

The United Nations Framework Convention on Climate Change (UNFCCC, signed and ratified by the U.S.) defined 'Climate Change' in 1992 as “...a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.”

Article 2 of the UNFCCC calls for the “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.”

- ⇒ What is a 'dangerous anthropogenic interference' with the climate system?
- ⇒ What is a 'safe' anthropogenic interference with the climate system?

1) Course Description. In this course, we explore climate change from a variety of angles and we begin by defining and discussing the role of science in a societal context. The second part of the course focuses on the science of climate change, including including the physics of the greenhouse effect and mechanisms, both natural and human, of climate change. We also explore climate change observed in the past, today, and in the future, including methods of climate reconstruction and climate prediction. In the third part of the course we expand our discussions beyond the scientific basis and into questions of impacts, vulnerabilities, and adaptation and mitigation strategies.

2) Course Instructor. Dr. Carsten Braun, Wilson 203D, 572.5595, cbraun@westfield.ma.edu
Office Hours: MWF 12:30 - 13:30 or anytime by appointment.

3) Learning Goals. The fundamental objective of this course is to separate scientific facts from personal opinion and scientific uncertainty from political, moral, or ethical bias. About two-thirds of the course focuses on the scientific aspects of climate change, including issues of uncertainty, especially with respect to predictions of future climate change. The remainder explores more controversial topics, such as local, regional, and global impacts of climate change and associated natural and societal vulnerabilities/responsibilities. Finally, the course explores the 'So what?' or 'Now what?' questions, and discusses adaptation and mitigation policies, especially those related to sustainable energy sources beyond fossil fuels.

In this course we will untangle scientific facts from personal opinions and scientific uncertainty from political, moral, or ethical bias: Does uncertainty justify inaction? How much uncertainty justifies inaction? What types of action are justified or necessary today? The public discourse about climate change and global warming is highly polarized and thus fails to foster pragmatic, 'no-regrets' approaches and solutions. This course cannot offer simple answers, but we will separate scientific facts from personal/religious/special-interest opinion and engage in nuanced and informed discussions of what we can/should/must do/not do about climate change.

Learning Goals	Learning Outcomes – <u>You</u> will be able to:
Knowledge and Geographic Literacy	1) Identify and explain facts and concepts of the climate system, paleoclimate, and climate change. 2) Understand systems thinking, processes, interactions, thresholds, nonlinearities, and feedbacks as related to the changing climate system. 3) Distinguish between natural and human influences on the climate system and their interplay.
Critical Thinking Information Literacy Scientific Literacy	1) Effectively select appropriate modes of inquiry, interpretation, evaluation, and communication. 2) Have confidence in your critical thinking skills despite uncertainty, ambiguity, controversy, or biases. 3) Evaluate the quality, accuracy, reliability, and timeliness of the scientific information and sources. 4) Understand the role and limitations of science in public policy and democratic decision-making.
Perspective Implications	1) Understand space, time, change, and rates of change as relevant global concepts. 2) Evaluate the interactions between human and environmental systems at a variety of scales across space and time. 3) Discuss the interplay between science, public policy, values, opinions, and ethical considerations. 4) Recognize the global connections between climate change, environmental issues, energy use, sustainability, and equity.
This course addresses GARP Learning Outcomes 4, 5, 7, 8, 12, 17, 18.	

4) Suggestions for Success. Many instructors plan classes, assignments, and tests assuming that students follow certain steps in studying for a class. The following are some general rules for success in this course, and others:

- Understand course expectations by reading the syllabus thoroughly. Ask if something is unclear and check the course website regularly.
- You will need a large 3-ring binder (to organize the handouts) and a notebook for your lecture notes. Be organized with your time and materials.
- Take good notes and don't try to memorize facts without understanding the underlying concepts and connections.
- I encourage you to learn with a partner or small team to expand your understanding by explaining the material to each other.
- Complete the assigned assignments and answer any study or review questions before coming to class.

- Attend every class and take good notes. Rewrite your notes on a regular basis and review the material on the course website.
- Ask questions, especially if something is unclear. Other students probably have the same questions.
- Keep a notebook for lectures and assigned readings and take more notes than you think you will need.
- Find a group of students to study with and meet on a regular basis.
- The two tests draw from the material covered in-class, the handouts, the assignments, and the readings and are a combination of Multiple Choice, Short-Answer, and Essay questions.
- There are no make-up tests unless you are experiencing a documented emergency – you have to let me know in advance or as soon as possible thereafter and provide the appropriate documentation. Make-up tests will be administered during the Fall 2018 exam period. FYI: it is not possible to take any test early, so plan your holiday travels accordingly.
- Please review the Academic Honesty Policy at Westfield State University. Cheating, plagiarism, and other forms of academic dishonesty will be severely sanctioned and handled by the appropriate authorities on campus.

⇒ For every 1 hour of class time, you should plan on spending 2-3 hours outside of class studying, reading, writing, or reviewing.

5) Assessment. Your course grade is a function of your learning process throughout the entire semester and combines two tests, three briefing papers, and the assignments/activities. You cannot ‘flunk’ this course based on any one poor grade.

- Your final class score will be calculated using these cutoffs. I will not change the cutoffs, so you are assured the grade associated with these percentages.
- Three tests (each 10%). Test #3 will address the major themes of the course and challenge you to pull together what you have learned over the semester.
- Presidential Briefing (15%). This briefing paper investigates specific questions for the President using a predefined format.
- [The Honors Project](#) (30%).
- Short assignments, activities, and worksheets (25%) to continuously expand and review your learning, graded using the [3:2:1:0 grading system](#).
- Assignment details and assessment rubrics will be provided as needed.

Grade Conversion	
A	94-100
A–	90-93
B+	87-89
B	83-86
B–	80-82
C+	77-79
C	73-76
C–	70-72
D+	67-69
D	60-66
F	0-59

If you are concerned about your grades or performance in the course – please talk to me. Please allow at least one week for grades to be ready. No makeup tests unless you are

experiencing a documented emergency. No extra-credit assignments, but you are welcome to make-up missed work for partial credit (within reason) - consult with me as needed.

⇒ If you feel that you are not progressing as well as you hoped, please talk to me – the sooner the better! Please do not wait until the end of the semester.

6) Academic Honesty. The University *Academic Honesty Policy* can be found [here](#). Students are expected to do their own work. Plagiarism and cheating are inexcusable. Any instance of plagiarism or cheating will result in no credit for the assignment or failure of the course. The *University Classroom Student Conduct Policy* can be found [here](#).

7) Learning Accommodations. Your success in this class is important to me. We will all need accommodations because we all learn differently. If there are aspects of this course that prevent you from learning or exclude you, please let me know as soon as possible. Together we'll develop strategies to meet both your needs and the requirements of the course. I encourage you to visit the Office of Disability Services to determine how you could improve your learning as well. If you need official accommodations, you have a right to have these met. There are also a range of resources on campus, including the Writing Center, Tutoring Center, and Academic Advising Center.

It is the policy of Westfield State University to provide reasonable accommodations to students with documented disabilities. Students, however, are responsible for registering with the Banacos Academic Center, in addition to making requests known to me in a timely manner. If you require accommodations in this class, please make an appointment with me as soon as possible, so that appropriate arrangements can be made. The procedures for registering your need for reasonable accommodations for disabilities can be discussed with staff at the Banacos Academic Center. Please write to banacos@westfield.ma.edu.

8) Reading and Writing Center (RWC). The RWC is dedicated to supporting and encouraging all students as they write to communicate their ideas and to discover new ones. Acting as an engaged audience, the RWC staff assists writers on any type of project, in any major, at any stage of the writing process. To make a FREE appointment and to learn more about the RWC's services, including drop-in hours at Ely Library and workshops on a variety of topics, visit the website: www.westfield.ma.edu/reading, stop by Parenzo Hall 218, or call 413-572-5569.

9) The Counseling Center. Life at college can get very complicated. Students sometimes feel overwhelmed, and experience a variety of challenges, such as anxiety, depression, relationship difficulties, and/or diminished self-esteem, to give a few examples. However, many of these issues can be effectively addressed with a little help. The Counseling Center helps students cope with difficult emotions and life stressors. The Counseling Center is staffed by experienced, professional counselors, who are attuned to the needs of college students. The services are FREE and completely confidential.

Find out more at <http://www.westfield.ma.edu/student-life/counseling-center>, or by stopping by Lammers Hall, Annex A. Please talk to me if you are distressed and you are not sure what to do about it.

10) The Fine Print.

- Please be on-time (= get to class *before* class starts).
- Attendance is mandatory.
- It is your responsibility to keep up with the course material, handouts, lecture notes, tests, assignments, grades. I'm not your secretary.
- If you have to miss a class: please inform me in advance and remember: you are still responsible for the material covered and due.
- Behave professionally: no cellphone use in-class.

11) Exceptions to Class Rules, Restrictions or Requirements. Any student may request an exception to the class rules, restrictions or requirements. Please set a time to meet with me during my office hours or send me an Email so that we can discuss your concerns and reasons.

12) Class Schedule.

Week	Class	Date	Topic
Week 1	Class 1	9/5 (We)	Course Overview, What is Climate Change?
Week 1	Class 2	9/7 (Fr)	What is Climate Change?
Week 2	Class 3	9/10 (Mo)	Solutions I
Week 2	Class 4	9/12 (We)	Solutions II
Week 2	Class 5	9/14 (Fr)	Solutions III
Week 3	Class 6	9/17 (Mo)	The Ozone Hole and Global Warming
Week 3	Class 7	9/19 (We)	The Ozone Hole and Global Warming
Week 3	Class 8	9/21 (Fr)	The Ozone Hole and Global Warming
Week 4	Class 9	9/24 (Mo)	The Nature of Science
Week 4	Class 10	9/26 (We)	The Nature of Science
Week 4	Class 11	9/28 (Fr)	The Nature of Science
Week 5	Class 12	10/1 (Mo)	The Nature of Science
Week 5	Class 13	10/3 (We)	The Nature of Science
Week 5	Class 14	10/5 (Fr)	Test #1
Week 6		10/8 (Mo)	<i>No class (Columbus Day)</i>
Week 6	Class 15	10/9 (Tu)	Global Warming: BQ #1
Week 6	Class 16	10/10 (We)	Global Warming: BQ #2
Week 6		10/12 (Fr)	<i>No class (CB away)</i>
Week 7	Class 17	10/15 (Mo)	Global Warming: BQ #3
Week 7	Class 18	10/17 (We)	Global Warming: BQ #4
Week 7	Class 19	10/19 (Fr)	Global Warming: BQ #5
Week 8	Class 20	10/22 (Mo)	Global Warming: BQ #6
Week 8	Class 21	10/24 (We)	Global Warming: BQ #7

Week 8	Class 22	10/26 (Fr)	Global Warming: BQ #8
Week 9		10/29 (Mo)	No class (CB away)
Week 9	Class 23	10/31 (We)	Global Warming: BQ #9
Week 9	Class 24	11/2 (Fr)	Global Warming: BQ #10
Week 10	Class 25	11/5 (Mo)	Global Warming: BQ #11
Week 10	Class 26	11/7 (We)	Global Warming: BQ #12
Week 10	Class 27	11/9 (Fr)	Test #2
Week 11		11/12 (Mo)	No class (Veterans Day)
Week 11		11/14 (We)	No class (CB away)
Week 11	Class 28	11/16 (Fr)	Global Warming: BQ #13
Week 12	Class 29	11/19 (Mo)	Global Warming: BQ #14
Week 12	Class 30	11/21 (We)	Global Warming: BQ #15
Week 12		11/24 (Fr)	No class (Thanksgiving Break)
Week 13	Class 31	11/26 (Mo)	Global Warming: BQ #16
Week 13	Class 32	11/28 (We)	Global Warming: BQ #17
Week 13	Class 33	11/30 (Fr)	Global Warming: BQ #18
Week 14	Class 34	12/3 (Mo)	Global Warming: BQ #19
Week 14	Class 35	12/5 (We)	Global Warming: BQ #20
Week 14	Class 36	12/7 (Fr)	Global Warming: BQ #21
Week 15	Class 37	12/10 (Mo)	Special Topics
Week 15	Class 38	12/12 (We)	Special Topics
Week 15	Class 39	12/14 (Fr)	Special Topics
Week 16	Class 40	12/17 (Mo)	Test #3 (12:20 - 14:20)

Adjustments to the course schedule, requirements, assessment, and number/types/topics of the activities, assignments, and tests may be necessary to account for situations and circumstances that arise over the course of the semester.

13) Course Website. <https://sites.google.com/site/garp0107fall2018/home>

Everything related to this course is available on this website - we do not use PLATO or My Westfield in this course.