

CLIM 101-001: GLOBAL WARMING: WEATHER, CLIMATE AND SOCIETY

Fall 2026 – Syllabus

(updated 10 August 2026)

Instructor: Jim Kinter (office: 284 Research Hall, e-mail: ikinter@gmu.edu)

Class Schedule: Monday & Wednesday 10:30 – 11:45 am ET (online)

Office Hours: Monday, 11:45 am – 1:00 pm

Important Dates:	24 August 2026	First day of class
	7 September 2026	No Class (Labor Day)
	8 September 2026	Last day to drop with 100% tuition refund
	7 October 2026	Mid-term Examination
	12 October 2026	No Class (Fall Break)
	25 November 2026	No Class (Thanksgiving)
	9 December 2026	Final Examination (10:30 am – 1:15 pm ET)
	11 December 2026	Final grades posted

Course Overview:

Climate change is one of the defining issues of our time. This course provides a survey of relevant weather and climate processes, and the global and regional impacts of human-induced land use change and changes in concentrations of carbon dioxide and other greenhouse gases in the atmosphere. The course will focus on the phenomena of climate variability and change – inferred in the geologic past, observed in the recent past, and projected for the next century – that have impacts on ecosystems and human society. The course provides sufficient scientific background to enable students to critically examine arguments about climate change, its impacts, and possible solutions being discussed by policymakers and the public at large.

This **Mason Core course**, which satisfies the **Natural Science** requirement, will also review the roles of science, politics, international negotiations and the media in the current debate on what to do about climate change. The classes will consist of lectures, guest lectures, movies, in-class discussion and student debates. Lectures will include opportunities for interaction, including instant polls, question and answer sessions in which students are asked questions or may pose questions to the instructors. Students will have an opportunity to survey recent literature on the impacts of climate change in Virginia and beyond, vulnerability to climate change and strategies for adaptation, and the various policy alternatives and technological solutions for mitigating the harmful effects of climate change. Students also will have an opportunity to debate questions relating to the scientific and political aspects of climate change.

Goals and Learning Outcomes:

Goals

1. *Promote student interest in natural science by engaging students and fostering curiosity.* Students will gain an understanding of the scientific underpinnings of how weather and climate change and how such changes affect economies, societies, and ecosystems, both globally and regionally. The emphasis on the global warming policy debate will stimulate students to be better informed about potential problems such as heat waves, flash floods, sea level rise, trends in hurricane frequency and intensity, incidence and severity of droughts, and the occurrence of extreme weather events. The importance of the issues will stimulate student interest in potential careers in natural science research or environmental policy.
2. *Enable students to apply scientific knowledge and reasoning to personal, professional and public decision-making.* By focusing on a series of provocative questions that depend on scientific information and have broad implications for regional, national and global society, the course will encourage students to question assumptions and critically examine public policy decisions about the preparations for and response to changes in weather and climate.

Course-Specific Learning Outcomes

1. *Understand the fundamental science of climate change:* Students will be able to explain the greenhouse effect, list key greenhouse gases, and describe the basic mechanisms driving global climate change. They will also be able to interpret climate data and understand the difference between natural climate variability and human-induced climate change.
2. *Analyze the impacts of climate change on natural and human systems:* Students will be able to describe and evaluate the observed and projected effects of climate change on ecosystems, biodiversity, water resources, agriculture, human health, and economic systems at both global and regional scales.
3. *Evaluate climate change mitigation and adaptation strategies:* Students will be able to critically assess various approaches to reducing greenhouse gas emissions and adapting to inevitable climate change impacts. They will understand the roles of policy, technology, and individual action in addressing climate change, and be able to discuss the challenges and opportunities associated with implementing these strategies.

Mason Core Natural Sciences Learning Outcomes

1. Understand how scientific inquiry is based on investigation of evidence from the natural world, and that scientific knowledge and understanding: a) evolves based on new evidence, and b) differs from personal and cultural beliefs.
2. Recognize the scope and limits of science.
3. Recognize and articulate the relationship between the natural sciences and society and the application of science to societal challenges.
4. Evaluate scientific information (e.g., distinguish primary and secondary sources, assess credibility and validity of information).
5. Participate in scientific inquiry and communicate the elements of the process, including: a) making careful and systematic observations, b) developing and testing a hypothesis, c) analyzing evidence, and d) interpreting results.

Technology Requirements:

This course is being offered online, which means that class sessions will take place at the scheduled time via remote connection (Canvas). While class is in session, students are expected to be respectful of their peers and the instructor and refrain from activities that are unrelated to the class, including cell phone and laptop use, unless specifically indicated by the instructor. Laptops or tablets may be used for taking notes, with permission of the instructor.

Activities and assignments in this course will use Canvas, (<https://canvas.gmu.edu/login/canvas>), where all lecture notes, assignments and reading materials will be posted.

All course materials posted to Canvas or other course site are private; by federal law, any materials that identify specific students (via their name, voice, or image) must not be shared with anyone not enrolled in this class.

Textbooks, Recommended and Supplementary Reading Materials:

1. Required Reading:
 - 1.1. **(abbreviated AD in schedule below)** Introduction to Modern Climate Change (3rd edition; 2022) by Andrew Dessler
(available in the bookstore; Fenwick Library; Amazon: <https://www.amazon.com/Introduction-Modern-Climate-Change-Dessler/dp/1108793878/>)
2. Recommended Reading:
 - 2.1. Global Warming – The Complete Briefing (5th edition; 2015) by John Houghton
(available at Fenwick Library; Amazon: <https://www.amazon.com/Global-Warming-Sir-John-Houghton/dp/1107091675/>)
Note: This has been used as a textbook for CLIM 101 in past years.
 - 2.2. The Science and Politics of Global Climate Change (3rd edition; 2019) by A. Dessler and E. Parson
(<https://www.amazon.com/Science-Politics-Global-Climate-Change-dp-1107179424/dp/1107179424/>)
 - 2.3. Merchants of Doubt (2011) by Naomi Oreskes and Erik Conway
(<https://www.amazon.com/dp/1608193942/>)
 - 2.4. Drawdown by Paul Hawken (ed.) (2017)
(<https://www.amazon.com/Drawdown-Comprehensive-Proposed-Reverse-Warming/dp/0143130447/>)
 - 2.5. Dire Predictions by Michael Mann and Lee Kump (2015)
(<http://www.amazon.com/Dire-Predictions-2nd-Edition-Understanding/dp/1465433643>)
3. Supplementary Reading Materials: Students should refer to Course Canvas page each week

Course Requirements:

1. *Reading*: The primary sources are selections from the textbooks and supplementary readings. Selected articles will be provided via Canvas. **Students are expected to stay current on readings and lectures** as shown in the table below.
2. *Homework* (40% of grade): Ten sets of homework, each worth 4%, with true-false, multiple choice, multiple answer, and short-answer questions based on readings and lectures, will be assigned to cement concepts and provide students with an opportunity to evaluate their own acquisition and comprehension. Homework can be taken as many times as necessary before the due date. There is a 0.4% penalty on the final grade for each late homework. **The homework must be your own work, not done in collaboration with other students or using artificial intelligence tools.**
3. *Attendance* (15% of grade): Presence in all classes is mandatory and will be recorded at each class session – students earn 1.5% for every 2 classes attended, i.e., attending 20 classes earns full attendance credit. Unannounced in-class quizzes will be given from time to time with questions based on the readings. Students may be excused from attendance for valid reasons such as illness by informing the instructor at least 2 hours prior to class time.
4. *Mid-term examination* (20% of grade): A test to evaluate students' acquisition and comprehension of material discussed in the **first 12 class sessions and textbook assignments**.
5. *Final examination* (25% of grade): A test to evaluate students' acquisition and comprehension of material discussed during the **entire semester**.
6. *Extra credit*: Up to 5% extra credit will be given for class participation (e.g., attending more than 20 classes, participating in a student debate, etc.). There will be other opportunities as well.
7. *Participation*: Students are expected to pay attention and participate during class sessions. Every effort will be made to provide opportunities for interaction. This may take the form of questions posed to randomly selected students in attendance.

Detailed Course Schedule (subject to minor adjustment)

<i>Date</i>	<i>Session</i>	<i>Topic</i>	<i>Reading(s)</i>	<i>Notes</i>
24 Aug	1	Introduction to CLIM101	Syllabus	In-class questionnaire
26 Aug	2	Our Place in the Universe	AD Chapter 1	
31 Aug	3	What is the Climate of the Earth?	AD Chapter 2	
2 Sep	4	NO CLASS – Read ahead	AD Chapter 3 & 4	HW #1 DUE
7 Sep	NA	NO CLASS (Labor Day)		
9 Sep	5	Earth's Past Climate	AD Chapter 2.3	HW #2 DUE
14 Sep	6	Global Warming and Greenhouse Effect	AD Chapters 5 & 6	
16 Sep	7	Earth Current Climate – What's Different Now?	AD Chapter 7	HW #3 DUE
21 Sep	8	NO CLASS – Watch An Inconvenient Truth	Film	
23 Sep	9	Predicting Future Climate / Discuss AI Gore movie	AD Chapter 8	HW #4 DUE
28 Sep	10	Global Impacts and Consequences	AD Chapter 9	
30 Sep	11	Regional Impacts and Consequences, including Virginia (sea level, heat, drought)	AD Chapter 9	HW #5 DUE
5 Oct	12	Review for Mid-term exam	AD Chapters 1-9; lecture notes	Review for Mid-term exam
7 Oct	13	MID-TERM EXAMINATION	Covers all material in first 12 sessions	In-class/online exam
12 Oct	NA	NO CLASS (Fall Break)		
14 Oct	14	Detection and Attribution of Climate Change	AD Chapter 9.2.6	
19 Oct	15	Building Public and Political Will for Climate Solutions	Assigned reading on Canvas	
21 Oct	16	Climate Change Policy in Virginia and USA	AD Chapter 11	
26 Oct	17	The (US) Politics of Climate Change	AD Chapter 11	
28 Oct	18	Climate and Public Health	NA	HW #6 DUE
2 Nov	19	Climate Change Adaptation and Mitigation	AD Chapters 11 & 12	
4 Nov	20	Energy, Renewables and Decarbonization	AD Chapters 11 & 12	HW #7 DUE
9 Nov	21	The Economics of Climate Change	AD Chapter 12	
11 Nov	22	Climate, Ecosystems and Human Society: The Ethics of Climate Change	AD Chapter 13	HW 8 DUE
16 Nov	23	Hopeful Climate Solutions in the USA	AD Chapter 14	
18 Nov	24	Hopeful Climate Solutions in the World	AD Chapter 14	HW# 9 DUE
23 Nov	25	Open Discussion	NA	
25 Nov	NA	NO CLASS (Thanksgiving break)	NA	
30 Nov	26	Student Debate: Should US government enact policy to reduce GHG emissions?	NA	HW #10 DUE
2 Dec	27	Debunking Climate Change Myths	NA	
7 Dec	28	Review for Final Exam	AD Chapters 1-14; lecture notes	In-class questionnaire; Student Evaluations
9 Dec	29	FINAL EXAMINATION	NA	In-class/online exam

Academic Standards

Academic Standards exist to promote authentic scholarship, support the institution's goal of maintaining high standards of academic excellence, and encourage continued ethical behavior of faculty and students to cultivate an educational community which values integrity and produces graduates who carry this commitment forward into professional practice.

As members of the George Mason University community, we are committed to fostering an environment of trust, respect, and scholarly excellence. Our academic standards are the foundation of this commitment, guiding our behavior and interactions within this academic community. The practices for implementing these standards adapt to modern practices, disciplinary contexts, and technological advancements. Our standards are embodied in our courses, policies, and scholarship, and are upheld in the following principles:

- **Honesty:** Providing accurate information in all academic endeavors, including communications, assignments, and examinations.
- **Acknowledgement:** Giving proper credit for all contributions to one's work. This involves the use of accurate citations and references for any ideas, words, or materials created by others in the style appropriate to the discipline. It also includes acknowledging shared authorship in group projects, co-authored pieces, and project reports.
- **Uniqueness of Work:** Ensuring that all submitted work is the result of one's own effort and is original, including free from self-plagiarism. This principle extends to written assignments, code, presentations, exams, and all other forms of academic work.

Violations of these standards—including but not limited to plagiarism, fabrication, and cheating—are taken seriously and will be addressed in accordance with university policies. The process for reporting, investigating, and adjudicating violations is outlined in the university's procedures. Consequences of violations may include academic sanctions, disciplinary actions, and other measures necessary to uphold the integrity of our academic community.

The principles outlined in these academic standards reflect our collective commitment to upholding the highest standards of honesty, acknowledgement, and uniqueness of work. By adhering to these principles, we ensure the continued excellence and integrity of George Mason University's academic community.

Student responsibility: Students are responsible for understanding how these general expectations regarding academic standards apply to each course, assignment, or exam they participate in; students should ask their instructor for clarification on any aspect that is not clear to them.

Guidelines for the use of Artificial Intelligence (AI)

Generative AI tools (e.g. ChatGPT, Claude, Gemini, CoPilot) may be used in this course with the following guidelines. Students may use generative AI tools to prepare answers to questions on homework or to create text or code in course projects. Students must disclose when AI tools are used and how they contributed to the work. Students may be quizzed on material generated by AI tools in order to demonstrate mastery of concepts. Misuse may be treated as a violation of academic standards.

Accommodations for Students with Disabilities

Disability Services at George Mason University is committed to upholding the letter and spirit of the laws that ensure equal treatment of people with disabilities. Under the administration of University Life, Disability Services implements and coordinates reasonable accommodations and disability-related services that afford equal access to university programs and activities. Students can begin the registration process with Disability Services at any time during their enrollment at George Mason University. If you are seeking accommodations, please visit <https://ds.gmu.edu/> for detailed information about the Disability Services registration process. Disability Services is located in Student Union Building I (SUB I), Suite 2500. Email: ods@gmu.edu. Phone: (703) 993-2474.

Student responsibility: Students are responsible for registering with Disability Services and communicating about their approved accommodations with their instructor *in advance* of any relevant class meeting, assignment, or exam.

FERPA and Use of GMU Email Addresses for Course Communication

The [Family Educational Rights and Privacy Act \(FERPA\)](#) governs the disclosure of [education records for eligible students](#) and is an essential aspect of any course. **Students must use their GMU email account** to receive important University information, including communications related to this class. Instructors will not respond to messages sent from or send messages regarding course content to a non-GMU email address.

Student responsibility: Students are responsible for checking their GMU email regularly for course-related information, and/or ensuring that GMU email messages are forwarded to an account they do check.

Title IX and Non-Discrimination: Access and Compliance with George Mason's Non-discrimination Policies

George Mason University is committed to providing a safe and non-discriminatory learning, living, and working environment across all educational programs, services, and activities for all members of the University community. University educational programs, services, and activities will be free from discrimination on the basis of race, color, religion, ethnic national origin (including shared ancestry and/or ethnic characteristics), sex, disability, military status (including veteran status), sexual orientation, gender identity, gender expression, age, marital status, pregnancy status, genetic information, or any other characteristic protected by law.

Required Reporting

All non-confidential employees, including your faculty members, have a legal requirement to report all relevant details, obtained directly or indirectly, about any incident of discrimination or harassment, including Title IX Prohibited Conduct, to the Office of Access, Compliance, and Community (OACC), which includes the Title IX Coordinator.

Reportable Conduct by an employee, a student, or a third party includes:

- Discrimination and harassment under Title VI or Title VII, which can include unequal and unfavorable treatment in the educational/work environment or conduct (oral, written, graphic) that is physically threatening, harmful, or humiliating.
- Prohibited Conduct under Title IX, which can include sexual harassment, sexual assault, gender-based stalking, or dating/domestic violence.

Upon notification, OACC professionals will assess the report and determine if outreach is required. If outreach is required, the potentially harmed individual (the "Complainant") will receive a communication, likely in the form of an email, with an offer to meet with a representative of the appropriate team.

Applicable Policies and Resources

- [University Policy 1201: Non-Discrimination](#)
 - Contact masoneo@gmu.edu with related questions.
- [University Policy 1202: Sexual and Gender-Based Harassment and Other Interpersonal Violence](#)
 - Contact titleix@gmu.edu with related questions.
- [University Policy 1204: Prohibited Relationships with Students](#)

General questions may be directed to OACC at oacc@gmu.edu, or by phone at 703-993-8730, or in person on the Fairfax campus in Aquia 373 or at Mason Square in Van Metre Hall Suite 222.

Student opportunity: If you prefer to speak to someone *confidentially*, please contact one of Mason's confidential employees in [Student Support and Advocacy \(SSAC\)](#), [Counseling and Psychological Services \(CAPS\)](#), [Student Health Services \(SHS\)](#), and/or the [Office of the University Ombudsperson](#).

Other Useful Campus Resources:

Mason has several support services for students. Please go to

<https://stearnscenter.gmu.edu/knowledge-center/knowning-mason-students/student-support-resources-on-campus/>

for a directory of services.

Other University Policies:

The University Catalog, <http://catalog.gmu.edu>, is the central resource for university policies affecting student, faculty, and staff conduct in university academic affairs. Other policies are available at <http://universitypolicy.gmu.edu/>. All members of the university community are responsible for knowing and following established policies.