



蘇州大學  
Soochow University

# GEO 245 Global Climate Change

Summer 2024

**Course Credits:** 4

**Contact Hours:** 56 hours

**Instructor:** TBA

**Email:** TBA

## COURSE OBJECTIVES

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Climate change stands as one of the most intricate and formidable challenges our civilization has ever faced. However, the responses to it and its impacts are highly diverse, shaped by geographical locations and the world's population. This course is meticulously designed to provide you with a foundational grasp of the scientific underpinnings of climate change, offering a multidisciplinary exploration of this extensive field. You'll embark on a journey into the physical science governing our climate system, examining its various components and the fundamental mechanisms regulating responses to external influences. Beyond this, we'll delve into climate change through various lenses: delving into paleoclimatic shifts, scrutinizing recent historical variations, and probing into future climate projections. Additionally, we'll explore the social and economic dimensions intertwined with this critical issue.

Upon Completion of this Course, students will be able to:

1. Explain the fundamentals of climate change science;
2. Present the international climate change legal and policy framework and explain key issues under negotiation;
3. Assess the communication of science and policy for climate change;
4. Describe the expected consequences of climate change and the role of adaptation;
5. Evaluate the successes and failures of past national and international efforts to address climate change, and evaluate prospects for future management of climate change.



## PREREQUISITES

None

## GRADING

Grades will be determined by accumulating points, with 100 points being the maximum, as follows:

ITEM	POINTS
2 Assignments	10 Points
2 Quizzes	20 Points
Research Paper and Presentation	20 Points
Midterm Exam	20 Points
Final Exam	30 Points
Total	100 Points

Late submissions will be graded at the end of the course. Grades will be assigned according to the following rule:

$$A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F.$$

We reserve the right to make adjustments to the overall grading policy.

## COURSE MATERIALS

### **Required Texts:**

1. David Archer, *Global Warming: Understanding the Forecast*, 2nd Edition.
2. John Houghton, *Global Warming: The Complete Briefing*, 5th Edition, Cambridge Univ. Press, 2015.

### **Recommended (Optional) Texts or Other Materials:**

None

## COURSE TOPICS

MODULE	TASKS
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Module 1	<p><b>Topics:</b>          Topic 1: Introduction to Climate Change          Topic 2: Energy Balance and Climate          Topic 3: Greenhouse Effect          Topic 4: Greenhouse Gases</p> <p><b>Assessments:</b>          Assignment #1</p>
Module 2	<p><b>Topics:</b>          Topic 5: Components of the Terrestrial Climate System          Topic 6: Ocean-Atmosphere Interactions          Topic 7: Perturbing the Carbon Cycle          Topic 8: Climates of the Past</p> <p><b>Assessments:</b>          Quiz #1</p>
Module 3	<p><b>Topics:</b>          Topic 9: The Carbon Cycle          Topic 10: The Role of Biological Activity          Topic 11: The Study of Past Climates          Topic 12: Climate Models</p> <p><b>Assessments:</b>          Midterm Exam</p>
Module 4	<p><b>Topics:</b>          Topic 13: Policy Myths          Topic 14: Energy Use, Efficiency, and Conservation          Topic 15: Reducing Carbon Emissions          Topic 16: The Cost of Reducing Emissions</p> <p><b>Assessments:</b>          Assignment #2</p>
Module 5	<p><b>Topics:</b>          Topic 17: Carbon Pricing Instruments          Topic 18: Discounting and the Value of Time          Topic 19: Climate Justice          Topic 20: Renewable Energy</p> <p><b>Assessments:</b>          Quiz #2</p>



Module 6	<p><b>Topics:</b> Topic 21: The Impact of Global Warming Topic 22: IPCC Future Climate Scenarios Topic 23: Geoengineering Topic 24: Obstacles and Perspectives</p> <p><b>Assessments:</b> Research Paper and Presentation Final Exam</p>
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## ATTENDANCE

1) Class attendance is required. Missing classes without permission will lead to decrease in overall grade.

Missing less than two classes: no penalty.

Missing more than two classes: 7% will be taken off from the overall grade.

If the instructor reports a student's frequent missing of class to the Soochow University Academic Administration Office, the student might get a written warning and might be prohibited from attending final exam.

2) Participants in this course are expected to arrive in class promptly and adequately prepared. The primary objective of this course is to critically engage with the readings and the subject matter. Therefore, course participants are expected to have completed the reading prior to class and prepare thoughtful reflections/commentaries to share with fellow colleagues.

## LEARNING REQUIREMENTS

- 1) Late assignments are not acceptable and are subjected to grade deductions.
- 2) Assignments submitted in the wrong format will be counted as not submitted.
- 3) Failure to submit or fulfill any required course component results in failure of the class.
- 4) Make-up for midterm and final exams only with valid excuses, as defined by the University.
- 5) In order to earn a Certificate of Completion, participants must thoughtfully complete all assignments by stated deadlines and earn an average quiz score of 50% or greater.



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## **TECHNOLOGY POLICY**

The use of electronic devices in class is distracting, both for the user and for the rest of the class. Only non-programmable calculators can be used in the tests and exam. Any attempts to use cell phones and other electronic communication devices will be seemed as cheating. Laptops are discouraged, unless you use them for activities DIRECTLY related to the course (eg., note taking, reading course documents).

## **ACADEMIC INTEGRITY POLICY**

Soochow University highly values the academic integrity and aims to promote the academic fairness, honesty and responsibility. Any academic dishonesty behaviors and any attempts to cheats and plagiarism will be reported to the university administration office. A written warning and the relevant penalties will be imposed. The record might be shown on the official university transcript.

## **DISABILITY ACCOMMODATION**

Soochow University is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at Soochow University. Students with disabilities who require accommodations for access to and/or participation in this course are welcome.

Note:

Please contact the University Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material.