

UTEP GEOG 3306, *WEATHER AND CLIMATE*

Course Reference Number 18183

SYLLABUS *version 1.0*

Online only, Fall Semester 2020

Instructor: Dr. Tom Gill

Phone: 915-747-5168 [LEAVE VOICE MAILS ONLY: NO TEXT MESSAGES: DR. GILL WILL CALL YOU BACK].

Email (preferred): 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- 48 hours except on weekends, but may not always be able to do so depending on my schedule.

Teaching Assistant: Iyasu Eibedingil, M.S., igeibedingil@miners.utep.edu

Online open office /discussion hours on Blackboard Collaborate:

TENTATIVELY, Tuesday and Thursday 1:30- 3:00 PM. Will be updated 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.

Note regarding Blackboard and online instruction:

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) Weather Studies online 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 Weather 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: Study of the composition, structure, energy flows, and motions of the Earth's atmosphere on a range of scales, the physical principles of meteorology, weather phenomena, and climate. Physical principles of atmospheric phenomena are stressed to understand weather's impact on humans, particularly with regard to severe storms.

Prerequisite: GEOG 1306 OR GEOG 3308 OR GEOL 1211 OR GEOL 1213, OR department/instructor approval.

Course Objectives: A three-credit one-semester course cannot in itself rigorously cover all aspects of atmospheric science in detail, but will be at least sufficient to impart to the student a background survey of scientific knowledge of the atmosphere. This course is to provide you with a basic scientific understanding of weather and climate. For a more detailed understanding, each week's lectures here in this class would easily be covered by an entire semester's class in another university's Atmospheric Science department required to attain a college degree in meteorology!

Expected Learning Outcomes: By successfully completing this course, you will have a working understanding of the weather we experience and the processes that produce it, and a basic understanding of climate.

Specifically, this includes the ability to understand and describe the following and more:

- Methods and techniques for monitoring weather and measuring the properties of the atmosphere.
- The composition and structure of the atmosphere.

- Solar and terrestrial radiation and how the atmosphere receives and distributes energy.
- Air pressure, winds, and atmospheric circulation from small to large scales.
- The nature and behavior of moisture in the atmosphere, clouds, and precipitation.
- Air masses and fronts.
- Cyclones, anticyclones, and other weather systems.
- Severe storms including thunderstorms, tornadoes, and tropical cyclones.
- Climate, how it differs from weather; how we study climate and what factors influence the climate.

Modular Course Format: This class will be presented completely online this semester. This course is designed using a modular format—that is, each week’s materials are “packaged together” as a single module in Blackboard so that all the materials are in one area for a given week. and includes a wide variety of materials the student is required to review as listed below. The course schedule will not be written in stone (more like written in air?) because every opportunity will be taken to review and describe the actual literal atmosphere of El Paso outside the virtual classroom to illustrate concepts, terms, and phenomena.

Required Materials: *Weather Studies Student Package*, by American Meteorological Society, 2020-2021 edition ISBN: 1-944970-59-2

The Weather Studies Student Package includes:

- Weather Studies: Introduction to Atmospheric Science, Seventh Edition (e-textbook)
- Weather Studies eInvestigations Manual for 2020- 2021
- Access to the RealTime Weather Portal

YOU MUST HAVE THE SEVENTH EDITION OF THE TEXTBOOK AND 2020- 2021 VERSION OF THE INVESTIGATIONS MANUAL, AS WELL AS AN ACCESS CODE TO ENTER THE AMERICAN METEOROLOGICAL SOCIETY PORTAL.. THE MATERIALS ARE ELECTRONIC ONLY. They are available in print for a higher price. You must have the book *and* the investigations manual (sold together as the Weather Studies Student Package for a discount price) by the beginning of the second week of class. The American Meteorological Society and (hopefully) the UTEP bookstore both sell the Student Package.

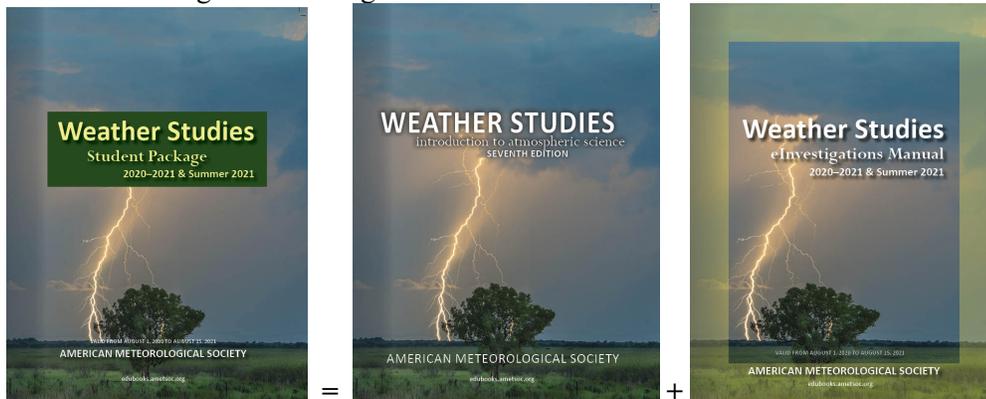
You can order the student package and the book and/or the investigations manual for download/rental and/or for printed version (higher price for printed book) from the American Meteorological Society. Find them at:

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

Chapter 1 ONLY of the book is available online at:

<https://www.ametsoc.org/ams/index.cfm/education-careers/education-program/undergraduate-faculty/weather-studies/course-components/textbook/weather-textbook-chap-1/>

Additional readings will be assigned.



Weather Studies Student Package = Weather Studies Textbook (7th Ed.) + Weather Studies eInvestigations Manual

Additional Requirements:

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

- Internet connection. You will need to access not only UTEP Blackboard but also course-specific Internet pages regularly in this class (see below). This is a three credit course that is considered fully online: you must be able to go online to complete the course.
- Weather makes sense if you follow it, so you will be encouraged to visit the Online Weather Studies page (see below) every day during the week if possible.
- Computer and software with the ability to **download** and **display** Graphical Image Files (.gif) and text files (.html and .txt) from the Internet.

This course will follow to a large extent the American Meteorological Society's Weather Studies curriculum.

Every week, in addition to

- (1) Reviewing the posted materials including presentations from Dr. Gill and others, videos and other materials posted online in Blackboard in each week's instructions and content, you are expected to also
- (2) Complete and turn in (through Blackboard) an Investigation or Investigations from the E- Investigations Manual, AND
- (3) Access the Weather Studies online homepage, review material there, and complete additional Investigation or Investigations called "Current Weather Studies."

The Weather Studies online homepage 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 Weather Studies homepage, each boxed item under the major headings is an active link to the information identified by that title.

The Online Weather Studies home page includes the following information:

The Daily Weather Summary.

Weekly Weather/ Climate News

Supplemental Information

"Current Weather Studies." This is part of each week's required homework. Each week you will be required to complete the "Current Weather Studies" online as well as assignment(s) from the e- Investigations Manual. There will be one or two homework assignments from the Investigations Manual every week.

"Math Skills" and "Critical Thinking and Diversity" exercises. You are encouraged to read each week's "Math Skills" and "Critical Thinking and Diversity" exercises. There MAY be assignments, and/or extra credit assignments given based on the Math Skills and Critical Thinking / Diversity exercises.

Student Resources - which will include many weather maps, forms, links, and diagrams.

- **Learning**

The following steps summarize the weekly routine you are encouraged to follow to complete this course (in addition to reviewing all material posted online for the course on Blackboard).

- Maintain a daily watch/observation of the weather in your neighbourhood (a) to follow the development and progress of major weather systems and features, and (b) to relate the local weather in El Paso to the bigger-scale weather picture. This watch can be conducted in a number of ways including bringing up the Online Weather Studies Homepage Daily Summary and other maps and images, viewing weather broadcasts on television or radio, and accessing the home page of the National Weather Service's El Paso office, at **weather.gov/epz** .
- Read the chapter in text on which the week's study is based. Questions/review material are provided in the book at the end of each chapter and on Blackboard by Professor Gill each week to help you access your understanding of the material. IT IS BEST IF YOU READ THE CHAPTER

IN THE BOOK BEFORE REVIEWING THE REST OF THAT WEEK'S ONLINE MATERIALS!

- Each weekday, if possible, access the Online Weather Studies home page and read that day's Daily Weather Summary, Supplementary Information, and (once each week) Weekly Weather and Climate News, Math Skills, and Critical Thinking and Diversity exercises.
- Access the course web page on Blackboard regularly, and download and read each week's Learning Objectives, Online Lecture, Additional Lecture, Weekly Supplemental Assignments, Lecture Summary, and Multiple Choice Questions. By the end of each week and each chapter, make sure you have learned and can understand each one of the Learning Objectives, have read, listened, and/or viewed all the materials listed above, and can confidently answer all the Multiple Choice Questions. *You are not expected to turn in the Multiple Choice Questions for each chapter: they are for your guidance. But, some of the questions from each chapter will be on the quizzes!* The quizzes will include almost all of their questions specifically related to and derived from the Learning Objectives and Multiple Choice Questions for each week.
- Go to the Online Weather Studies Homepage every week to acquire additional course study material for each chapter. Download the appropriate "Current Weather Studies" for each week (generally available by 10 AM Wednesday El Paso time), the Daily Summary and Supplemental Summary Files and any of the Images that are highlighted. Complete and turn in online the "Current Weather Studies" investigations as directed by Professor Gill. You may also wish to save these documents and images following the study investigation material to which they are related.
- After reviewing the provided and assigned materials for each chapter, complete the Investigation(s) assigned by Dr. Gill in "Current Weather Studies" (see above) and the "E-Investigations Manual," and turn them in online by the due date.
- Follow the instructions provided by Professor Gill for handling your learning materials.

Each of the different learning files is described below.

- *Daily Summary*

The Daily Summary is an overview describing the weather pattern across the United States and the location of major weather systems. It is updated once a day (Monday through Friday) and is generally available by 5:00 am El Paso time. The summaries of a particular week remain active links for the entire week till Sunday evening.

- *Supplemental Information*

In addition to the Daily Summary, the American Meteorological Society will often provide an additional file of supplemental information that expands on a point of the summary material or adds background information on meteorological topics via the Supplemental Information file. It can be displayed, read, and printed (if desired) whenever the position is highlighted.

- *Online Investigation File- also may be listed as "Current Weather Studies"*

Since weather is most exciting in real time, the Online Investigation File "Current Weather Studies" is designed to build upon (in near real-time) concepts found in the course assignments from your E-Investigations Manual each week. This is a .pdf file that contains approximately 5 to 7 questions relating to the weather images you display on screen and print. These files are available starting about 10 AM (El Paso time) on Mondays and/or Wednesdays. When requested, place your responses to the questions on the Investigation Answer Form that is delivered on the Online Weather Studies Homepage and turn it in on Blackboard by the due date.

- *Images*

The different Image 1, Image 2, etc. files contain the maps, images, and charts you will need to complete the questions found in the Online Investigation File "Current Weather Studies." While there are always three image positions listed, only those highlighted contain images accompanying the investigation which need to be completed. The images associated with each Online Investigation File are delivered Mondays and Wednesdays at the same time the Online Investigation File is made available (about 10 AM, El Paso time).

- *Critical Thinking/Diversity/ Math Skills*

The study of weather is a physical science which requires knowledge of mathematics, although advanced

math is not required for students in this course. Still, to succeed in today's world, it pays to be as mathematically literate as possible. The Math Skills weekly exercises will help reinforce mathematical concepts and include special concepts of particular relevance in studying the weather. The Critical Thinking/Diversity component first defines critical thinking, and then examines a specific critical thinking cognitive skill and an affective attribute that relate to each week's investigations. An activity that models some aspect of critical thinking is described and suggestions are made concerning ways in which critical thinking can be applied more generally to topics or issues that are not part of the science content of the course. Our theme for these applications is diversity. We do this because our nation is becoming increasingly diverse and our educational process has the potential of benefiting significantly by being more inclusive. Diversity is an issue that impacts all of us and in which there are many ideas to explore. Finally, it is a topic about which most of us have a great deal to learn.

Extras

The Blackboard site will be used to provide some important extras for this course, in addition to the required weekly learning materials and assignments which will be listed together by week/chapter. The Blackboard page for this class will include some additional important links you will want to refer to throughout the semester.

Several miscellaneous materials are available through the "EXTRAS" section of the Online Weather Studies homepage. Blank plotting maps, meteorological graphs, additional weather information sources, and additional notes on the homepage products are given here. These "EXTRAS" are expected to include, among others,

- Weather Map Symbols
 - The National Weather Service's Weather Glossary
 - Additional Links
 - Various Diagrams
 - Self-scoring practice multiple-choice tests for each chapter
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Attendance and Grading: Attendance will be monitored online and is strongly encouraged; part of the grade may be based on class attendance and participation or discussion in online forums. Students are expected to participate in the course and keep the "virtual classroom" interactive. Students who are absent from online activities are still responsible for everything covered in the class, for announcements, and for changes in schedule if any. *If you know you will not be able to participate in class activities during a particular week, please let Dr. Gill know in advance or as soon as possible!*

Some of the material covered in assignments and quizzes will NOT be in the book, and some of the material from the book will NOT be covered in assignments or quizzes. You will be responsible for both the material in the book, the AMS web portal, and Dr. Gill's lectures and other materials provided/required in the weekly assignments on Blackboard.

The final grade will be based on:

60% Homework/ exercises, other miscellaneous assignments, and class participation

40% Quizzes (There will be five take-home quizzes that each cover two or three chapters, are intended to be "open-book" and must be uploaded online to Blackboard just as homework is. Quiz 5 will be given during the Final Exam period but will count like any of the other quizzes. Only the four best of the five quizzes will count towards your quiz grade. Thus, you can drop your worst quiz grade or miss/not complete one quiz without penalty.)

• *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. *However, one must earn at least 50% of the total points to receive a D or better.*

Homework Assignment and Due Dates: Homework assignments (including Current Weather Studies, Investigations from the e-Investigations Manual, and/or any other assigned homework) must be uploaded to Blackboard by midnight, El Paso Texas time, on Sunday nights. Class materials for each week including homework assignments will be uploaded to Blackboard on Monday afternoons. (So, materials for each chapter/week will be uploaded on Monday afternoon, and assignments for each week must be completed by the following Sunday night at midnight.)

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).

Policy on Make Up Examinations: NO make-up quizzes will be given for reasons other than illness or injury (doctor's note required), or when a student is required to be on official University or government business (documentation required). OF THE FIVE QUIZZES, YOU WILL BE ABLE TO DROP THE LOWEST GRADE (OR SKIP/MISS A QUIZ): ONLY THE FOUR BEST QUIZ GRADES WILL COUNT TOWARDS YOUR FULL SEMESTER GRADE.

Incomplete Grade Policy: This course aligns with the UTEP College of Science policy on incomplete grades. Incomplete grades will only be given under exceptional circumstances, and, after being given, will require a contract of obligations with deadlines for grades to be converted from Incomplete to a letter grade other than F. If you believe you may not be able to complete the course please discuss this issue with me as soon as possible.

Students with Disabilities: Professor Gill has a disability and was able to receive a Ph.D. and become a scientist and professor because of the struggle for civil rights for persons with disabilities. He is an advocate for access and reasonable accommodation for other persons with disabilities. UTEP aligns with the Americans with Disabilities Act, and is committed to providing access and reasonable accommodations to persons with disabilities. If you have (or think you may have) a disability, and need accommodation, contact the Center for Accommodations and Support Services (CASS) at <https://www.utep.edu/student-affairs/cass/> (915) 747-5148 (voice or TTY). CASS 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.

COVID-19 Awareness and University Policies: This is an online course, and you will not be expected to be on campus to complete this course. However, please be aware of UTEP's ongoing response to the COVID-19 pandemic, and the guidelines provided by the Centers for Disease Control, the City of El Paso Department of Health and UTEP on staying safe and avoiding exposure to COVID-19 or spreading it to others. Persons are not permitted on campus when they have a positive COVID-19 test, exposure or symptoms. If you are otherwise permitted on campus, you will only be able to enter the campus if you are wearing a face covering.

Regardless of the requirements for this class which is 100% online, you must STAY AT HOME and REPORT TO UTEP if you (1) have been diagnosed with COVID-19, (2) are experiencing COVID-19 symptoms, or (3) have had recent contact with a person who has received a positive COVID-19 test. Reports should be made at screening.utep.edu. If you know of anyone who should report any of these three criteria, you should encourage them to report. If the individual cannot report, you can report on their behalf by sending an email to COVIDaction@utep.edu.

For each day that you are on campus—for any reason—you must complete the questions on the UTEP screening website (screening.utep.edu) prior to arriving on campus. The website will verify if you are permitted to come to campus. Under no circumstances should anyone come to class when feeling ill or exhibiting any of the known COVID-19 symptoms or indicators of exposure. Students are advised to minimize the number of encounters with others to avoid infection.

You must wear face coverings when in common areas of campus or when others are present. Students who refuse to wear a face covering and follow preventive COVID-19 guidelines when on campus will be required to leave campus and may be subject to disciplinary action according to Section 1.2.3 Health and Safety and Section 1.2.2.5 Disruptions in the UTEP Handbook of Operating Procedures.

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 quizzes). When you turn in homework and other assignments (but not

quizzes) that you have worked on or consulted with others on, please make sure to think and submit your own answers: keep in mind that your classmate may not have the right answer!

Course Drop: The College of Science aligns with UTEP with respect to the drop date of October 30th. No requests for a withdrawal will be approved after that date. Students can always petition the Registrar for a complete withdrawal from all courses pending documentation.

A NOTE ABOUT ONLINE COURSE COMMUNICATION:

Because this is a fully online class, we won't see each other in the ways you may be accustomed to: during a regularly-scheduled class time and in-person office hours. However, there are a number of ways we can keep the communication channels open:

- Office Hours: We will not be able to meet on campus or in-person, but I will still have office hours for your questions and comments about the course. My office hours will be held on Blackboard Collaborate at times indicated at the very top of this syllabus, and by appointment.
- Email: UTEP e-mail is the best way to contact me. I will make every attempt to respond to your e-mail within 24-48 hours of receipt, except for weekends. When e-mailing me, be sure to email from your UTEP student account and please put GEOG 3306 in the subject line. In the body of your e-mail, clearly state your question.
- Telephone: you may call my UTEP telephone number (915) 747-5168 and leave a voice mail. I will not be in my office in person to answer the phone, but I will receive voice mails. If you leave me a voice mail, be sure to include your name and a call-back number, and state them clearly! I will make every attempt to return your call within 24-48 hours of receipt, except for weekends.
- Announcements: I will use the Announcements function of Blackboard to regularly transmit messages to the class with updates, deadlines, changes, or other important messages. You should receive every Blackboard Announcement as an email message at your UTEP email address.

ALTERNATIVE MEANS OF SUBMITTING WORK IN CASE OF TECHNICAL ISSUES

I strongly suggest that you submit your work with plenty of time to spare in the event that you have a technical issue with Blackboard, the AMS Weather Studies portal and associated website, the Internet network, and/or your computer. I also suggest you save all your work (answers to homework assignments and quizzes) in a separate Word or Adobe PDF document as a back-up. This way, you will have evidence that you completed the work and will not lose credit. If you are experiencing difficulties submitting your work through the course website, please contact the UTEP Help Desk. You can email the Teaching Assistant or me your back-up document as a last resort.

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 from the book and assignments from the e-Investigations Manual and access the Online Weather Studies home page, as well as review the lectures and other materials posted on Blackboard, every week, as detailed above in the syllabus. The online lectures, videos, and other materials are considered an addition to/illustration of the readings and material from the AMS Weather Studies portal, and may not always match what is in the text or the online Weather Studies portal material. As described above, you are responsible for studying and understanding both the book and the lectures. Homework assignments will be given every week (except perhaps for Thanksgiving) and due by the end of Sunday night. You will be responsible for knowing the material in them and turning in assignments when required to do so.

READ CHAPTER #	DATE	TOPIC	
1	AUG 24 - 28	Introduction to the Course: Monitoring the Weather	
15	AUG 31 – SEP 4	Climate and its Difference From Weather	
2	SEPT 7 – 11	Atmosphere: Origin, Composition & Structure	QUIZ 1
3	SEPT 14 – 18	Solar & Terrestrial Radiation	
4	SEPT 21 – 25	Heat, Temperature & Atmospheric Circulation	
5	SEP 28 - OCT 2	Air Pressure	QUIZ 2
6	OCT 5 -9	Humidity, Saturation & Stability	
7	OCT 12 - 16	Clouds, Precipitation & Weather Radar	
8	OCT 19 – 23	Wind & Weather	QUIZ 3
9	OCT 26 – 30	Atmosphere’s Planetary Circulation	
10	NOV 2 – 6	Weather Systems of Middle Latitudes	
11	NOV 9 – 13	Thunderstorms & Tornadoes	QUIZ 4
12	NOV 16 – 20	Tropical Weather Systems	
	NOV 23 – 27	Catch- up week including Thanksgiving holiday.	
13		Weather Analysis & Forecasting	
	DEC 7 - 10	QUIZ 5, to be complete during the final exam week, date/time TBA- Part of the quiz will be a repeat of prior quiz questions from quizzes 1, 2, 3, and/or 4.	