

# UTEP GEOG 3306, *WEATHER AND CLIMATE*

Course Reference Number 16718

SYLLABUS version 2.0

Online only, Fall Semester 2024

**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 at the above email address 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.

**When emailing me, please include “GEOG 3306” in the subject line. Emails not including “GEOG 3306” in the subject line may not be read.**

**Do Not leave messages using Blackboard’s “Course Messages” system. These messages will not be read or responded to.**

**Teaching Assistant:** Shaila Nazneen, snazneen@miners.utep.edu

**Online open office /discussion hours on Zoom: Mondays and Tuesdays from 2:00- 3:00 PM. To access the Zoom meeting, click on the link in the class Blackboard page.**

**Meetings can also 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. For this semester, we will use the regular Blackboard, not Blackboard Ultra.

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 including Blackboard Announcements goes there automatically. **Communications to the class as a whole will be made by Blackboard Announcements.** 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 weather and climate 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.

**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 for a given week are located together in a single folder on the Blackboard home page of the course. 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 opportunities 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, 2024-2025 edition ISBN: 978-1-960459-04-6

The Weather Studies Student Package includes:

- Weather Studies: Introduction to Atmospheric Science, Seventh Edition (e-textbook)
- Weather Studies eInvestigations Manual for 2024- 2025
- Access to the RealTime Weather Portal

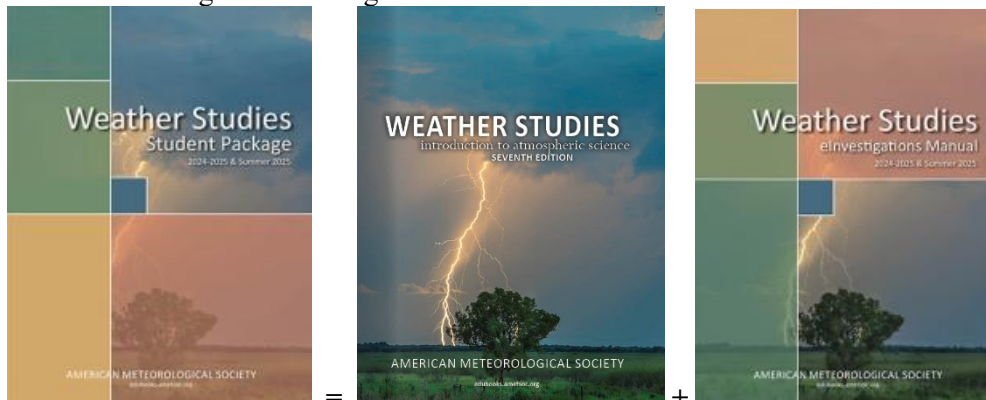
YOU MUST HAVE THE SEVENTH EDITION OF THE TEXTBOOK AND 2024- 2025 VERSION OF THE INVESTIGATIONS MANUAL, AS WELL AS AN ACCESS CODE TO ENTER THE AMERICAN METEOROLOGICAL SOCIETY PORTAL (which is where you will find the homework assignments).. THE MATERIALS ARE ELECTRONIC ONLY. They are available in print 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-24>

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 (7<sup>th</sup> Ed.) + Weather Studies eInvestigations Manual

**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, approximately one per week, which will be part of the homework grade. 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 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 in each week/chapter’s Blackboard folder 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, as part of your week’s homework, any assigned COMET modules, AND
- (3) Access the Weather Studies online homepage, review material there, and complete additional Investigation or Investigations called “Current Weather Studies” as another part of the week’s homework.

**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.

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- **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](http://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, completed any assigned COMET modules, 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 tests!* The tests will include almost all of their questions specifically related to and derived from the Learning Objectives and Multiple Choice Questions for each week as well as the COMET modules assigned 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 by the due date. 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.

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### **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:** As this is an asynchronous online class with no mandatory weekly class meetings, and since this is an upper division class, it is assumed you have learned good study habits by now. Attendance per se will not be taken. However, an indication of your attendance in the class each week is your turning in on time of that week’s homework assignments- the Investigation and the Current Weather Studies. Students are expected to participate in the course by attending the office hours. Students are responsible for everything covered in the class, for monitoring course announcements which will be sent by Blackboard Announcements to the student’s primary email address, 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 tests will NOT be in the book, and some of the material from the book will NOT be covered in assignments or tests. 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 including Investigations and Current Weather Studies for each chapter, COMET modules, other miscellaneous assignments, and class participation

40% Tests (There will be four tests that each cover three to five chapters, are intended to be “open-book” and must be uploaded online to Blackboard just as homework is. Test 4 will be given during the Final Exam period but will count like any of the other tests.)

● *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.

According to UTEP Catalog, “At the discretion of the instructor, a student can be dropped from a course because of excessive absences or lack of effort. A grade of “W” will be assigned before the course drop deadline and a grade of “F” after the course drop deadline.” Failing to turn in assignments for three weeks in a row without giving acceptable notice will put you at risk of being dropped. If I find that, due to non-attendance in the course, you are at risk of failing, you MAY (not necessarily, but possibly) be dropped from the course. I will provide advance notice via email before dropping anyone from the course for lack of turning in assignments.

**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. Assigned COMET modules must be completed by the assigned due dates on Sunday nights. Class materials for each week including homework assignments will be uploaded to Blackboard by no later than 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 (medical professional’s note may be 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 tests will be given for reasons other than illness or injury (medical professional’s note required), or when a student is required to be on official University or government business (documentation required). If a student misses a test, they will be offered an alternative arrangement.

**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 Dr. Gill 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/> or phone (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.

**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). When you turn in homework and other assignments (but not tests) 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!

**Guidance on Use of Artificial Intelligence (AI) such as ChatGPT:** Dr. Gill considers the use of an AI such as ChatGPT to provide answers to assignments and assessments, without disclosure of its use, to be an example of academic dishonesty. Please note that Dr. Gill has discovered that AI tools including ChatGPT often give the

wrong answers! The use of generative AI tools such as Chat GPT is permitted only with a disclosure that it was used, in every instance that it is used.

**Course Drop:** The College of Science aligns with UTEP with respect to the drop date of November 1st. 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 Zoom 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. 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 tests) 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 and in the COMET modules 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 week) 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 26 - 30	Introduction to the Course: Monitoring the Weather	
15	SEPT 3- 6	Climate and its Difference From Weather	
2	SEPT 9 – 13	Atmosphere: Origin, Composition & Structure	
3	SEPT 16 – 20	Solar & Terrestrial Radiation	
4	SEPT 23 – 27	Heat, Temperature & Atmospheric Circulation	TEST 1*
5	SEP 30 - OCT 4	Air Pressure	
6	OCT 7 -11	Humidity, Saturation & Stability	
13	OCT 14 - 18	Weather Analysis & Forecasting	
7	OCT 21 – 25	Clouds, Precipitation & Weather Radar	TEST 2**
8	OCT 28 – NOV 1	Wind & Weather	
9	NOV 4 – 8	Atmosphere’s Planetary Circulation	
10	NOV 11– 15	Weather Systems of Middle Latitudes	
11	NOV 18 – 22	Thunderstorms & Tornadoes	TEST 3***
12	NOV 25 – 29	<b>No class planned</b> for week of Thanksgiving holiday.	
	DEC 2 - 6	Tropical Weather Systems	
13	DEC 7 - 10		TEST 4

\*TEST 1 will cover chapters 1, 15, 2, and 3.

\*\*TEST 2 will cover chapters 4, 5, 6, and 13

\*\*\*TEST 3 will cover chapters 7, 8, 9, and 10.

TEST 4 will cover chapters 11, 12, and 50% of the points will be repeats of questions taken from tests 1, 2, and 3.