PGEOG 13000 – Weather and Climate Syllabus
4 Credits (Fall 2019)

Lecture Info:
Instructor: Tom Carboni
Section 02: Tu, Th 5:35 – 6:50pm
Lecture Room: Hunter West Room 424

Lab Info:
Instructor: Tom Carboni
Section 2L02: Tu 7:00 – 8:50pm
Section 2L03: Th 7:00 – 8:50pm
Lab Room: Hunter North 1028

Semester Dates: 8/27/19 – 12/20/19

*This course will fulfill the Common Core Requirement for categories C & D, Life and Physical Sciences and Scientific World. For those under the GER system, this satisfies the 2/E requirement.

My Office: Hunter North, Room 1032 (Ring Doorbell!)
Office Hours: Tuesday and Thursday 5:00 – 5:30pm
E-mail: Thomas.Carboni72@myhunter.cuny.edu
Department Office: Hunter North 1006

CONTACT POLICY: You may email me with any questions you have regarding the lecture material. I'm here to help but you must make an attempt to solve your own problems first. This means reading the required material and thinking before you send me an email. In your email you must include PGEOG 13000 in the subject line and sign your full name as it appears in CUNYfirst. I do not respond to unsigned email messages. In addition, you MUST use your hunter email when contacting me. You can expect to have your email messages returned within 24 hours.

COURSE DESCRIPTION:
This course will describe the basic principles and elements that shape and determine our weather and the earth's climate. The course will begin with a discussion of the Earth System, with particular emphasis on the atmosphere. Next, we will discuss the energy that drives all we observe in the atmosphere. The first part of the course will concentrate on describing in some detail 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, working together or by combinations, determine the general circulation patterns in the atmosphere and oceans, as well as our weather patterns. 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 and climate change.

Note: Mathematical formulas and calculations will be made in this class. You are expected to have at least a basic understanding of algebra.

LEARNING OBJECTIVES AND OUTCOMES:
The student who successfully completes this course can:

1. Explain the scientific method and apply it to solve problems in meteorology and climate studies.
2. Explain and appreciate the interconnected nature of the Earth systems through effective oral and written communication.

3. Identify major geographic features (both physical and human) on map and globe.
4. Discuss the relationship between the Sun and the Earth and the Sun's planetary impact on weather and climate.
5. Recognize the interaction between the elements of the atmosphere, including
   a. the composition and the structure of the atmosphere, and its distribution around the planet, including the basic chemistry and physics of atmospheric processes
   b. the atmospheric and oceanic circulation processes, and
   c. fronts, storm systems and severe weather with an emphasis on North America
6. Discuss methods of weather forecasting and be able to utilize weather forecasting tools and techniques, as well as interpret and create basic weather maps.
7. Recognize and analyze 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
   c. the impact created by shifts in climate zones

REQUIRED TEXTBOOKS:

Lecture Text: Lutgens, Tarbuck, Herman, Tasa. The Atmosphere: An Introduction to Meteorology, 14th edition. ISBN: 978-0134758589

*The 12th or 13th edition of the lecture text is acceptable. It is ok to rent or buy used.

Lab Text: Carbone, Greg. Exercises for Weather and Climate, 9th edition. ISBN: 978-0134041360

*You MUST purchase the 9th edition of the Lab Text. You may rent the book as long as you can print the activities. A used book with writing in it is NOT acceptable. Also be wary of missing pages in used editions. Do Not Purchase the Vitalsource/Coursesmart ebook for the lab text. There are MAJOR formatting problems with it.

I. COURSE EVALUATION AND GRADING:

Assignments	**Weighting**
Two (2) Midterms	17.5% each
Final Exam	20%
Lab Assignments	35% total
Pre-Lab Quizzes	5% total
Place Name Quizzes	5% total

*I do NOT drop any Exam grades

All exams will be composed of a majority of multiple choice questions intermixed with a handful of true or false and/or short answer type questions. Some of these questions will involve graphical analysis and/or minor calculations. However, you will NOT need a calculator. The first two exams will have around 55 questions while the final will be made up of approximately 65 questions (give or take a few questions for each exam). The **Final Exam will be cumulative**. About 40% of the exam will be based on the last three chapters and the other 60% will cover everything else we discussed during the semester.

Do NOT miss an exam. Make-up exams will NOT be given except under the most extraordinary circumstances such as documented illness, documented death in the family, etc. Make up exams will be

given at a mutually convenient time and while they will cover the same information as the original exam, the questions and/or practical materials will be different. In addition, there will be no curve (if given to the rest of the class) for those who need make-up exams. If approved for a make-up exam, it MUST be taken with a week of the original exam.

Attendance in lecture and lab is crucial to succeeding in this class. It will be difficult to fully grasp the concepts if you do not attend the lecture. There may be topics on the exams that I do not include in my notes. Therefore, attendance is vital to achieving a good grade.

A final grades of IN (incomplete) is not normally given in this course except, again, under the most extraordinary and documented circumstances. You must contact me within 48 hours of the scheduled day/time of the final exam and complete a Contract to Resolve an Incomplete Grade.

To qualify for Credit/No Credit you must have completed all laboratory exercises, taken the three exams, and have satisfactory attendance and participation. Credit/No Credit forms will be accepted up to 15 minutes prior to the start time for the final exam. I will not accept a Credit/No Credit slip after the final exam is distributed (so do NOT be late).

The Hunter College grading system, which shows you what the numerical grade equivalents of the letter grades A, A-, B+, etc., are at Hunter College, will be used in this class and can be viewed in the latest undergraduate catalog available online at
http://catalog.hunter.cuny.edu/content.php?catoid=15&navoid=1433

II. CLASSROOM POLICIES:
We cannot escape from texting today but remember this: It is my responsibility to explain the material to you during lecture and your responsibility is to listen and ask questions. I work hard on the presentation of the material visually and audibly so you can at least give me the respect and listen. It is fine to whisper to your neighbor during lecture but do not have a loud or ongoing conversation in class as it may distract the others around you and it means you are not listening to me. If you are continually on any electronic device during my lecture, I will notice and will not repeat myself. Earphones are not to be worn in the classroom either. Laptops, Kindles, or iPpads , can be used but at your own risk. No electronic devices or hats are allowed during exams. No food or drink (except water) is allowed in the laboratory. In addition, do not come to class with a three course meal as the smell and sight of it may be disruptive.

III. LABORATORY PREPARATION:
Come to class prepared. Your lab instructors will expect you to have read the laboratory exercise listed for each class ***prior*** to the beginning of that class period. The idea of the pre-lab quiz is to make sure you review the lab beforehand because it will enhance learning during your lab instructor's short pre-lab review lecture. All the material in lab should first be covered in lecture; however, there may be specific things that differ in the lab. Laboratory exercises can be complex, and if you do not read them before class you will have difficulty turning them in on time. In addition, you **MUST** have all materials for the day's lab printed out and with you or accessible during the labs. If you are unprepared it will count as a half an absence.

IV. LAB DUE DATES AND LATENESS
Lab exercises are due, in lab, at the beginning of your next class meeting – when you start the next lab. Late lab exercises will have their grade **reduced 20% for each day received late** unless you have a valid excuse that can be documented. Once labs are collected, any labs handed in after are considered

late**.** This policy will be strictly enforced. Lab exercises must be stapled (no paper clips) with your name printed neatly in the space on the first page. If you miss a class session, you are still expected to do the weeks work. Do not wait until the next meeting to hand in or do your lab assignment. Please ask your lab instructor about how they would like for you to hand in any late labs.

V. PLACE NAME QUIZZES (PNQs)
There are 7 place name quizzes. You are only required to take six of them. If you take all seven, then the lowest grade will be dropped. Place name quizzes are given in class. They take approximately 10 minutes. You will be given blank maps, and a list of names. In class you will have to identify the places.

Locations of places to study can be found at:
http://www.geo.hunter.cuny.edu/tbw/wc.labs.spring.2019/place.name.list.spring.2015.pdf

Blank maps can be found at:
http://www.geo.hunter.cuny.edu/tbw/wc.labs.spring.2019/Basemaps.pdf

VI. EXTRA CREDIT:
No extra credit is given in this course. Whatever effort you would put into an extra credit assignment put into completing the lab exercises and studying for exams. That being said, I will try to be as understanding as I can when certain situations or hardships arise. However, you must address them with me immediately.

VII. 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.

Remember that copying answers from the internet or someone else is plagiarism. In this class you can work in groups in lab. In fact, I highly encourage this. But you must always record the answers to the labs in your own words. Do not give me or your lab instructors any reason to be suspicious or doubt that you are being honest as I will not tolerate cheating. If you are caught cheating on an exam or lab, you will get an automatic zero on the assignment and possibly fail the course. I will also report you and the suspect incident to the office of the Dean of Students.

VIII. ADA POLICY (for students with special accommodations): 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 to secure necessary academic accommodations.

IX. 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-based harassment retaliation against students, 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, on 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) of 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.

CUNY Policy on Sexual Misconduct Link: http://www.cuny.edu/about/administration/offices/la/Policy-on-Sexual-Misconduct-12-1-14-with-links.pdf

***Tentative schedule of course topics is listed on the following page**

X. (TENTATIVE) LECTURE SCHEDULE OF TOPICS AND READINGS:

DAY	DATE	Topic of Lecture and Corresponding Chapter
Tu	**8 / 27**	Syllabus and Ch 1 – Introduction to the Atmosphere
Th	**8 / 29**	Ch 2 – Heating Earth's Surface and Atmosphere
Tu	**9 / 3**	Ch 2 – Heating Earth's Surface and Atmosphere
Th	**9 / 5**	**NO CLASS (Hunter Follows a Monday Schedule)**
Tu	**9 / 10**	Ch 2 – Heating Earth's Surface and Atmosphere
Th	**9 / 12**	Ch 3 – Temperature
Tu	**9 / 17**	Ch 3 – Temperature
Th	**9 / 19**	Ch 4 – Moisture and Atmospheric Stability
Tu	**9 / 24**	Ch 4 – Moisture and Atmospheric Stability
Th	**9 / 26**	Ch 5 – Forms of Condensation and Precipitation
Tu	**10 / 1**	**NO CLASS**
Th	**10 / 3**	Ch 5 – Forms of Condensation and Precipitation
Tu	**10 / 8**	**NO CLASS**
Th	**10 / 10**	Ch 6 – Air Pressure and Winds
Tu	**10 / 15**	**Exam 1 – Ch 1 – 5**
Th	**10 / 17**	Ch 7 – Circulation of the Atmosphere
Tu	**10 / 22**	Ch 8 – Air Masses
Th	**10 / 24**	Ch 9 – Mid Latitude Cyclones
Tu	**10 / 29**	Ch 9 – Mid Latitude Cyclones
Th	**10 / 31**	Ch 10 – Thunderstorms and Tornadoes
Tu	**11 / 5**	Ch 10 – Thunderstorms and Tornadoes
Th	**11/ 7**	Ch 11 – Hurricanes
Tu	**11 / 12**	Ch 11 – Hurricanes
Th	**11 / 14**	Ch 12 – Weather Analysis and Forecasting
Tu	**11 / 19**	**Exam 2 – Ch 6 – 11**
Th	**11 / 21**	Ch 15 – World Climates
Tu	**11 / 26**	Ch 15 – World Climates
Th	**11 / 28**	**NO CLASSES (Thanksgiving)**
Tu	**12 / 3**	Ch 14 – Climate Change
Th	**12 / 5**	Ch 14 – Climate Change
Tu	**12 / 10**	Ch 14 – Climate Change
Th	**12 / 12**	Ch 13 – Air Pollution
TBD	**TBD**	**Final Exam (Cumulative)**

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

XI. (TENTATIVE) LAB SCHEDULE:

DAY	LAB SECTION	DATE	Lab Number and Topic
Tu		**8 / 27**	Lab 1A-E (See Blackboard for this Lab Document)
Th		**8 / 29**	Lab 1A-E (See Blackboard for this Lab Document)
Tu		**9 / 3**	Lab 1A-E (See Blackboard for this Lab Document)
Th		**9 / 5**	**NO CLASS (Hunter Follows a Monday Schedule)**
Tu		**9 / 10**	Lab 1 – Vertical Structure of the Atmosphere
Th		**9 / 12**	Lab 1A-E (See Blackboard for this Lab Document)
Tu		**9 / 17**	Lab 2 – Earth-Sun Geometry
Th		**9 / 19**	Lab 1 – Vertical Structure of the Atmosphere
Tu		**9 / 24**	Lab 3 & 4 - The Surface and Global Energy Budget
Th		**9 / 26**	Lab 2 – Earth-Sun Geometry
Tu		**10 / 1**	**NO CLASS**
Th		**10 / 3**	Lab 3 & 4 - The Surface and Global Energy Budget
Tu		**10 / 8**	**NO CLASS**
Th		**10 / 10**	Lab 5 – Atmospheric Moisture
Tu		**10 / 15**	Lab 5 – Atmospheric Moisture
Th		**10 / 17**	Lab 6 – Saturation and Atmospheric Stability
Tu		**10 / 22**	Lab 6 – Saturation and Atmospheric Stability
Th		**10 / 24**	Lab 9 – Weather Map Analysis ; Lab 10 – Mid-Latitude Cyclones
Tu		**10 / 29**	Lab 9 – Weather Map Analysis ; Lab 10 – Mid-Latitude Cyclones
Th		**10 / 31**	Lab 12 – Thunderstorms and Tornadoes
Tu		**11 / 5**	Lab 12 – Thunderstorms and Tornadoes
Th		**11/ 7**	Lab 13 – Hurricanes
Tu		**11 / 12**	Lab 13 – Hurricanes
Th		**11 / 14**	Lab 14 – Climate Controls
Tu		**11 / 19**	Lab 14 – Climate Controls
Th		**11 / 21**	Lab 15 – Climate Classification
Tu		**11 / 26**	Lab 15 – Climate Classification
Th		**11 / 28**	**NO CLASSES (Thanksgiving)**
Tu		**12 / 3**	Lab 16 – Climate Variability and Change
Th		**12 / 5**	Lab 16 – Climate Variability and Change
Tu		**12 / 10**	NO LAB
Th		**12 / 12**	NO LAB

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