



**ENVS 103 Natural Disasters  
COURSE SYLLABUS:**

**Term:** Fall 1 Term (Sep 5 - Oct 20)      **Year:** 2023

**INSTRUCTOR INFORMATION:**

**Instructor:** Allen E. Hillegas (M.S. Physics)

**Office Location:** Online, Remote

**Office Hours:** Email, Telephone, or Virtual by Appointment

**Office Phone:** N/A

**University Email Address:** allen.hillegas@tamuc.edu

**Preferred Form of Communication:** Email

**Communication Response Time:** 24 Hours or Less

**Instructor Notes:**

**COURSE INFORMATION**

**Materials**

This course has been designed using Open Educational Resources (OER) and/or materials that are available through the [Waters Library](#). All materials are embedded within the course or are accessible via the internet or accessible through the Waters Library resource portal. After taking the pretest, students are encouraged to bookmark, download, or save materials provided via the internet for use with assignments and projects in this class.

The following OER free online textbook will also be used as an introduction to each module:

[Natural Disasters and Human Impacts](#)

**Supplemental Materials**

Links and files will be provided in the document sharing tab within the course.

**COURSE DESCRIPTION**

Scientific principles and case studies of natural disasters, including those related to geological, meteorological, biological, cosmological, and man-made hazards and disasters. Note, this can be used to fulfill a core curriculum science requirement.

## STUDENT LEARNING OUTCOMES

Completion of this course provides the student with the knowledge to:

1. Describe the physical mechanisms that combine to form both normal and extreme weather patterns.
2. Explain how tectonic plate dynamics result in earthquakes, volcanoes, and other geologic natural disasters.
3. List the factors that contribute to other types of disasters such as biological, cosmological, or human-made disasters.
4. Describe the factors that tend to increase or decrease the severity of natural disasters, and what the effects of natural disasters are on human populations worldwide.

## Regular and Substantive Course Interaction

As a general guide, students enrolled in a three semester hour course should spend one hour engaged in instructional activities and two to three hours on out-of-class work per week in a traditional semester. Students are expected to double this effort of engagement given that this course is being delivered in a seven-week term. Educational activities in this course are designed to ensure regular and substantive interaction between students and faculty to ensure that students are able to demonstrate competency.

## COURSE REQUIREMENTS

**Minimal Technical Skills Needed:** Students will need reliable computer and internet access for this course. Students must be able to effectively use myLeo email, myLeo Online D2L, and Microsoft Office.

**Instructional Methods:** This course is an online course. To be successful in this course, all content and course modules should be read and reviewed. All assignments and quizzes (both graded and not graded) must be completed. Please contact the instructor by email for any assistance.

**Student Responsibilities or Tips for Success in the Course:** To be successful in this course, all content and course modules should be read and reviewed. All assignments and quizzes (both graded and not graded) should be completed. Please contact the instructor by email for any assistance.

## ASSESSMENT

You will have a total of 7-weeks to complete and successfully pass all competencies with scores of 80% or better. It is strongly recommended that you complete each competency every 1.5 weeks in order to allow ample time to research and write your essay and/or take any retest(s) required on your final week of the course.

### Pre-test

The purpose of the pre-test is to provide a baseline understanding of your knowledge in this competency. Pre-tests are taken once and should be completed upon the first couple of days of a CBE academic term or entry into a course if a student is an accelerator. The pre-test is required before you begin studying course materials. If students do not make at least 80% on the pretest, they will be expected to complete assignments, quizzes, and other course content to prepare for the post-test and culminating project. Students are required to complete the post-test even if scoring 80% or higher on the pre-test. The grade on the pre-test does **not** count in the final grade for this course.

### Post-tests

The end-of-module comprehensive exams that assesses student knowledge and understanding of major concepts, theories, processes, etc., in the course/module. A **score of 80% or higher is required** to demonstrate competency. **DUE: Last day of week 7, Friday by 11:59 PM CST.**

If you score less than 80% on the post-test, you will have an opportunity to review the material and retake the post-test two additional times. Students who fail the post-test should review feedback from the instructor before reattempting the post-test. If the post-test score is less than 80% within three attempts, students will receive a grade of "F" in the course and will be required to retake the course in the new term.

**\*\*PLEASE NOTE, IF YOU SCORE 80% OR BETTER THE FIRST POST-TEST ATTEMPT, THAT GRADE WILL REMAIN\*\***

## Culminating Project

The project assesses your knowledge of terms and the application of concepts presented in this course. A **score of 80% or higher is required** to demonstrate competency. **DUE DATE if you want feedback for revisions: End of week 6. HARD DUE DATE: Last day of week 7, Friday by 11:59 PM CST.**

If students score less than 80% on the culminating project, they will have an opportunity to review the material and resubmit the project up to two additional times. If the culminating project is less than 80% within three attempts, students will receive a grade of F in the course and will be required to retake the course in the new term.

## GRADING

A score of 80% or higher on all Post-Tests and the Event Essay is required to demonstrate competency and receive credit for the course. The following items will be used to calculate the final grade in the course.

Item	Worth
Post-Test 1	20 points
Post-Test 2	20 points
Post-Test 3	20 points
Post-Test 4	20 points
Event Essay	20 points
<b>Total</b>	<b>100 points</b>

## Grading Scale

A = 90%-100%

B = 80%-89%

F = 79% or Below

## Acceleration Process

Students enrolled in competency-based education courses in the College of Innovation and Design are permitted to accelerate from one CBE course to another during a seven-week academic term under certain conditions. The request to accelerate from one course to another must be initiated by the student upon successful completion of currently enrolled CBE courses. Students are responsible for maintaining communication with faculty and their assigned advisor(s) throughout the acceleration process. Students who fail a course or who drop/withdraw from a CBE course are not eligible for acceleration. Student may only request permission to accelerate in one course at a time. Request to accelerate is initiated and completed by 5:00 pm CST on the fifth Friday of a seven-week academic term.

## Process

1. Student successfully completes all required coursework in their CBE courses(s) with a grade of "A" or "B."
2. Student receives emailed verification from the assigned instructor that the course has been satisfactorily completed (Grade of A or B only).
3. Student contacts assigned advisor to provide proof of completion and discuss eligibility for acceleration into another course.

## TECHNOLOGY REQUIREMENTS

### LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are the technical requirements

#### Learning Management System (LMS) Requirements:

View the [Learning Management System Requirements Webpage](#).

#### LMS Browser Support:

Learn more on the [LMS Browser Support Webpage](#).

#### YouSeeU Virtual Classroom Requirements:

Visit the [Virtual Classroom Requirements Webpage](#).

## ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903-468-6000 or [helpdesk@tamuc.edu](mailto:helpdesk@tamuc.edu).

**Note:** Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

## COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

### Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 877-325-7778. Other support options can be found on the [Brightspace Support Webpage](#).

### Interaction with Instructor Statement

This is an online course; therefore, expect most communication to be online as well. If you have any questions or are having difficulties with the course material, please contact your instructor. Correspondence will always be through university email (your "myLeo" mail) and announcements in myLeo online (D2L). The instructor will make every effort to respond to emails within 24 provided the correspondence follows the requirements listed below. Students are encouraged to check university email daily.

#### All emails from students should include:

- **Course name and subject in the subject line (ex. EDCB 517 – Posttest)**
- **Salutation**
- **Proper email etiquette (no "text" emails – use proper grammar and punctuation)**
- **Student name and CWID after the body of the email**

## COURSE AND UNIVERSITY PROCEDURES/POLICIES

### Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

## **Student Conduct**

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail online in the [Student Guidebook](#).

Students should also consult the [Rules of Netiquette Webpage](#) for more information regarding how to interact with students in an online forum.

## **TAMUC Attendance**

For more information about the attendance policy, please view the [Attendance Webpage](#) and the [Class Attendance Policy](#)

## **Academic Integrity**

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

[Undergraduate Student Academic Dishonesty Form](#)

[Graduate Student Academic Dishonesty Form](#)

## **CID Policy on Academic Integrity**

Academic dishonesty includes cheating, complicity in cheating, multiple submissions (or substantial portions) of the same work for credit without authorization, submitting another's work, plagiarism, submitting algorithmically (AI) plagiarized work, and other acts that may reasonably be called academic dishonesty.

- Students who commit academic dishonesty will receive a grade of 0 for the assignment in the course and be issued a Written Warning that is reported to the CID Assistant Dean's office and listed in a database.
- If the student does NOT have a previous Written Warning for academic dishonesty reported in CID courses and has additional attempts available for the assignment, the student may resubmit the assignment (this applies to CBE courses only).
- If the student has a Written Warning of academic dishonesty reported in CID courses, the student may NOT resubmit the assignment, and the instructor will follow the procedure detailed in [Policy 13.99.99.R0.03](#) for Undergraduate Academic Dishonesty and report the incident to the Provost Office.

## **Use of Artificial Intelligence**

Texas A&M University-Commerce acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course.

Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and follow their instructors' guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

## **Students with Disabilities-- ADA Statement**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

## Office of Student Disability Resources and Services

Texas A&M University-Commerce Velma

K. Waters Library Rm 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: [studentdisabilityservices@tamuc.edu](mailto:studentdisabilityservices@tamuc.edu)

Website: [Office of Student Disability Resources and Services](#)

### Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information, or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

### Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

### Counseling Services

The Counseling Center at A&M-Commerce, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886- 5145. For more information regarding Counseling Center events and confidential services, please visit <http://www.tamuc.edu/counsel>.

### COURSE OUTLINE / CALENDAR

*Acceleration Process Deadline: The deadline to accelerate is the 5<sup>th</sup> Friday, by 5 pm. Please submit assignments to me no later than the 5<sup>th</sup> Wednesday, by 5 pm if you are attempting to accelerate so that I have ample time to grade them and provide you with a completion email for acceleration purposes.*

Learning Objectives and Competencies	Material to Review	Assignments/Notes
Syllabus	Several Links to websites are embedded in each set of lecture notes. Pre-tests and post-tests will include information from these as well as from the lecture notes	For each learning outcome, you will first take a pre-test to measure your current level of knowledge in the competency, then read the lecture notes, and finish with a post-test. Your final project is a Natural Disaster Essay.
<b>Comp 1: Overview of Natural Disasters— Students will demonstrate knowledge of the different types of natural disasters, their relative impact on human populations, and the factors that can increase or decrease those impacts</b>		

Learning Outcome 1	Students will identify which types of natural disasters cause the most fatalities, where they cause the highest number of fatalities, and where the most economic damage occurs	In this section we see that, in the U.S., weather disasters top the list, while world-wide, geologic disasters are more significant
Learning Outcome 2	Students will list the five broad categories of natural disasters and the specific types of disasters within each category	Here we categorize disasters into meteorological, geological, biological, cosmological, and human-caused
Learning Outcome 3	Students will list and explain several factors that either	Here we learn factors that govern the severity of natural disasters, plus the
	mitigate or exacerbate natural disasters, including the stages of emergency response following a natural disaster	sequence of events from preparation, thru the event, to response and recovery
<b>Comp 2: Meteorological Hazards — Students will demonstrate a basic understanding of the science of both normal weather and weather disasters, and how humans can best cope with weather disasters</b>		
Learning Outcome 1	Students will explain the five keys to understanding the mechanisms that create the general weather patterns	In this section, we look at atmospheric circulation, methods of uplift of air, adiabatic temperature changes, humidity, air masses and fronts
Learning Outcome 2	Students will describe three reasons why extreme weather sometimes occurs	This section discusses changes in atmospheric chemistry, jet stream, and El Niño
Learning Outcome 3	Students will describe the formation of severe storms, tornadoes, hurricanes, and other weather-related disasters, and how people can best deal with them	Here we discuss tornadoes, hurricanes, floods, wildfire, drought, extreme heat, and extreme cold
<b>Comp 3: Geologic Disasters — Students will be able to explain the causes of the major types of geologic disasters</b>		
Learning Outcome 1	Students will describe the driving force of plate tectonics, the different types of tectonic plate boundaries, and the cause of earthquakes and volcanoes as they relate to plate boundaries and motions	This section discusses the structure of Earth and the dynamic processes of plate tectonics as they relate to many of the geologic natural disasters
Learning Outcome 2	Students will explain the differences, and the reasons for the differences between the two broad types of volcanoes	We look at how plate tectonic setting causes some volcanoes to be relatively gentle while others are deadly and disastrous
Learning Outcome 3	Students will explain the characteristics of tsunami	This section discusses the cause, behavior, and effects of tsunami

Learning Outcome 4	Students will describe other types of geologic hazards including mass wasting, soil erosion, coastal erosion, sinkholes, land subsidence, and the specific disaster of Lake Nyos	Several smaller-scale or slower- scale geologic disasters are discussed here, plus an unusual type of disaster illustrated by the Lake Nyos incident in 1986
<b>Comp 4: Biological, Cosmological &amp; Unnatural Disasters — Students will demonstrate a basic understanding of major biological, cosmological, and unnatural (human caused) hazards and disasters</b>		
Learning Outcome 1	Students will describe what invasive species are, why they are a problem, list several specific invasive species, and explain the difference	In this section we focus on the ecology-disrupting problem of invasive species, and characteristics that define them and make them a greater worldwide threat than periodic pest plagues, such as locusts or fungi problems
	between an invasive species and a pest plague	
Learning Outcome 2	Students will differentiate between human disease epidemics and pandemics, and list examples of current or past pandemics	Here we view several past epidemics & pandemics, and look more closely at the current threats of HIV, Ebola, and the COVID-19 viruses
Learning Outcome 3	Students will explain the relevant factors in the potential disasters of major meteorite strikes and Earth magnetic reversals	In this section, we see that the potential for a disastrous meteorite strike is close to zero, as are the doomsday predictions related to a flip in Earth's magnetic poles
Learning Outcome 4	Students will list several past human-caused major disasters	People have created numerous disasters, mostly in the form of hazardous chemical releases—accidental or purposeful—and some due to human interference with nature
Essay	3-5 page essay over the Natural Disaster topic of your choice that has occurred within your lifetime.	A link is embedded in the assignment details that outlines FEMA.gov declared natural disasters that have occurred within your lifetime.