

BIO 1011: The Basics of Climate Change

Course Syllabus, Winter 2025

COURSE INFORMATION



Course Format: 3 credit hours, in-person, lecture-discussion
Meeting Day/Time: TBD
Instructor:
Building and Office number:
Office phone:
Email address:
Office hours:

COURSE MATERIALS

Required Textbook

Dire Predictions: Understanding Climate Change, by Mann and Kump, 2015, Pearson, 2nd edition (\$15-30 used on Amazon).

Required Readings

There may be numerous selected readings posted or linked through the course's Canvas website weekly.

COURSE DESCRIPTION AND OBJECTIVES



Global climate change is the defining issue of our time because it impacts every aspect of life, from the economy, to agriculture, health, and ecology, in every nation on Earth. The complexity and multidisciplinary nature of climate change, not to mention the preconceptions held by individuals, results in most people having only a limited understanding of the evidence for, predicted effects, and potential solutions to this issue. This course will present students with the scientific background necessary to evaluate the evidence for the theory of anthropogenic climate change and the global effects of climate change. Using the scientific method as a basis, we will explore the multi-disciplinary evidence behind climate change and its global and cross-cultural effects and discuss potential solutions based in adaptation and mitigation.

COURSE LEARNING OUTCOMES



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

1. Identify and explain the drivers and past record of climate change;
2. Describe the major lines of evidence for anthropogenic climate change, their uncertainties, and the arguments of climate change skeptics;
3. Critically analyze the potential impacts of projected climate change on biological and ecological systems and on humans;
4. Discuss strategies for the adaptation to and mitigation of climate and evaluate the efficacy of those strategies.

NSI LEARNING OUTCOMES

This course fulfills the General Education requirement for Natural Science Inquiry (NSI). The NSI designation requires that a course has students broadly focus on the process of science and its application to the real world. Learning outcomes for the NSI designation include:

1. Explain scientific concepts related to natural phenomena;
2. Discriminate between valid and invalid inferences made using scientific concepts and evidence;
3. Describe the relevance of scientific concepts to historical or contemporary societal subjects.

The intersection of course learning outcomes with NSI learning outcomes is as follows:

Course Learning Outcome	NSI Learning Outcome	How this will be assessed
CLO1: Identify and explain the drivers and past record of climate change	LO1: Explain scientific concepts related to natural phenomena	Quizzes #1-3; Discussion Board Prompt #1; Final Exam
CLO2: Describe the major lines of evidence for anthropogenic climate change, their uncertainties, and the arguments of climate change skeptics	LO2: Discriminate between valid and invalid inferences made using scientific concepts and evidence	Written Reflection Assignment #2; Discussion Board Prompt #2; Final Exam
CLO3: Critically analyze the potential impacts of projected climate change on biological and ecological systems and on humans	LO1 AND LO3: Describe the relevance of scientific concepts to historical or contemporary societal subjects.	Quizzes #4-5; Discussion Board Prompt #3; Final Exam
CLO4: Discuss strategies for the adaptation to and mitigation of climate and evaluate the efficacy of those strategies	LO1 AND LO3: Describe the relevance of scientific concepts to historical or contemporary societal subjects.	Written Reflection Assignment #3; Final Exam

GRADING SYSTEM

A total of 300 points may be earned for this course, with a grading scale as follows:

280 or more	A	240 – 249.9	B-	200 – 209.9	D+
270 – 279.9	A-	230 – 239.9	C+	190 – 199.9	D
260 – 269.9	B+	220 – 229.9	C	180 – 189.9	D-
250 – 259.9	B	210 – 219.9	C-	179.5 or less	F

TENTATIVE COURSE SCHEDULE



Date	Topic	Assignments	Learning Outcomes
Week 1 (Jan. 7, 9)	Introduction and Perceptions of Climate Change (CC)	<ul style="list-style-type: none"> Written Reflection Assignment#1 	
Module 1: Principles of Climate Change			
Week 2 (Jan. 14, 16)	Earth's Energy Budget and Climate Drivers; Greenhouse Effect	<ul style="list-style-type: none"> Read pp 6-29 in M&K Quiz #1 	CLO1, LO1
Week 3 (Jan. 21, 23)	Climate Variability and Past Climate Variations	<ul style="list-style-type: none"> Read pp. 30-51 in M&K Quiz #2 	CLO1, LO1
Week 4 (Jan. 28, 30)	CC and the Weather; Observations and Extremes	<ul style="list-style-type: none"> Read pp. 52-67, 112-115, 132-135 in M&K Discussion Board Prompt #1 	CLO1, LO1
Week 5 (Feb. 4, 6)	CC Models and Projections	<ul style="list-style-type: none"> Read pp. 68-117 in M&K Quiz #3 	CLO1, LO1
Module 2: The Nature of Science and Climate Change Skepticism			
Week 6 (Feb. 11, 13)	The Scientific Method, Peer Review, and Uncertainty	<ul style="list-style-type: none"> Read pp. 208-209 in M&K Written Reflection Assignment #2 	CLO2, LO2
Week 7 (Feb 18, 20)	Evidence for Human Drivers of CC; CC Deniability; US Politics of CC	<ul style="list-style-type: none"> Read pp. 30-51 in M&K Discussion Board Prompt #2 	CLO2, LO2
Module 3: Biological (and Human!) Impacts of Climate Change			
Week 8 (Feb 25, 27)	Biological Impacts of CC: Species and Communities	<ul style="list-style-type: none"> Read pp. 124-133, 188-189 in M&K Quiz #4 	CLO3, LO1, LO3
Week 9 (Mar. 4, 6)	Ecological Impacts of CC: Ecosystems	<ul style="list-style-type: none"> Read pp. 124-133, 188-189 in M&K Quiz #5 	CLO3, LO1, LO3
Week 10 (Mar. 11, 13)	Agricultural/Land Use Impacts of CC	<ul style="list-style-type: none"> Read pp. 150-163, 184-187 in M&K 	CLO3, LO1, LO3
Week 11 (Mar. 18, 20)	SPRING BREAK – NO CLASS		
Week 12 (Mar. 25, 27)	Impacts of CC on Human Health	<ul style="list-style-type: none"> Read pp. 136-149, 184-187 in M&K 	CLO3, LO1, LO3
Week 13 (Apr. 1, 3)	Ethics of CC and Environmental Justice	<ul style="list-style-type: none"> Read pp. 206-207 in M&K Discussion Board Prompt #3 	CLO3, LO3
Module 4: Potential Climate Change Solutions			
Week 14 (Apr. 8, 10)	Green Energy and the Built Environment	<ul style="list-style-type: none"> Read pp. 164-177 in M&K 	CLO4, LO1, LO3
Week 15 (Apr. 15, 17)	National and International CC Policy	<ul style="list-style-type: none"> Read pp. 200-206 in M&K Written Reflection Assignment #3 	CLO4, LO1, LO3



COURSE ASSIGNMENTS

Students will be assessed based on the following assignments:

1. **Quizzes** (20 points each for 100 points total): There will be FIVE online quizzes of true/false or multiple-choice questions, each worth 20 points. Quizzes will consist of ten questions and you will be allotted 20 minutes to complete the quiz. Quizzes will be available to take at 5 pm on Fridays and may be taken at any time through 11:59 pm the following Sunday. Your lowest quiz score will be dropped. Quiz dates will be **January 17th, January 24th, February 7th, February 28th, and March 7th**. *No makeup quizzes will be permitted.*
2. **Discussion Board Prompts** (15 points each for a total of 45 points): There will be THREE discussion board prompts posted on Canvas on **January 28th, February 18th, and April 1st**. Prompts will be used to facilitate a discussion relative to the week's class material. Students are expected to submit a well-written paragraph that references the course material for that week and that is constructive and useful to the ongoing discussion. Responses are expected to approximate a paragraph approximately ½ single-spaced page in length.
3. **Written Reflection Assignment** (15 each for a total of 45 points): There will be THREE reflection assignments during the weeks of **January 7th** (first week of class), **February 11th**, and **April 15th** (last week of class). Reflections are short, 2-page (double-spaced) papers based on the material discussed in class that week.
4. **Class Attendance and Participation** (10 points total): You are expected to attend class sessions regularly, arrive on time, complete assignments with care, and engage actively and intelligently in our discussions and class assignments. This means you should complete all readings before class, take notes, and come to class ready to discuss. The course will be structured largely around class discussion and only minimally on lectures, such that you will be wasting your time if you are expecting to come to class to be presented with all of the information. You must take an active role in your own learning in this course. You do not need to report to the instructor that you will be missing any class sessions.
5. **Final Exam** (100 points): There will be a comprehensive final exam given during the final exam period for this course. The exam will be given in person and will consist of multiple-choice and true-false questions.

CLASS RECORDINGS

The instructors will provide appropriate class recordings where possible. Students need prior written permission from the instructor before independently recording any portion of this class. If permission is granted, the audio and/or video recording is to be used only for the student's personal instructional use and should not be posted to the internet or shared with others. Students registered with Student Disabilities Services (SDS) who wish to record class materials must present their specific accommodation to the instructor (see below), who will subsequently comply with the request unless there is some specific reason why they cannot, such as discussion

of confidential or protected information. Violations of this syllabus policy may result in charges under the student code of conduct.

COURSE WITHDRAWALS

Complete information about dropping and withdrawing from this course can be found at <https://wayne.edu/registrar/registration/dropping-and-withdrawing>. Students can enroll in the class through **Friday, January 17th**. If a student signs up for the class and decides to drop it before or on January 17th, the tuition for the class will be cancelled, the student will be reimbursed, and the class will not show on their transcript. If a student drops the class between **January 18th** and **March 24th**, tuition will not be reimbursed and a final grade of “W” will be shown on their transcript. All withdrawals must be requested through Academics and they will not be granted after March 24th (see <https://wayne.edu/registrar/withdrawals/> for details). If the student signs up for the class, stops attending lectures, and fails to withdraw, he/she will receive a failing grade “F” for the course. Because withdrawing from courses may have negative academic and financial consequences, students considering course withdrawal should make sure they fully understand all the consequences before taking this step, including speaking with the instructors or advisor. Please note that “incomplete” grades (I) will not be issued to students in poor standing who are seeking an alternative to a late drop.

STUDENT CODE OF CONDUCT

Academic misconduct (<https://doso.wayne.edu/conduct/academic-misconduct>) is any activity that tends to compromise the academic integrity of the institution or undermine the education process. Examples of academic misconduct include:

- **Plagiarism:** To take and use another's words or ideas as your own without appropriate referencing or citation.
- **Cheating:** Intentionally using or attempting to use or intentionally providing unauthorized materials, information, or assistance in any academic exercise. This includes copying from another student's test paper, allowing another student to copy from your test, using unauthorized material during an exam and submitting a term paper for a current class that has been submitted in a past class without appropriate permission.
- **Fabrication:** Intentional or unauthorized falsification or invention of any information or citation, such as knowingly attributing citations to the wrong source or listing a fake reference in the paper or bibliography.
- **Other:** Selling, buying, or stealing all or part of a test or term paper, unauthorized use of resources, enlisting in the assistance of a substitute when taking exams, destroying another's work, threatening, or exploiting students or instructors, or any other violation of course rules as contained in the course syllabus or other written information. Such activity may result in failure of a specific assignment, an entire course, or, if flagrant, dismissal from Wayne State University.

Remember that dishonest conduct also includes helping another student engage in dishonest conduct and will result in a zero for both the helper's and the helped student's assignment/exam. In addition, the University is aware that students often use *WhatsApp* and/or other group messaging apps for the purposes of cheating on their classwork. Be aware that that using group messaging apps in this manner is indeed a violation of the academic integrity honor code and will be met with consequences. Each incident will be reported to the Office of Academic Misconduct and placed on your academic record.

In short, don't cheat. It rarely helps you with your final course grade, and the consequences are simply not worth the risk. Be aware that cheating is a very personal and disrespectful insult to instructors and your classmates, and the instructor will show no leniency in how it is handled.

RELIGIOUS HOLIDAYS/EXAM CONFLICTS

Because of the extraordinary variety of religious affiliations of the University student body and staff, the Academic Calendar makes no provisions for religious holidays. However, it is University policy to respect the faith and religious obligations of the individual. Students with classes or examinations that conflict with their religious observances are expected to notify their instructors well in advance so that mutually agreeable alternatives may be worked out. Students must make such conflicts known to the instructor no later than **Friday, January 16th** for any accommodations to be made. See <https://wayne.edu/registrar/registration/calendar24-25> for details. Similarly, during final exams, students are not required to take more than two final exams in a day. If you have more than two final exams scheduled for the same day, or if you have final exam times that conflict, you may petition the course with the lower enrollment to offer an alternate exam time. ***You must petition at least one week prior to the scheduled final exam.***

LAND ACKNOWLEDGEMENT

Wayne State University rests on Waawiyaataanong (Waa-we-yaa-tih-nong), also referred to as Detroit, the ancestral and contemporary homeland of the Three Fires Confederacy. These sovereign lands were granted by the Ojibwe (Oh-jib-way), Odawa (Oh-daa-waa), Potawatomi (Pow-tuh-waa-tuh-mee), and Wyandot nations, in 1807, through the Treaty of Detroit. Wayne State University affirms Indigenous sovereignty and honors all tribes with a connection to Detroit. With our Native neighbors, WSU can advance educational equity and promote a better future for the earth and all people.

SPECIAL CONSIDERATIONS FOR INDIVIDUALS WITH DISABILITIES

If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. Please visit <https://studentdisability.wayne.edu> to register your condition. Once you have accommodations in place, please send one of the instructors an email discussing them. Student Disability Services' mission is to assist the University in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at WSU. SDS supports students with a variety of conditions, such as mental health disorders, learning disabilities, chronic health conditions, etc.

COUNSELING AND PSYCHOLOGICAL SERVICES (CAPS)

It is quite common for college students to experience mental health challenges, such as stress, anxiety, and depression, that interfere with academic performance and negatively impact daily life. Help is available for any currently enrolled WSU student who is struggling with a mental health difficulty. Go to <https://caps.wayne.edu> for information on the services offered and how to access them. Other options for both students and non-students include the Mental Health and Wellness Clinic at the College of Education (<https://education.wayne.edu/mental-health-and->

[wellness-clinic](#)). Services at all these clinics are free and confidential. Remember that getting help, before stress reaches a crisis point, is a smart and courageous thing to do – for yourself, and for those you care about. CAPS provides after hours and weekend crisis support. Students living on campus can call (313) 577-2277; all others call (313) 577-9982. In a life-threatening emergency, call the WSU Police at 313-577-2222.

SEXUAL MISCONDUCT AND TITLE IX

Most faculty and staff are considered “Responsible Employees” and are required to report information they receive about incidents of sexual misconduct (including sexual assault, stalking, dating or domestic violence, and sexual harassment) to the Title IX Coordinator when it involves a student. Confidential support is available 24/7 through the Rape, Abuse & Incest National Network (RAINN) (<https://www.rainn.org/>). Call 1-800-656-4673 or visit <https://hotline.rainn.org/online> to chat with a professional support specialist.

Any student impacted by sexual misconduct or sexual harassment has the right to report to the University (i.e., Responsible Employee or Title IX Coordinator), to law enforcement (i.e., WSUPD or other jurisdiction), to both, or to neither. The Title IX Office (<https://titleix.wayne.edu>) is available to consult with individuals impacted by sexual violence or discrimination regarding resource referrals, supportive and protective measures, and reporting and resolution options. Where WSU has jurisdiction, the affected party may request an administrative investigation by the University. The WSU Police Department (<https://police.wayne.edu>) is available 24/7 to assist individuals reporting criminal activity or concerns on or near campus. Report off-campus incidents to the appropriate police jurisdiction. In the event of an emergency or imminent threat, reporting to the police is highly encouraged. Campus police can be reached at 313-577-2222.

ADDITIONAL STUDENT SERVICES

Warrior Life and Wellness provides an overview of the health and wellbeing services that are available to students. Although we list a few here in the syllabus, please know that many more services exist. Visit <https://warriorlife.wayne.edu> to learn more and access links to wellbeing resources.

The W Food Pantry provides students with free resources such as non-perishable food, toiletries, and feminine hygiene items, to enhance student success. Bring your OneCard and a copy or photo of your class schedule for the current semester to use their services. For more information, visit <https://thew.wayne.edu/>.

Care, Support, and Intervention Services. Learning is always more challenging when you are struggling to meet basic needs. Any student who faces challenges securing food, housing, or medical care is encouraged to contact relevant university offices noted on the Financial Aid website (<https://wayne.edu/financial-aid>) for support. You are also encouraged to contact Care, Support, and Intervention services in the Dean of Students Office (DOSO) for assistance with connecting to resources for basic needs. Students can call DOSO at 313-577-1010 or submit a care referral form (<https://doso.wayne.edu/conduct/student-support-intervention>).

Computing and Information Technology (C&IT) offers students computing and technological support, including issues with Canvas, Wayne email, or any other WSU system. For more information, call (313-577-4778) or visit their website: <https://tech.wayne.edu/helpdesk>.

The Academic Success Center (1600 Undergraduate Library) assists students with content in select courses and in strengthening study skills. Visit the Academic Success Center (<https://success.wayne.edu/>) for schedules and information on study skills workshops, tutoring and supplemental instruction.

The Writing Center provides a variety of tutoring options free of charge for graduate and undergraduate students at WSU. Tutoring sessions are available in the following modes:

- In-person during our Writer’s Studio open hours (to learn more, please visit our website)
- Online, synchronous sessions (up to 50-minutes)
- Online, asynchronous sessions (please review our guidelines for asynchronous tutoring)

Tutoring services are provided by trained undergraduate and graduate student tutors. Our tutors assist with writing from all disciplines and on a range of topics including but not limited to: brainstorming, drafting, revising, organization, and editing. All tutoring sessions are collaborative, so please come prepared to work with your tutor (whether online or in-person). To schedule a one-on-one appointment, please visit <https://writing.wayne.edu>.

Library Research Assistance: The University Libraries are available 24x7 to help students locate and access articles, books, and other credible and reliable resources you need for your research papers and projects. Librarians can also help you understand assignments and cite the articles and images that you use in your papers. You can connect with librarians at <https://library.wayne.edu/help> for chat, email, phone, drop-in hours, or appointments.

Emergency Preparedness: In the event an emergency arises, please familiarize yourself with the University’s emergency procedures. For details, please refer to WSU’s Emergency and Safety Procedures.

UNEXPECTED UNIVERSITY CLOSURES

If the University is officially closed on an exam day, the exam will be held on the next regularly scheduled class day. Closure of the University is announced by the following mechanisms:

1. the University Newsline (313) 577-5345 *
2. WSU Homepage (www.wayne.edu) *
3. Academica (<https://academica.aws.wayne.edu/>)*
4. WDET-FM (Public Radio 101.9)
5. by other local radio and television stations

* Note: The information on closures and class cancellations is likely to be found at these locations before it is broadcast by local radio and television stations.

OTHER

Any specific issue not covered by this syllabus will be resolved using University policies. Disputes that cannot be resolved following the guidelines present in this syllabus will be resolved by following the guidelines of the University “Student Due Process.”