

UTEP *CLIMATE SCIENCE* SYLLABUS *ver. 1.0*

Spring Semester 2016

GEOG 3308 (CRN 23995)- ESCI 3308 (CRN 27679)- ESCI 5308 (CRN 27680)-

A course page will be set up on Blackboard for this class.

Instructor: Dr. Tom Gill **Office:** GEOL 401A. **Phone:** 915-747-5168. **email:** tegill@utep.edu.

Office hours: Tuesday 3:30 to 5 PM, Wednesday 4 to 5 PM, Thursday 4:30 to 5:30 PM, and by appointment.

Appointments are encouraged. I reserve the right to not be able to see you if you come by outside of office hours without an appointment.

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

Texts: (required)

(A) **Climate Studies Student e-Package 2015 – 2016 (Includes Textbook, Investigations Manual download, and Portal Access)** ISBN: 9781940033457. See: <https://bookstore.ametsoc.org/content/edit-product-book-climate-textbook-ed1-rental-0> “Climate Studies Student e-Package bundles *Our Changing Climate* and *Climate Studies Investigations Manual* with with RealTime Climate Portal access at a discounted price. **Instructions for your file download and portal access will be included with your e-textbook.”**

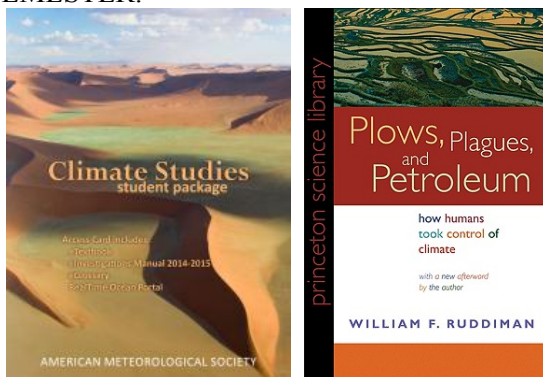
You MUST have the 2015-16 Investigations Manual and textbook, which are electronic files. Previous editions of the textbook or investigations manual will be useless.

If not available at the bookstore, it can be purchased through this link.

<https://bookstore.ametsoc.org/content/edit-product-book-climate-textbook-ed1-rental-0>

ASSIGNMENTS FROM THE BOOK AND MANUAL WILL BE GIVEN STARTING THE FIRST WEEK OF THE SEMESTER AND WILL BE DUE ON THE SECOND CLASS MEETING.

(B) **FOR GRADUATE STUDENTS ONLY: *Plows, Plagues and Petroleum- How Humans Took Control of Climate*, by William Ruddiman, Princeton Science Library Edition, Princeton University Press, 2010: ISBN 978-0-691-14634-8.** You may rent this book or buy it as an E-book, however, it is very inexpensive to purchase as a new paperback book. ASSIGNMENTS FROM THE BOOK AND MANUAL WILL BE GIVEN STARTING THE SECOND WEEK OF THE SEMESTER.



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 take the 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. Please 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 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 an Internet page regularly in this class (see below). *There may be pop quizzes to make sure you have accessed this information!*
- 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 which can be accessed through the information you receive when you purchase the “Climate Studies Student e-Package.”

The web sites listed above will be used to provide important extras for this course, as well as to access required materials for homework assignments.

Each individual enrolled in this course by buying the student package has a unique ID and password.

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 include lectures, reading and homework assignments, tests and other assessments, and/or opportunities for individual research. The course schedule will not be written in stone (more like written in air?) because opportunities may be taken to utilize the actual literal atmosphere of El Paso outside the classroom to illustrate concepts, terms, and phenomena relevant to climate and climate change. Guest lectures from practicing climatologists will be incorporated into the class if available and as the schedule permits.

Attendance and Grading: Attendance will not be taken but is strongly encouraged; part of the grade will be based on class participation and discussion. Pop quizzes may be given for which attendance at lecture is required. Students are expected to participate in the lectures and keep the classroom interactive. Students who are absent are responsible for everything covered in the class, for announcements, and for changes in schedule if any. *If you know you cannot come to class on a particular day, please let Dr. Gill know in advance!* Some of the material covered in 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.

The final grade for the course will be based on:

40% Homework/ exercises (including, for graduate students, additional weekly writing assignments), in-class assignments (including quizzes and assessments), and class participation

60% Tests One, Two, Three and Final Exam (Test Four) (Each test counts 15%)

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

• *Planned Letter Grading:* A ≥ 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: 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: NO make-up exams will be given for reasons other than illness or injury (doctor's note required), absence with the instructor's prior approval, or when a student is required to be on official University or government business (documentation required). Make-up exams, which may be oral, will be scheduled at a future date, and/or additional percentages of the grade may be added to the other exam(s).

Students with Disabilities: If you have (or think you may have) a disability, and need accommodation, contact the Disabled Student Services Office (DSSO) at (915) 747-5148 (voice or TTY), visit their office in Union East Room 106, or by E-Mail at dss@utep.edu. DSSO 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).

Please either turn off or set to silent mode your cell phones and pagers on silent mode. In case of emergencies when you need to take a call please leave the room quietly and courteously.

EXPECTED Course Outline for lecture

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

Reading of one chapter from the book is generally required for each week of lecture below. You will be expected to do the readings and access the Climate Studies home page in advance of the lecture. The lectures are considered an adjunct/illustration of and supplement to the readings and may not always match what is in the text. At least one (undergrads) or two (grad students) homework assignments will be given weekly. Additional readings will be assigned: you will be responsible for knowing the material in them.

READ CHAPTER	DATE	TOPIC
1	25-Jan	Introduction to Course / Earth's Climate as a Dynamic System
2	1-Feb	Observing and Monitoring Earth's Climate System
3	8-Feb	Basics of the Earth System Energy Budget / Climate Classification Tools
	15-Feb	TEST 1 (covering first three lectures and chapters 1, 2, 3) in first half of class
4	15-Feb	Climate, Heat, Radiation and Temperature in second half of class
5	22-Feb	Global Water Cycle and Climate
6	29- Feb	Global Atmospheric Circulation
	7-Mar	No Class, Spring Break
7	14-Mar	Atmosphere-Ocean Relationships and Climate
	21-Mar	TEST 2 (covering lectures since Test 1, and chapters 4, 5, 6 and 7) in first half of class
8	21-Mar	Natural Causes of Climate Change in second half of class
8, 9	28-Mar	Anthropogenic Causes of Climate Change / Paleoclimate (introduction)
9	4-Apr	Paleoclimate (conclusion)
10	11-Apr	Climate of the Future
	18-Apr	TEST 3 (covering lectures since Test 2, and chapters 8, 9 and 10) in first half of class
11	18-Apr	Vulnerabilities and Response to Climate Change in second half of class
12	25-Apr	Response to Climate Change and Public Policy (part 1)
13	2-May	Response to Climate Change and Public Policy (part 2)
	9-May	TEST 4 (Final Exam) (covering lectures since Test 3, and chapters 11, 12 and 13, and a few comprehensive questions) NOTE: TEST #3 WILL BE GIVEN FROM 7:00 TO 8:30 PM