

# UTEP GEOG 3308/ ESCI 5308, *CLIMATE SCIENCE*

Course Reference Number 24590 / 24591

SYLLABUS version 1.0

Online only, Spring Semester 2021

**Instructor:** Dr. Tom Gill Phone: 915-747-5168 [TO LEAVE VOICE MAILS ONLY: NO TEXT MESSAGES: DR. GILL WILL CALL YOU BACK]. Email: tegill@utep.edu. You are encouraged to email me or leave a voice mail at the above number with questions and queries. I will do my best to respond to emails and voice mails within 24 hours except on weekends, but may not always be able to do so depending on my schedule.

**Regular weekly online open office /discussion hours on Zoom:** Will be determined after consulting with class once the semester starts, in order to find time(s) that are most appropriate to this semester's students. Meetings can always be set by appointment. Appointments are encouraged. Although this is an online class, I will not be available at all times, and generally will not be available on weekends.

This is a 100% online course, and requires access to Blackboard, the official UTEP course management system. Please familiarize yourself with Blackboard including the Blackboard Collaborate application, which may be used for videoconferencing. In addition to Blackboard, some course materials must be accessed through an American Meteorological Society (AMS) Climate Studies portal (described below); in addition, other educational videos will be assigned to be watched on YouTube, Vimeo, and/or other platforms.

If you experience any problems with Blackboard (not the AMS portal), please call the UTEP Help Desk at 915-747-HELP to report the problem and help get it solved. If you have access issues with the AMS Climate Studies portal, contact them directly (link provided in the materials you purchase).

Your UTEP email is the official Blackboard email. All class and personal communication from Blackboard goes there automatically. It is your responsibility to check your UTEP email account often. You may be able to set up automatic forwarding of messages from your UTEP email account to another email address.

**Course Description:** A descriptive synthesis of Earth's climate system. Areas of emphasis include: (1) scientific foundations of the study of Earth's climate system, climate dynamics and climate change, (2) basic understandings of Earth's climate system as a part of the overall Earth system and Earth's place in the solar system, (3) geological and instrumental record of climate, and (4) human impacts on the climate system, including human vulnerability and response to climate change.

**Prerequisite:** GEOG 1306 OR GEOL 1311 OR GEOL 1313 OR GEOG 3306 OR GEOP 4306/5306, OR an introductory course in geology, earth science, physical geography, OR atmospheric science: OR instructor approval.

**Texts: (one or both are required for all students)**

**(A) Climate Studies Student e-Package 2020 – 2021**

(Includes Textbook, Investigations Manual download, and Portal Access) ISBN: 978-1-944970-64-2

**“Climate Studies Student e-Package bundles *Our Changing Climate* and *Climate Studies Investigations Manual* with with *RealTime Climate Portal* access at a discounted price.”**

**Climate Studies Student Package = *Our Changing Climate* Textbook + *Climate Studies eInvestigations Manual***

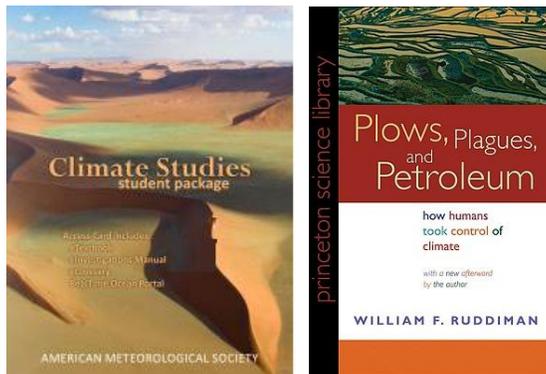
You MUST have the 2020-21 *Climate Studies Investigations Manual* and textbook, which are electronic files (e-books)! Previous editions of the textbook or investigations manual will be useless. The American Meteorological Society and (hopefully) the UTEP bookstore both sell the Student Package. If not available at the bookstore, it can be purchased through this link.

<https://edubooks.ametsoc.org/CLPK-20>

ASSIGNMENTS FROM THE BOOK AND MANUAL MAY BE GIVEN STARTING THE FIRST WEEK OF THE SEMESTER AND WILL BE DUE BY THE SECOND OR THIRD WEEK OF CLASS.

**(B) FOR GRADUATE STUDENTS AND HONORS STUDENTS ONLY:**

***Plows, Plagues and Petroleum- How Humans Took Control of Climate*, by William Ruddiman, Princeton Science Library Edition, Princeton University Press, 2010 (OR 2016 reprint): ISBN 978-0-691-14634-8.** You may rent this book or buy it as an E-book or maybe even find the full text on line, and it also is very inexpensive to purchase as a new paperback book. **ASSIGNMENTS FOR GRADUATE STUDENTS FROM THIS BOOK WILL BE GIVEN STARTING THE SECOND WEEK OF THE SEMESTER.** If you have already used this book as a text for another one of Dr. Gill's classes, please contact him: alternative assignments will be provided.



**ALSO REQUIRED:**

All students will be required to sign up at the MetEd (Meteorological Education) site operated by the COMET (Comprehensive Meteorological Education and Training) program so that they can complete the assigned online COMET modules and quizzes. If you are not already signed up for this from a previous class, go to: <https://www.meted.ucar.edu/registration.php> and follow the instructions and fill in the boxes for registration. You **MUST** check the box “Yes, my progress and quiz results may be shared with my employer, organization, or institution” and give Dr. Gill’s email [tegill@utep.edu](mailto:tegill@utep.edu) in the highlighted box “Supervisor/Instructor E-mail” so that Dr. Gill will receive the results from the quizzes you take at the COMET site.

**Additional Requirements:**

In order to participate in this course, the following requirements must be met:

- Internet connection. You will need to access Internet pages regularly in this class (see below).
- Computer and software with the ability to **download, display, and print** Graphical Image Files (.gif) and text files (.html and .txt) from the Internet.

**In addition to Blackboard (see above), you will also be required to regularly log in to a special Climate Studies online homepage (portal) which can be accessed through the information you receive when you purchase the “Climate Studies Student e-Package.” Each individual enrolled in this course by buying the student package will be given a unique ID and password to access the Portal.**

The web sites listed above will be used to provide all materials for this course.

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**This course will follow to a large extent the American Meteorological Society’s Climate Studies curriculum.**

**Course Objectives:** By successfully completing this course, students will develop a solid working understanding of Earth’s climate system. Primary areas of emphasis will include: (1) scientific foundations of Earth’s climate system and climate dynamics, (2) basic understandings of climate behavior as a part of the Earth system, (3) the geological and instrumental record of climate, and (4) human impacts on the climate system, including human vulnerability and response to climate change. The background and skills gained during this course may be important to their future careers and lives as a citizen in a global community impacted by climate change.

**Course Format:** This class will be offered completely online and asynchronously. Office hours will be provided. Materials will include pre-recorded lectures and videos, reading and homework assignments, tests and other assessments, and/or other items.

**Attendance and Grading:** Attendance will not be taken since this is an online course but you will fall behind if you do not complete all the assigned materials each week. but is strongly encouraged; part of the grade will be based on class participation and discussion. *If you know you cannot participate in class during a particular week, please let Dr. Gill know in advance!* Some of the material covered in the online video lectures will NOT be in the book, and some of the material from the book will not be covered in class and exams. You will be responsible for both. You will be responsible for the material in the book, the AMS web portal, and the materials provided and/or assigned on Blackboard and in the video lectures.

The final grade for the course will be based on:

60% Homework/ exercises (including, for graduate students, additional weekly writing assignments), in-class assignments (including quizzes and assessments), and class participation

40% Best Four Out of Five Quizzes (Open-book take home quizzes will be given every three weeks or so, covering three chapters. Each one counts 10% of your grade. However, your lowest quiz score will be dropped.)

For graduate students, more assignments will be required than for undergraduates, and there may be extra questions on examinations to be completed by graduate students only.

● *Planned Letter Grading:* A  $\geq$  90% of top score; B 80-89% of top score; C 70-79% of top score; D 60-69% of top score; F < 60% of top score.

**Policy on Late Homework/ Assignments:** Unless otherwise notified by Dr. Gill, NO homework or other assignments will be accepted late except for reasons other than illness or injury (doctor's note required), the instructor's prior approval, or when a student is required to be on official University or government business (documentation required). Since this is a coordinated nationwide curriculum, it is crucial that all assignments be turned in on schedule.

**Policy on Make Up Examinations:** Unless otherwise notified by Dr. Gill, NO make-up quizzes will be given. All students may drop one of the five assigned quizzes, so all students may miss one quiz without penalty.

**Students with Disabilities:** If you have (or think you may have) a disability, and need accommodation, contact the Center for Accommodations and Support Services at (915) 747-5148 (voice or TTY), visit their office in Union East Room 106, or by E-Mail at [cass@utep.edu](mailto:cass@utep.edu). This is the office at UTEP that is designated to determine eligibility for accommodations and services to students with disabilities, and will arrange for any necessary accommodations.

**Academic (dis)honesty and other issues:** Academic dishonesty is prohibited and considered a violation of the UTEP Handbook of Operating Procedures. It includes but is not limited to cheating, plagiarism, and collusion. In this class, since it is an upper division science course, you are expected to complete your own work, but consultation with your classmates and others (collaboration) is encouraged though not required on homework assignments and exercises (but NOT for tests).

Every week, you are expected to

- (1) Review the posted materials including presentations from Dr. Gill and the American Meteorological Society, videos and other materials assigned in Blackboard in each week's "Instructions and Assignments," and reading the assigned chapter in the textbook as well as the posted Learning Objectives. By the end of each week and each chapter, make sure you have learned and can understand each one of the Learning Objectives, and have read, listened, and/or viewed all the materials listed above. The quizzes will include almost all of their questions specifically related to and derived from the Learning Objectives for each week. There will be approximately 50 to 70 Multiple Choice Questions posted every week. You are not required to answer and turn in answers to these questions for credit. However, approximately five to seven of the Multiple Choice Questions for each chapter will appear on the quiz.
- (2) Complete and turn in (through Blackboard) an Investigation or Investigations from the E- Investigations Manual, AND
- (3) Access the Climate Studies online homepage (portal), review material there, and complete and turn in (through Blackboard) additional Investigation or Investigations called "Current Climate Studies."
- (4) Occasionally, you will also be assigned to access the COMET web page (see above) and complete online modules which include viewing a video or videos, and successfully completing an online quiz.
- (5) Follow any other instructions provided by Professor Gill for handling your learning materials.

### **Homework Assignment Due Dates and Posting of Course Materials:**

**Homework assignments (including Current Climate Studies, Investigations from the e-Investigations Manual, and/or any other assigned homework) must be uploaded to Blackboard by the assigned date and time, generally at least one week from the time the assignments are posted online. Class materials for each week/chapter including homework assignments will be uploaded to Blackboard on Monday or Tuesday.**

The Climate Studies online homepage ("portal") may be accessed by the following address:

(This information is provided to you when you download or buy the book. You will receive a unique login and password.)

<https://edubooks.ametsoc.org/user/anonymous>

**Gain access by inputting your ID and password, and clicking on "LOGIN".**

If you lose your login ID and password, you will lose access to this information!

Once you access the Online Climate Studies homepage, each boxed item under the major headings is an active link to the information identified by that title.

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### **Blackboard**

The Blackboard site will be used to provide most required materials extras for this course. The AMS Online Climate Studies Portal will be used to provide other materials for this course. On the Blackboard page for this class will be a set of folders for each chapter where material is organized to view and download lectures and other materials for every week, links to video and audio files which are part of the official class presentation for every week, Learning Objectives, Multiple Choice Questions, and instructions for additional reading and viewing assignments. The Blackboard site will be organized by week of the course (corresponding to chapter).

Additional miscellaneous materials are available through the Online Climate Studies portal homepage. Some of these may be assigned by Dr. Gill.

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**COURSE DROP: the College of Science aligns with UTEP with respect to course drop dates. No requests for a withdrawal will be approved after the College of Science drop date. Students can always petition the Registrar for a complete withdrawal from all courses pending documentation.**

**EXPECTED Course Outline:**

**NOTE: This schedule is fluid, just like the atmosphere, and could change based on the needs, requirements and opportunities of the students, professor, availability of new materials, and the actual atmospheric conditions and phenomena which may be observable or happening on any given day.**

Reading of various chapters from the book is required for each week of online study below. You will be expected to do the readings and access the Online Climate Studies home page, as well as Blackboard, every week, as detailed above in the syllabus. The online lectures, videos, and other assignments and posted materials are considered an addition to/illustration of the readings and material from the AMS Climate Studies portal, and may not always match what is in the text or the online Climate Studies portal material.

CHAPTER #	WEEK STARTING	TOPIC
1	JAN 19	Introduction to Course : Earth's Climate as a Dynamic System
2	JAN 25	Observing and Monitoring Earth's Climate System
3	FEB 1	Tools for Investigating Earth's Climate System
4	FEB 8	Radiation, Heat, Temperature and the Earth's Climate System QUIZ 1 ON CHAPTERS 1-3
5	FEB 15	Global Water Cycle and Climate
6	FEB 22	Global Atmospheric Circulation
7	MAR 1	Atmosphere-Ocean Relationships QUIZ 2 ON CHAPTERS 4-6
8	MAR 8	Causes of Climate Change
	MAR 15	SPRING BREAK
9	MAR 22	Paleoclimate
10	MAR 29	Climate of the Future QUIZ 3 ON CHAPTERS 7-9
12	APR 5	Climate Change Mitigation and Adaptation
13	APR 12	Vulnerabilities and Public Policy Response to Climate Change
14	APR 19	Climate Science In A Changing Society QUIZ 4 ON CHAPTERS 10, 12, 13
	APR 26	TBA
	MAY 3	TBA QUIZ 5, to be completed date/time TBA- In addition to Chapter 14, part of the quiz will be a repeat of prior quiz questions from quizzes 1, 2, 3, and/or 4.