

ENSS 105 | Introduction to Environmental Systems Science



MWF 10:20 AM–11:10 AM, CSA 303
Fall 2025, College Station, TX

Essential Information

Instructor

Dr. Andrew Moodie

amoodie+105@tamu.edu

Office: OMB 803F

Phone: (979) 845-1786

Office hours: T 11:00 am –12:00 pm, and by appointment

Course Materials and Assignments

- All required course materials will be freely available, and posted on Canvas
- Assignments, quizzes, and grades will be organized on Canvas
- 35% in-class quizzes, 25% synthesis posts, 30% final project, 10% participation

Course Description

Key concepts and generalizations of global environmental issues within an Earth systems science framework including climate change, air pollution, land and coastal degradation, water resources and pollution, and habitat loss; environmental ethics, economics and politics; environmental issues in Texas. Enrollment preference will be given to environmental systems science and environmental studies majors.

Learning Objectives

By taking this course, students will be able to interpret patterns and behavior of the environment with an Earth Systems science perspective. Upon successful completion of the class, students will be able to:

- describe foundational geophysical processes of Earth's surface, the oceans, and the atmosphere
- articulate the concept of the Earth System, and describe major connections between system components
- apply systems thinking to an array of environmental topics, including biodiversity, climate change, and coastal degradation
- define and quantify sustainability and assess global policy efforts and impacts of urbanization on the environment
- organize and synthesize information to explain a local environmental issue in an Earth System science context

Course Structure and Grade

Lectures

Lectures are generally delivered in-person during the specified class time. On some occasions, lectures may be pre-recorded and posted to Canvas to allow for in-class time for exercises and discussion. You will be responsible for all material covered in lectures, not only material included on the slides.

Materials and Assignments.

All assignments and course materials will be posted and collected through the Canvas learning platform. The materials are generally organized into thematic modules – each module is one to three weeks long. Assignments and graded portions of the course are described below.

Course Grade

Synthesis Posts – 25%

Five written reflections on readings and course material will be completed throughout the semester. Some of these exercises will be started during the lecture time.

5 responses × 50 points = 250 points

Quizzes – 35%

You will complete six in-class quizzes. Quizzes will consist of multiple choice and short answer questions. Quizzes will focus on material for separate modules, but may require cumulative understanding and integration of topics for success. The quizzes are timed and must be completed during the scheduled class time and in the classroom. Quizzes are to be completed independently. Sharing or discussing quiz content will be considered cheating and a violation of the academic integrity policies. Your lowest quiz grade will be dropped.

5 quizzes × 70 points = 350 points

Participation – 10%

There will be some in-class discussion or activity 1–2 times per week. These will be completed either on paper or using the Poll Everywhere app/website. Grades for in-class polls and activities will be satisfactory (100%), unsatisfactory (50%), not completed (0%). Your participation grade will be based on the average of all in-class activities.

100 points

Final project – 30%

You will work in groups to complete a final project that will explore environmental issues on the Texas A&M campus and/or in the surrounding community. Details will be posted to Canvas.

Proposal abstract (100) + Draft/Peer Review (75) + Final Project (125) = 300 points

Grade scale:

A: 900-1000 points (90-100%); B: 800-899 points (80-89%); C: 700-799 points (70-79%); D: 600-699 points (60-69%); F: below 600 points (<60%).

I reserve the right, but do not have the obligation, to curve individual components and the cumulative total course grade. I will never curve grades to your detriment.

Course Policies

Academic Integrity Statement and Policy

“An Aggie does not lie, cheat or steal, or tolerate those who do.”

“Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one’s work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case” (Section 20.1.2.3, Student Rule 20).

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at <https://aggiehonor.tamu.edu>.

All lectures and video content posted by the instructor are the intellectual property of the instructor and protected by copyright laws. Do not repost materials to other web sites or forums without the permission of the instructor.

Use of Artificial Intelligence

All work submitted must be your own original work. Ideas and contributions of others must be appropriately acknowledged, and using an AI-content generator (such as ChatGPT) to complete coursework must be appropriately acknowledged. You may use AI to organize your thoughts and edit your writing in this course, but ideas and writing should be your own first. If you are unsure about whether something may be plagiarism or academic dishonesty, please contact your instructor to discuss the issue before submitting your assignment.

Grade Disclosure

All personal information concerning your performance in this course is covered by federal privacy legislation, known as the Family Educational Rights and Privacy Act of 1974 (FERPA). No grades or status questions will be provided by telephone or email. Grades will be provided via Canvas.

Due Dates

All assignments are to be submitted by the end of the day (11:59pm) on the specified due date. Assignments will be submitted via Canvas, and time stamped upon submission. It is your responsibility to get assignments turned in on time.

Late assignments will be accepted up to one week after the due date. After the due date, assignments will receive a deduction of 20% percent of the maximum grade. Three days after the due date, assignments will receive a deduction of 50% percent of the maximum grade.

In the case of a University excused absence, please speak to the instructor to establish an appropriate due date. See *Makeup Work Policy* below.

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to Student Rule 7 in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

In the case of excused absences, students must email the instructor within one week of an excused absence in order to make arrangements to make up missed assignments. In order to make-up an assignment, you must have official documentation for the excuse (e.g. a doctor's note). You must contact the instructor or TA upon submission of the late assignment.

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to Student Rule 7 in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor (Student Rule 7, Section 7.4.1).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" (Student Rule 7, Section 7.4.2).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See Student Rule 24.)

Office Hours

When: Tuesdays 11:00 am – 12:00 pm, Dr. Moodie's office (or zoom), OMB 803F

Office hours are a time when you can speak with the instructor about questions about course content, grades, or any other specific concerns regarding the course that cannot be easily answered in an email. Office hours may be held on Zoom or in-person. If the office hours do not work with your schedule, please contact the instructor. If you need to speak privately with the instructor, please contact the instructor.

Communication

Please contact the instructor through the Canvas communication tools, or by email at amoodie+105@tamu.edu. If you do not receive a response within 2 business days, please

follow-up again. The instructor may not respond to emails or messages outside of normal business hours. Important information regarding the course may be shared via the announcements section on Canvas. It is your responsibility to regularly check the announcements and to follow any relevant instructions.

Classroom Diversity and Climate

Supporting Equity

The College of Arts & Sciences aims “to live by our Aggie Core Values and make our college, campus and community an inclusive and welcoming place for all. Together, we:

- foster a culture that values and respects the diverse backgrounds, experiences and perspectives of our students, staff and faculty.
- Engage a diverse and inclusive community in cross-disciplinary and world-class research, teaching, and outreach.
- Identify and remove barriers that affect the academic and professional success of individuals from minoritized or underrepresented groups.

Valuing diversity means we include, welcome, and support individuals with varied characteristics, experiences and backgrounds. We do not discriminate on the basis of race, color, national or ethnic origin, religious or spiritual identity, gender identity or expression, disability, age, sexual orientation, and veteran status (<https://artsci.tamu.edu/about/equity-inclusion/index.html>).

Engagement with course material and other students is always shaped by individuals' intersecting identities and personal experiences. This class seeks to treat these differences as an asset to our collective learning experience, providing a space for all students to interpret and share understanding of course content from myriad perspectives. Be respectful of the different experiences, beliefs and values expressed by your fellow students and instructor, and refrain from derogatory and generalizing comments about other individuals, cultures, groups, or viewpoints.

We will discuss social issues, economics and politics frequently in this class. Some of them will be things that are commonly mobilized in ways to divide and anger people. You have a responsibility in this class to consider how your statements will be received by others. Statements that disregard the humanity of others will not be tolerated. When faced with differing opinions, all students are expected to remain respectful of their classmates. Personal attacks or insults to entire groups of people undermine the ability of others to learn in the class, and will not be tolerated. These expectations of courtesy extend to any discussions of course material on Canvas or other platforms used in the course.

This class supports the Texas A&M University commitment to Diversity, and welcomes individuals of all ages, backgrounds, citizenships, disabilities, education, ethnicities, family

statuses, genders, gender identities, geographical locations, languages, military experience, political views, races, religions, sexual orientations, socioeconomic statuses, and work experiences (<https://diversity.tamu.edu/>).

Names and Pronouns

If you would like to make me aware of a preferred name or pronoun that differs from your university registration, please use this form: <https://forms.gle/QCkk1bv1XHSzGBQ99>. You will simply provide your UIN, preferred name, and pronoun.

Reporting Concerns

If you feel that you are experiencing discriminatory or racist behavior in this class, please inform me. You may inform me of these concerns, misconduct by students, or concerns with course material by contacting me directly or submitting an anonymous note using this form: <https://forms.gle/uzxKHsp73qHP2hSs5>. You may also report any concerns about hate or bias to <https://stophate.tamu.edu>.

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Services in the Student Services Building or at (979) 845-1637 or visit <https://disability.tamu.edu>. Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with the instructor as soon as possible; I encourage you to seek and use accommodations you are entitled to.

Title IX and Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see University Rule 08.01.01.M1):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or

paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, you will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with Counseling and Psychological Services (CAPS).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's Title IX webpage.

Statement on Mental Health and Wellness.

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in healthy self-care by utilizing the resources and services available from Counseling & Psychological Services (CAPS). Students who need someone to talk to can call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at <https://suicidepreventionlifeline.org>.

Course schedule

Date	Topic	Assignment	Date	Topic	Assignment
Module 1 - Earth Systems Science			Module 4 - Biosphere		
08/25 - M	Course Introduction		10/15 - W	Global Biomes	
08/27 - W	The Anthropocene		10/17 - F	Ecosystems Biodiversity	
08/29 - F	A History of the Earth		10/20 - M	Biodiversity Function and Conservation	
09/01 - M	No Class -- Labor Day		10/22 - W	Final Project - Groups	
09/03 - W	No Class		10/24 - F	Quiz 4	Synthesis 4
09/05 - F	No Class		Module 5 - Surface and Hydrosphere		
09/08 - M	Earth Systems Science I		10/27 - M	Hydrosphere	
09/10 - W	Earth Systems Science II		10/29 - W	Anthropocene Water Cycle	
09/12 - F	Systems Models	Synthesis 1	10/31 - F	Stream Table Activity	
09/15 - M	Quiz 1		11/03 - M	Final Project - Check-in	
Module 2 - Sustainability			11/05 - W	Geomorphology I	
09/17 - W	Sustainability		11/07 - F	Geomorphology II	Script draft
09/19 - F	Sustainability Science		11/10 - M	Final Project - Peer review	
09/22 - M	Resilient Systems		11/12 - W	Natural Hazards	Peer review
09/24 - W	Final Project - Intro		11/14 - F	Quiz 5	
09/26 - F	Quiz 2	Synthesis 2	Module 6 - Human Dimensions		
Module 3 - Climate and Oceans			11/17 - M	Final Project - Check-in	Synthesis 5
09/29 - M	Global Climate		11/19 - W	Population Growth	
10/01 - W	Carbon and Elemental Cycles		11/21 - F	Population and the Environment	
10/03 - F	Oceans and Climate		11/24 - M	Final Project - Check-in	
10/06 - M	Climate Policy		11/26 - W	No Class -- Reading Day	
10/08 - W	Final Project - Check-in	Synthesis 3	11/28 - F	No Class -- Thanksgiving Holiday	
10/10 - F	Quiz 3		12/01 - M	Urbanization and Land Use	
10/13 - M	No Class -- Fall Break	Proposal abstract	12/03 - W	Quiz 6	Final deliverables
	(due by end of Fall Break)		12/05 - F	Final Project - Presentations	
			12/08 - M	Final Project - Presentations	Self-assessment

Dr. Moodie reserves the right to modify the course schedule, including content, readings, and quiz dates.