

## **CP 4190/6190 Syllabus**

Introduction to Climate Change Planning, 3 Credits

Fall 2026

### **Instructor Information**

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### **General Course Information**

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#### **Description**

This course provides an interdisciplinary introduction to climate change with a strong emphasis on planning, data analysis, and applications to the built environment. Students will examine the scientific foundations of climate change, including Earth system processes, climate models, and future projections, while developing practical skills in geospatial analysis and data science using GIS and Python.

The course explores the impacts of climate change across multiple domains, including climate extremes (e.g., floods, heatwaves, wildfires), transportation systems, social vulnerability, and climate justice. Economic dimensions of climate change—such as the social cost of carbon and international climate cooperation—are also examined. Students will engage with contemporary research, global climate datasets, and real-world case studies to understand how climate risks are assessed and managed at local, national, and global scales.

Through hands-on labs, applied exercises, guest lectures, and a final project, students will learn to analyze climate data, evaluate mitigation and adaptation strategies, and translate scientific knowledge into planning-relevant insights. The course emphasizes the integration of climate science with policy, equity, and decision-making, preparing students to apply climate knowledge within their own professional and local contexts.

## Course Learning Objectives & Outcomes

1. Define, interpret, and apply key terms, concepts, and theories related to climate change, with attention to their disciplinary foundations in climate science, economics, and planning.
2. Contrast disciplinary and interdisciplinary perspectives on climate change, drawing on climate science, data science, economics, public policy, and planning, to critically evaluate local, national, and international climate discourse.
3. Investigate contemporary climate change issues of national and global importance, including climate extremes, infrastructure impacts, social vulnerability, and climate justice.
4. Demonstrate the ability to critically analyze, interpret, and communicate climate change data and analytical results using written, oral, and visual formats.

On completion of this course, students should have developed the following generic skills:

1. **Quantitative and analytical skills**, including the ability to work with climate and geospatial data, compute relevant indicators, interpret climate projections, and assess climate risks using GIS- and Python-based tools.
2. **Research and writing skills**, including the ability to produce logically structured, well-researched, and evidence-based written work that integrates scientific and policy-relevant sources.
3. **Critical evaluation skills**, including the ability to assess the quality, uncertainty, and relevance of information from a range of scientific, technical, and policy sources related to climate change.

## Required Course Materials

Weekly readings will be distributed to students along with the course schedule.

## Grading Policy:

Students in this combined lecture-lab course are expected to come prepared by completing all assigned readings and actively participating in class discussions. Grades will be based on a combination of lab assignments, an applied project, and class participation. Late submissions of lab assignments will incur a penalty of 1 point per day.

Component	Points	Notes
Class participation	5	Active engagement in class discussions
Labs	45	Three assignments (15 pts each); late submissions incur 1 pt/day penalty

Applied project	50	15 pts for presentation, 35 pts for project paper
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## Description of Graded Components

### 1. Class participation (5 pts)

Participation includes attending all classes, contributing to discussions, and engaging in class activities. Students are expected to actively engage with peers, ask questions, and provide thoughtful commentary on readings and exercises.

### 2. Labs (45 pts total, 15 pts each)

Students will complete three lab assignments that provide hands-on experience with GIS and Python tools applied to climate change planning and analytics. Each lab is worth 15 points. Late submissions are penalized at 1 point per day.

### 3. Applied project (50 pts total)

The final class requirement is a team-based project applying course knowledge to a real-world climate change planning problem.

- Presentation (15 pts): A formal presentation to the class summarizing the project objective, approach, findings, and recommendations.
- Project Paper (35 pts): A written report detailing the methodology, results, and implications of the project.

## Course Policies

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### Attendance and/or Participation

Regular attendance and active participation are essential components of this course. Students are expected to attend all class sessions, arrive on time, and engage thoughtfully in class discussions and activities. Participation will be evaluated based on:

- Preparation: Completing all assigned readings before class.
- Engagement: Asking questions, contributing to discussions, and providing constructive feedback during peer presentations.
- Collaboration: Working effectively with classmates during group activities.

**Excused Absences:** Students with legitimate, documented reasons (e.g., illness, family emergency, official university obligations) should notify the instructor in advance when possible. Excused absences will not negatively affect participation grades.

### **Academic Integrity**

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review [Georgia Tech's Honor Code](#) and the student [Code of Conduct](#).

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

### **Accommodations for Students with Disabilities**

If you are a student with learning needs that require special accommodation, [contact the Office of Disability Services](#) (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

### **Student-Faculty Expectations Agreement**

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. [The Student-Faculty Expectations](#) articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

## Use of Generative AI

Artificial intelligence (AI) tools (e.g., ChatGPT, GitHub Copilot, generative image or text models) may be used in this course as learning aids, but not as substitutes for critical thinking, original analysis, or the development of technical skills.

AI tools *may not* be used to:

- Generate complete assignments, code, or analyses submitted as original work
- Produce final answers without student verification and modification
- Fabricate data, citations, results, or policy interpretations
- Bypass learning objectives related to programming, modeling, or reasoning

Students must disclose AI use when it meaningfully contributes to an assignment. A brief statement should describe which tool was used and for what purpose. For example, you can say, "ChatGPT 5 was used in this assignment to help correct my grammar mistakes".

Failure to disclose AI use when required will be treated as an academic integrity violation.

## Campus Resources for Students

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### Undergraduate Student Academic Success Resources:

- Academic Support: Academic Success and Advising (a unit in the Office of Undergraduate Education & Student Success) provides free support for your courses. Students can attend scheduled supplemental review (PLUS) sessions, stop by Drop-In Tutoring, or schedule a one-on-one appointment through Knack. To explore what options work best for you, please visit us online at [success.gatech.edu/tutoring](https://success.gatech.edu/tutoring), email us at [tutoring@gatech.edu](mailto:tutoring@gatech.edu), or come see us at Clough Undergraduate Learning Commons, Suite 283.

### Graduate Student Academic and Professional Success Resources:

A list of resources for graduate students is given on the [Office of Graduate and Postdoctoral Education](#) website. Specific information for [current graduate students](#) includes

- [Academic Resources](#) such as the Communications Center, Language Institute, Library, Catalog, Registrar, resources for conducting research, Advocacy and Conflict Resolution resources, and how to manage unexpected situations that may impact your academic performance;

- Student Resources such as Campus Services, Child Care/Family programs, Health & Wellness, Career Services, and the Student Resource Guide; and
- Professional Development such as the programming from the Career Center and other professional development resources and events”

**Student Well-Being:**

At Georgia Tech, we are concerned about your overall physical, social, and mental well-being. A comprehensive list of wellness related resources has been compiled and maintained by the Office of the Vice President for Student Engagement and Well-being (student-resource-guide (gatech.edu))