

WEATHER & CLIMATE - PGEOG 13000 - FALL 2022
LECTURE: MONDAY/THURSDAY 8:30 AM - 9:45 AM
HUNTER WEST ROOM 615

LAB SCHEDULE & INSTRUCTORS CONTACT INFORMATION

3L01	Monday 10:30 am – 12:20 pm	Keneshia Hibbert
3L02	Monday 12:30 pm – 2:20 pm	Keneshia Hibbert
3L03	Monday 2:30 pm – 4:20 pm	Keneshia Hibbert
3L04	Thursday 11:30 am – 1:20 pm	Melissa Linares

CONTACT INFORMATION

Professor:	Peter J. Marcotullio
Email address:	peter.marcotullio@hunter.cuny.edu
Telephone:	212-772-5468
Office:	Department of Geography and Environmental Science, Room HN 1035
Office Hours:	Thursdays: 10:00 am – 12:00 pm; <i>in person @ Room HN1003e.</i>

***Note:** The best way to contact me is through your **Hunter College** @myhunter email – (1) You must include the course number or name in your subject line, (2) you must sign your full name as it appears in CUNYfirst and your EMPLID.

DIVERSITY & INCLUSION

Hunter College is committed to fostering an intellectual environment that is enriched and enhanced by diversity in all dimensions, including race, ethnicity and national origins, gender and gender identity, sexuality, class and religion. This includes a commitment to increasing the representation of those populations that have been historically excluded from participation in U.S. higher education in STEM fields.

Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice. Updates will be posted regularly on BlackBoard.

INFORMED REGISTRATION STATEMENT

In this 4-credit course we will explore the fundamentals of meteorology and the Earth's climate. Topics will include the physics of the atmosphere, interactions between the atmosphere and the oceans, climate change and environmental issues relating to weather and climate. This is an applied science course that has a lab component (hands-on work) and therefore it can be used to meet the GER2E General Education Requirement as well as to meet the Physical and Life Science category of the Hunter Common Core.

COURSE DESCRIPTION, LEARNING OBJECTIVES, & OUTCOMES

This course will describe the basic principles and elements that shape and determine the Earth's weather and climate. The first part of the course will concentrate on describing the elements that are common to weather and climate: temperature, pressure, moisture, clouds and winds. The second part of the course will, then, concentrate on how all those elements, determine the general circulation patterns in the atmosphere and oceans, weather patterns and our climate. Finally, we concentrate on air pollution and the changing climate and in this context; we will discuss some

current issues, such as the potential impact that humans have on climate, climate change and environmental justice.

The student who successfully completes this course will be able to

- recognize the methodologies employed by natural scientists,
- describe the basic elements that determine weather patterns and climate features of Earth,
- describe the basic chemistry and physics of atmospheric processes.
- discuss the basic concepts related to earth's climate, and what is known about recent climatic changes
- recognize the complexity of the Earth's climate system, its weather and the many ways our lives are affected (and affect!) our environment.

RECOMMENDED TEXTBOOK*

The Atmosphere: An Introduction to Meteorology, 14th edition, Lutgens, Tarbuck, Herman, Tasa. ISBN-13: 9780134758589 ([13th, 12th or 11th Editions are acceptable](#)).

- * [Topics](#) and [main content](#) of the course can be found in any of the previous editions of this textbook. We will refer to this textbook as 'LTHT textbook' for short.
- * There are also readily available and free resources on line. The two resources listed below, cover much of the material covered in the course (not necessarily in the same order). The lecture notes will make specific references to these resources whenever possible.

<https://www.e-education.psu.edu/meteo469>

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

REQUIRED COURSE LAB MANUAL

Exercises for Weather and Climate, by Greg Carbone, 9th Edition; ISBN-13: 97801340041360

NOTE: eBook Version comes with printing limitations

**** You must have your lab manual for the first day of lab ****

GRADING METHOD AND SCALE

Grades will be based on class participation, homework assignments, two mid-term exams, and one final exam. A detailed description of the Hunter College Grading System may be found at <https://ww2.hunter.cuny.edu/students/academic-planning/degree-requirements/construct-an-academic-plan/gpa-calculator/grading-scale>. An itemized breakdown of the final grading rubric is provided below:

- Class participation: 10%
- Lab Work: 30%
- Mid-term exam I: 20%
- Mid-term exam II: 20%
- Final exam: 20%

Class Participation will be assessed through a series of short assignments, which will be based on varying topics related to Weather & Climate. These are meant as low impact assignments and are designed to encourage students to engage with publicly available data.

EXAM GUIDELINES AND POLICIES

Exams will be based on assigned textbook readings and materials covered in class.

Examinations are 1 hour and 15 minutes for the mid-term and 2 hours for the final exam. Make-up exams are **ONLY** available in extreme cases, and with medical (or other) forms that confirm the absence.

Exams are designed to evaluate a student's ability to master content, integrate themes and concepts among the different topics covered in the class, understand the usefulness and limitations of scientific data for studying processes, and apply logical arguments to support perspectives.

CR/NCR POLICY

The CR/NCR option will be honored only if the conditions stated on the CR/NCR form are satisfied: all course work has been completed and you earned grades such that you accumulated at least 50 points total in the course. Students on probation are ineligible. For more information about Hunter College's policy on CR/NCR go to:

<http://www.hunter.cuny.edu/advising/howto/credit-no-credit-cr-nc>.

PARTICIPATION AND CLASSROOM POLICIES

Class participation constitutes 10% of the final grade. Attendance required and is strongly encouraged at all lectures because students who do not attend lecture cannot participate in class discussions. All students are expected to abide by the following policies when in lecture in order to provide a more respectful and productive learning environment.

- All cell phones must be silenced.
- Students should quietly excuse themselves from the lecture if substantial external electronic communication is required.

SYLLABUS CHANGE POLICY

Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice. Updates will be posted regularly on BlackBoard.

About the lab component of this course: Review carefully the syllabus provided by your lab instructor and keep in mind the general laboratory policies:

Lab exercises are due in lab at the beginning of your next class meeting or as otherwise scheduled by the individual lab instructor. Late lab exercises will have their grade reduced 20% for each day received late unless you have a valid excuse that can be documented. This policy will be strictly enforced. If you miss a class session, you are still expected to do the weeks work and hand the lab in on time, do not wait until the next meeting. Please ask your lab instructor about how they would like you to hand in any late labs.

ADDITIONAL HELPFUL INFORMATION

My Teaching Philosophy: My goal in teaching is to provide reliable information to students in a way that is understandable, interesting, and even enjoyable. I am a strong believer in science, and its limitations. I feel most accomplished when students pick up skills that they can use in this

class, and in other disciplines. My approach to teaching includes providing current information, to the best of my understanding, but also through discussion. I do not like to race through a lecture, but rather have discussion and leave unrepresented material for students to pick up by themselves at a later time.

Lecture: I will spend part of the lecture time explaining the key concepts of weather and climate and devote time to class discussion. You are expected to devote time outside the classroom to understand the concepts and review questions. I expect that lectures and discussion will help you be ready for exams.

Finally: It is important to start with good study habits. Consistency is one important component of good study. That is, looking at the text and reviewing notes regularly! Use any other resource available to you throughout the semester. Study groups are also extremely helpful. There is a lot of material in each chapter. While memorization is important, it is more important to understand rather than rote learning.

The following are useful tips to do well in this or any class:

- Attend class and take notes.
- Actively participate in class discussions.
- Read the assigned material in the course textbook (or another textbook) *before* coming to class.
- Re-write your notes as soon as possible after class. This will allow you to fill in the details still fresh in your memory, and prepare questions for the next time the class meets.
- Test yourself by answering the questions in the book and in class.
- Carefully study the diagrams and charts in the book and in the lectures.

HUNTER COLLEGE POLICY 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.

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 affirms the prohibition of any sexual misconduct, which includes sexual violence, sexual harassment, and gender-biased harassment retaliation against student, employees, or visitors, as well as certain

intimate relationship. 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 strongly encouraged to contact the College's Title IX Campus Coordinator, Dean Jean Rose (jtrose@hunter.cuny.edu or 212-650-3262) or Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complementary services through the Counseling and Wellness services Office, Hunter East 1123.

CUNY Policy on Sexual Misconduct Link:

<http://www.cuny.edu/about/administration/offices/la/policy-on-sexual-misconduct-12-1-14-with-link.pdf>

**** A tentative schedule of classes, topics and reading assignments is provided below and will be updated on BlackBoard as needed ****

Note: Check the academic calendar for other important dates such as withdrawal dates and tuition refund as well as the final exam schedule:

<http://www.hunter.cuny.edu/onestop/calendars>

COURSE CALENDAR & CONTENT

***** TENTATIVE SCHEDULE *****

Week #	Date	Topic of Lecture and Corresponding Chapter
1	Mon 8/28	Syllabus & Ch 1 – Introduction to the Atmosphere
2	Thurs 8/31	Ch 1 – Introduction to the Atmosphere
	Mon 9/2	No classes at Hunter today
3	Thurs 9/7	Ch 2 – Heating Earth’s Surface and Atmosphere
	Mon 9/11	Ch 2 – Heating Earth’s Surface and Atmosphere
4	Thurs 9/14	Ch 3 – Temperature
	Mon 9/18	Ch 3 – Temperature
5	Thurs 9/21	Ch 4 – Moisture and Atmospheric Stability
	Mon 9/25	No classes at Hunter today
6	Thurs 9/29	Ch 4 – Moisture and Atmospheric Stability
	Mon 9/30	Ch 5 – Forms of Condensation and Precipitation
7	Thurs 10/4	Exam 1 – Ch 1 – 5
	Mon 10/9	No classes at Hunter today
8	Thurs 10/12	Ch 6 – Air Pressure and Winds
	Mon 10/16	Ch 6 – Air Pressure and Winds
9	Thurs 10/19	Ch 7 – Circulation of the Atmosphere
	Mon 10/22	Ch 7 – Circulation of the Atmosphere
10	Thurs 10/26	Ch 8 – Air Masses
	Mon 10/30	Ch 9 – Mid Latitude Cyclones
11	Thurs 11/2	Ch 10 – Thunderstorms and Tornadoes
	Mon 11/6	Ch 10 – Thunderstorms and Tornadoes
12	Thurs 11/9	Ch 11 - Hurricanes
	Mon 11/13	Exam 2 – Ch 6 – 10
13	Thurs 11/16	Ch 11 - Hurricanes
	Mon 11/20	Ch 14 – Climate Change
14	Thurs 11/23	Thanksgiving Recess
	Mon 11/27	Ch 14 – Climate Change
15	Thurs 11/30	Ch 14 – Climate Change
	Mon 12/4	Ch 14 – Climate Change
16	Thurs 12/7	Ch 13 – Air Pollution
	Mon 12/11	Ch 13 – Air Pollution
17	Thurs 12/14	Ch 13 – Air Pollution
Final Exam Period: Thursday 12/14 – Wednesday 12/20		