



# CLIMATE CHANGE



AI SYLLABUS



## **I. Course Description**

- Brief description of the course, its objectives, and how it will be structured
- Overview of the topics to be covered in the course

## **II. Learning Outcomes**

- Specific skills and knowledge that students will gain by taking the course
- How these skills and knowledge will be assessed

## **III. Course Schedule**

- Overview of the course schedule, including the dates of each class meeting and what topics will be covered in each class

## **IV. Required Readings**

- List of books, articles, and other materials that students will be required to read throughout the course
- Discussion questions or prompts to help guide students in their reading

## **V. Course Assignments**

- [Description of the course assignments, including any writing assignments, group projects, or exams](#)
- [Rubrics or grading criteria for each assignment](#)

## **VI. Classroom Policies**

- [Policies on attendance, participation, late assignments, and academic integrity](#)
- [Accessibility statement, outlining any accommodations available to students with disabilities](#)

## **VII. Course Resources**

- [List of resources, including websites, databases, and online tools, that students can use to learn more about climate change](#)
- Contact information for the instructor and any teaching assistants

## **Some possible topics to cover in the course could include:**

- Introduction to climate change: the science, causes, and global impacts
- Climate change policy: international treaties, domestic policies, and corporate initiatives

- Climate justice: the disproportionate impact of climate change on marginalized communities
- Solutions to climate change: renewable energy, energy efficiency, carbon capture and storage, and adaptation strategies
- Communication and outreach: how to talk about climate change with others and how to engage with communities and policymakers

This course provides an in-depth exploration of climate change, a global issue that affects the environment, economy, and society in numerous ways. The course begins by introducing students to the scientific concepts and research related to climate change, including the role of greenhouse gasses and the impacts of a changing climate. We will then delve into the causes of climate change, including the main human activities that contribute to the increase in greenhouse gasses in the atmosphere, and the historical and political factors that have led to the growth of these activities.

The course will also examine the impacts of climate change on various sectors, including the environment, economy, and society. We will analyze the social and economic implications of climate change, including its disproportionate impact on vulnerable populations. The course will also explore the connections between climate change and broader social and economic issues, such as inequality and globalization.

Throughout the course, we will examine international approaches to addressing climate change, including the Paris Agreement and other international agreements. We will analyze strategies for reducing greenhouse gas emissions and adapting to the impacts of climate change, including government policies, renewable energy, and sustainable agriculture. The course will also consider the challenges and opportunities associated with transitioning to a low-carbon economy.

Overall, this course will provide students with a comprehensive understanding of the issue of climate change and the ways in which it intersects with various sectors and social and economic issues. Through a combination of lectures, readings, and discussions, students will develop the knowledge and skills needed to understand and address one of the most pressing issues facing our planet today.

## Learning Outcomes:

**By the end of the course, students will be able to:**

Explain the scientific concepts and research related to climate change, including the role of greenhouse gasses and the impacts of a changing climate.

**1. Assessment: Students will be assessed through exams, quizzes, and class participation.**

Analyze the main human activities that contribute to climate change, such as burning fossil fuels, deforestation, and agriculture, and understand the historical and political factors that have led to the growth of these activities.

**2. Assessment: Students will be assessed through research papers, case studies, and presentations.**

Evaluate the social and economic implications of climate change, including its disproportionate impact on vulnerable populations and its connection to broader social and economic issues, such as inequality and globalization.

- 3. Assessment: Students will be assessed through group discussions, debates, and written assignments.**

Understand international approaches to addressing climate change, including the Paris Agreement and other international agreements, and analyze strategies for reducing greenhouse gas emissions and adapting to the impacts of climate change, including government policies, renewable energy, and sustainable agriculture.

- 4. Assessment: Students will be assessed through policy analysis, research papers, and presentations.**

Develop critical thinking and problem-solving skills related to the issue of climate change, and understand the challenges and opportunities associated with transitioning to a low-carbon economy.

- 5. Assessment: Students will be assessed through group projects, case studies, and written assignments.**

Overall, students will gain a comprehensive understanding of the issue of climate change, and the skills and knowledge needed to understand and address one of the most pressing issues facing our planet today. The course will utilize a variety of assessment methods, including exams, research papers, presentations, and class participation, to evaluate student learning outcomes.

## Course Schedule

### Week 1: Introduction to Climate Change

- Definition of climate change and its impact on the environment, economy, and society
- Historical context of climate change and how it has become a global issue
- Key scientific concepts and research related to climate change

### Week 2: Greenhouse Gasses and Climate Modeling

- Greenhouse gasses and their role in climate change
- Climate modeling and future scenarios

### Week 3: Causes of Climate Change: Fossil Fuels

- Burning of fossil fuels and its contribution to climate change
- Historical and political factors contributing to the growth of the fossil fuel industry

#### **Week 4: Causes of Climate Change: Deforestation**

- Deforestation and its contribution to climate change
- Historical and political factors contributing to deforestation

#### **Week 5: Causes of Climate Change: Agriculture**

- Agriculture and its contribution to climate change
- Sustainable agriculture practices

#### **Week 6: Climate Change and Social Equity**

- Inequality and vulnerability in the face of climate change
- Climate justice and social equity

#### **Week 7: Climate Change and Public Health**

- Health impacts of climate change and disease transmission

#### **Week 8: Climate Change and Biodiversity**

- Impacts of climate change on ecosystems and biodiversity
- Species extinction and loss of habitat

#### **Week 9: International Approaches to Climate Change: The Paris Agreement**

- International agreements to mitigate climate change
- The Paris Agreement and its goals

#### **Week 10: Climate Change and Energy**

- Renewable energy sources and their potential to mitigate climate change
- Energy policy and implementation

#### **Week 11: Climate Change and Transportation**

- Transportation and its contribution to climate change
- Sustainable transportation solutions

## **Week 12: Climate Change and Urbanization**

- Urbanization and its impacts on climate change
- Sustainable urban design and policy

## **Week 13: Climate Change and Business**

- Business and its role in mitigating climate change
- Corporate social responsibility and sustainability

## **Week 14: Climate Change and Adaptation**

- Adaptation to climate change and its importance
- Community resilience and adaptation strategies

## **Week 15: Moving Forward: Opportunities and Challenges**

- The future of climate change and opportunities for action
- Challenges and obstacles to climate change mitigation and adaptation

## **Required Readings:**

### **Book: "The Uninhabitable Earth: Life After Warming" by David Wallace-Wells**

1. Discussion Questions: How does the author convey the urgency and severity of the climate crisis? What is the role of individual actions versus systemic change in addressing climate change?

### **Article: "Global Warming of 1.5°C" by the Intergovernmental Panel on Climate Change**

2. Discussion Questions: What are the key findings and recommendations of the report? What are the implications for policy and action?

### **Book: "This Changes Everything: Capitalism vs. The Climate" by Naomi Klein**

3. Discussion Questions: How does the author argue that climate change is connected to broader social and economic issues? What is the role of collective action and social movements in addressing climate change?

### **Article: "The Political Economy of Carbon Trading" by Larry Lohmann**

4. Discussion Questions: What are the strengths and weaknesses of carbon trading as a strategy for mitigating climate change? What are the social and economic implications of carbon trading?

**Documentary: "Chasing Coral" directed by Jeff Orlowski**

5. Discussion Questions: What are the impacts of climate change on coral reefs? How does the film convey the urgency and importance of protecting marine ecosystems?

**Book: "Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming" edited by Paul Hawken**

6. Discussion Questions: What are the most promising solutions for mitigating climate change? How do the solutions proposed in the book address broader social and economic issues?
7. "The Future We Choose: Surviving the Climate Crisis" by Christiana Figueres and Tom Rivett-Carnac - This book offers a hopeful and practical vision for a sustainable future, and provides actionable steps for individuals and communities to take action on climate change.
8. "The Water Will Come: Rising Seas, Sinking Cities, and the Remaking of the Civilized World" by Jeff Goodell - This book explores the impacts of sea level rise on coastal communities around the world, and the challenges and opportunities associated with adapting to these changes.

**Course Assignments:**

1. **Reflection Papers:** Students will be required to write reflection papers on the readings and class discussions. These papers should critically engage with the material covered in class, demonstrate an understanding of the key concepts and issues related to climate change, and present thoughtful reflections on how to address the challenges associated with climate change.
2. **Group Projects:** Students will work in groups to research and analyze a particular aspect of climate change, such as renewable energy technologies or the impacts of climate change on vulnerable populations. The groups will be required to present their findings and recommendations to the class, and to submit a written report summarizing their research.
3. **Midterm Exam:** The midterm exam will consist of short answer and essay questions on the material covered in the first half of the course, including the scientific concepts, the impacts of climate change, and the social and economic implications of climate change.
4. **Final Project:** The final project will allow students to apply the concepts and skills learned in the course to a real-world issue related to climate change. Students will work individually to research and develop a comprehensive plan for addressing a specific climate change challenge, and will be required to present their findings to the class.

**Grading Criteria:**

1. **Reflection Papers:** Reflection papers will be graded on the quality of the analysis and reflection, the depth of engagement with the material, and the clarity and coherence of the writing.

2. **Group Projects:** Group projects will be graded on the quality of the research and analysis, the clarity and coherence of the presentation, and the effectiveness of the recommendations.
3. **Midterm Exam:** The midterm exam will be graded on the accuracy and depth of the answers, the clarity and coherence of the writing, and the ability to demonstrate a comprehensive understanding of the material covered in the first half of the course.
4. **Final Project:** The final project will be graded on the quality of the research and analysis, the clarity and coherence of the writing, the effectiveness of the proposed solutions, and the ability to apply the concepts and skills learned in the course to a real-world problem.

Overall, assignments will be graded based on the depth and quality of the analysis, the clarity and coherence of the writing, and the ability to demonstrate a comprehensive understanding of the key concepts and issues related to climate change. Rubrics will be provided for each assignment to provide clear guidance on the grading criteria.

### **Pointing system:**

#### **Participation and Attendance: 20 points**

- Attendance and active participation in class discussions and group activities.

#### **Assignments: 40 points**

- Research paper on a climate change topic of the student's choice (20 points)
- Policy analysis on a climate change-related policy or initiative (20 points)

#### **Quizzes and Exams: 40 points**

- Two mid-term exams (10 points each)
- Final exam (20 points)

#### **Total: 100 points**

The point system allows students to earn points for attending class, participating in discussions and group activities, completing assignments, and demonstrating knowledge through quizzes and exams. The assignments and exams assess the student's understanding of the scientific concepts, causes, and impacts of climate change, as well as their ability to critically analyze and evaluate policies and initiatives related to climate change. Students are also encouraged to actively participate in class discussions and group activities to promote engagement and understanding of the course material.



## **Classroom Policies:**

### **Policies on attendance, participation, late assignments, and academic integrity**

#### **Attendance and Participation:**

Regular attendance and active participation in class discussions and activities are crucial to student success in the course. Attendance will be taken at each class meeting and is mandatory. Students are allowed a maximum of two absences without penalty. For each additional absence, the final grade will be lowered by 2% per absence. Students are expected to participate in class discussions, group activities, and other class-related activities. Participation will be assessed based on the quality and frequency of participation.

#### **Late Assignments:**

Late assignments will be accepted up to three days after the due date, with a penalty of 10% deducted from the final grade for each day late. Assignments more than three days late will not be accepted, except in cases of documented medical or family emergencies. Students should communicate with the instructor as soon as possible in the event of such emergencies.

#### **Academic Integrity:**

Academic integrity is a fundamental value of this course and the university. Any form of academic misconduct, including plagiarism, cheating, and fabrication of data, will not be tolerated and will result in severe penalties, up to and including failure of the course. It is the responsibility of each student to ensure that their work is original and properly cited. Any suspected violation of academic integrity will be investigated, and students found to have committed academic misconduct will be subject to disciplinary action.

Note: These policies are subject to change at the discretion of the instructor. Any changes to the policies will be communicated to students in a timely and clear manner.

- Accessibility statement, outlining any accommodations available to students with disabilities

## **Accessibility Statement:**

This course is committed to ensuring that all students have equal access to the course content and activities. We aim to provide an inclusive and accessible learning environment, and are committed to ensuring that students with disabilities are able to participate fully in the course.

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

If you require accommodations for a disability or medical condition, please contact the Office of Student Disability Services as soon as possible. The office is responsible for coordinating accommodations and support services for students with disabilities. Accommodations may include but are not limited to extended testing time, note-taking services, and alternative format course materials.

To request accommodations, students should contact the Office of Student Disability Services and provide documentation of their disability or medical condition. The office will review the documentation and work with the student and the instructor to determine appropriate accommodations.

Please note that accommodations cannot be provided retroactively, and it is the responsibility of the student to request accommodations in a timely manner. Students who have questions or concerns about accommodations should contact the Office of Student Disability Services or the instructor for further guidance.

We are committed to working with all students to provide an accessible and inclusive learning environment. If you have any questions or concerns about accessibility in this course, please do not hesitate to contact the instructor.

## **List of resources, including websites, databases, and online tools, that students can use to learn more about climate change:**

- **Intergovernmental Panel on Climate Change (IPCC)** - <https://www.ipcc.ch/> - The IPCC is the leading international body for the assessment of climate change, and produces comprehensive reports on the scientific, technical, and socio-economic aspects of climate change.
- **NASA Global Climate Change** - <https://climate.nasa.gov/> - NASA's website on global climate change includes interactive visualizations, data and research, news and features, and resources for educators.
- **The Climate Reality Project** - <https://www.climaterealityproject.org/> - The Climate Reality Project is a non-profit organization that works to mobilize action on climate change and provides educational resources and training for individuals and organizations.
- **The Global Carbon Project** - <https://www.globalcarbonproject.org/> - The Global Carbon Project is a research initiative that tracks and analyzes global carbon emissions and provides data and analysis on global trends in carbon emissions.
- **Yale Program on Climate Change Communication** - <https://climatecommunication.yale.edu/> - The Yale Program on Climate Change Communication conducts research and provides resources to improve public understanding of climate change and the role of human activity in causing it.
- **The National Oceanic and Atmospheric Administration (NOAA)** - <https://www.noaa.gov/> - NOAA's website provides data and resources on climate change and its impacts on the environment and society, as well as information on climate adaptation and resilience.
- **The Environmental Protection Agency (EPA)** - <https://www.epa.gov/> - The EPA provides information on climate change science and policy, as well as resources for individuals and organizations to take action on climate change.
- **Carbon Footprint Calculator** - <https://www.carbonfootprint.com/calculator.aspx> - This online tool allows individuals to calculate their carbon footprint and provides tips for reducing their carbon emissions.

- **Climate Data Online** - <https://www.ncdc.noaa.gov/cdo-web/> - The National Centers for Environmental Information provides access to climate data from around the world, including historical climate data and current observations.
- **United Nations Framework Convention on Climate Change (UNFCCC)** - <https://unfccc.int/> - The UNFCCC is an international treaty aimed at addressing climate change, and provides information on global climate negotiations, policy developments, and resources for action on climate change.