

Geology 130: Climate and Weather
Spring 2024/Imperial Valley College
Kevin Marty

Climate and Weather is an entry level course on principles and concepts of science relevant to meteorology and climate.

<---- See Sidebar for Modules, Assignments, Announcements, Quizzes and other links

Hello and welcome to Geology 130 (Climate and Weather Science). Below is the syllabus that outlines what this course is about and how we will cover the course material during this semester (along with other important information). Once you have reviewed the syllabus, please go to the modules section of Canvas (just click on the "Home" button to the upper left for buttons to each lesson module; OR click on the "Modules" button to the upper left and scroll through the lesson modules) and you can start your assignments.

Basic Course Information

Semester	Spring 2024	Instructor Name	Kevin Marty
Course Title & #	Geology 130: Climate and Weather	Email	kevin.marty@imperial.edu
CRN #	20406	Webpage (optional)	
Room	Online	Office	2776 (N/A this semester)
Class Dates	February 12-June 7	Office Hours	TBD
Class Days	Online	Office Phone #	760-355-5761
Class Times	Online	Office contact if student will be out or emergency	(Science Dept) at 760-355-6155
Units	3		

Course Description

This course will engage the student in learning the key concepts and scientific principles of Climate and Weather Science by analyzing interactions among and between Earth's Systems as matter and energy are continuously exchanged, and the influence from our position in the Solar System and Universe. We will examine the processes that occur in our atmosphere and hydrosphere, and how these processes create Earth's climate and weather. We must also consider how the Earth (geosphere) and its inhabitants (biosphere) have changed through time, how humans interact with weather and climate systems, and strategies to counter negative impacts to global climate change.

This course is intended for both science majors and non-science majors taking their first course in atmospheric science. One overriding goal of the textbook used in this course (through the American Meteorological Society) is to bridge the gap between abstract explanatory processes and the expression of those processes in everyday events- so that students with little or no science background will be able to build a non-mathematical understanding of the atmosphere.

(C-ID GEOL 130) (CSU, UC)

Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Analyze and use web-based resources in science learning (ILO1, ILO2, ILO4).
2. Utilize scientific methodology as problem-solving techniques to learn key concepts of earth science and specifically weather/climate science (ILO1, ILO2).
3. Use the vocabulary and concepts of weather/climate science to describe and consider local and global issues (ILO1, ILO4, ILO5).

Course Objectives

Upon satisfactory completion of the course, students will be able to:

1. Comprehend key concepts, developments, and reasoning strategies used in studying climate and weather such that they are able to analyze and solve problems in open-ended, inquiry environments using materials, maps, data collection tools, models and computer simulations, other class activities and discussions, and background readings.
2. Relate and evaluate the study of the climate and weather to contemporary, historical, technological and societal issues.
3. Demonstrate the ability to analyze and use web-based resources in climate and weather science learning.
4. Exhibit skills in utilizing scientific methodology as a problem-solving technique to learn key concepts of atmospheric science.

5. Demonstrate knowledge of climate and weather science vocabulary and concepts to describe local issues within a global context.
6. Reflect upon the nature and practice of climate and weather science as a process rather than a body of disconnected facts to be memorized.
7. Demonstrate skills in analyzing the factors which might affect the climate and weather of the future and to understand what ramifications on the lives of people these changes might have.

Textbooks & Other Resources or Links

The 7th edition of "Weather Studies" Student Package published by the American Meteorology Society (AMS); ISBN: 978-1-944970-73-4...AND ..."Weather Studies" eInvestigations Manual. The package gives you access to the AMS Realtime Weather Portal.

the cost of Student Package for 2022 is \$144.00 (it is a rental for the duration of 6 months). It can be read online or downloaded using ePub Download. You will see several choices at the AMS bookstore website (click on link below).

[Weather Studies Student Package 2023-2024](#)

I apologize for the cost of your books this semester; after trying to put together an entry level weather and climate studies course using a variety of sources I have found that the AMS site is the best option for entry level studies. While this isn't a lab class, the lab book and assignments from the lab book are required and should be a good enhancement to your understanding and learning the course material.

Course Requirements and Instructional Methods

Course Philosophy and Teaching Method: The subject of Atmospheric Science is as vast and diverse as the natural world around us. Together, we will explore and visualize this dynamic world in a number of ways; in no way will it be a static collection of facts. Accordingly, we will concentrate on understanding natural processes and how we explore and learn things about our planet and its weather and climate, rather than terms and factual trivia. We will concentrate on active, inquiry-based learning and will learn how to observe, think about, and understand our place in the natural environment. The critical inquiry and observational skills that we cultivate this semester should be useful in any profession, since they give you an appreciation of how climate processes in our natural world impact our environment and society.

Course Expectations: My role in this class is to provide a framework that includes theory, best practices, activities, and assignments for you to utilize in the development of your knowledge, understanding, and skills.

I care very much how and what you learn in this class, but I believe that you are responsible for participating in learning from the activities provided. This class requires significant preparation and reading.

Course Grading Based on Course Objectives

Grades: In this course, your grade will be based on points that you earn. There are approximately 670 possible points, which are outlined below:

Point Distribution Summary*	Points
Course Project: Natural Disaster Tracking (current weather disasters)	90
Discussion Questions (Critical Thinking Questions)~8 Discussion Posts (not applicable this semester)	N/A
Investigation Manual Questions (1A-15A)	~150
Chapter Review Questions (each assignment worth 5 pts)	~70
~15 Quizzes (each worth 7.5 pts) Two Tests (50 pts each)	~200
Total Points Possible	~500

-Chapter Quizzes and Chapter Review Questions; Two Tests (generally after every seven chapters):

This course covers 14 chapters from your textbook. Chapter Quizzes are due generally each week by Sunday night at 11:59 pm and consist of 15 multiple choice questions (7.5 pts total).

Generally after every seven chapters of coverage (from your textbook) a test will be required and consist of 50 multiple choice questions (and worth 50 pts each).

-Discussion Posts over Natural Disaster's Tracked including initial posts and response/discussion with classmates.

You are expected to participate in discussion boards. You are asked to submit a post over natural disasters tracked throughout the semester (minimum of 10 posts); and then discuss the disasters tracked with your classmates (see the natural disaster tracking assignment for more on this). Please use the discussions to help one another learn more about the cause and outcomes of weather-related natural disasters; to help tie into your understanding of events and how they tie into your learning. These posts will also contain the nine (9) characteristics of each of the 20 (minimum) disasters you track for your report due at the end of the semester.

-LAB WORK FROM LAB MANUAL: There are approximately 150 points to be earned for completing questions from the lab manual for each chapter. This is a significant part of your grade, and worthwhile exercises to help you understand the material and develop skills in weather and climate interpretation and analysis.

-Chapter Review Questions (graded surveys):

The chapter review questions are presented as graded surveys to help you prepare for the two tests described above. These assignments are worth 5 pts each and 70 points total toward your grade. While surveys don't affect your grade during the semester, you are expected to complete at least 75% of these questions to receive full credit at the end of the semester when the assignments and your scores are added to the gradebook.

optional: GOING FOR A HIGHER GRADE:

you will have the opportunity in this class to earn one letter grade by completing an assignment at an alternative website (THE CONCORD CONSORTIUM WEBSITE). Here you can complete an (optional) assignment over Climate/Climate Change. The assignment is presented over Spring Break (but you don't have to start it or complete it over Spring Break), and you have until June to complete it. Showing a good effort/completeness/accuracy on the topic can raise your grade one full letter (so, for example, if you end up with a "C" at the end of the semester and do a good job on one of the Concord assignments you will have a "B" for your final grade).

Due Dates:

The above assignments have specifically defined due dates as noted in the Course Schedule later on in this syllabus. It is your responsibility to consult the Course Schedule (if applicable) for all weekly tasks and due dates. The instructor will not assume the responsibility of reminding you that an assignment is due or that a quiz, for example, will be given.

Score/Grade Posting:

All scores will be posted on Canvas. You have 7 days after a score has been posted to dispute an entry. After the 7-day period, the score stands as entered. Do not wait until the end of the semester to check your scores. Grades are not assigned by a "curve", where a certain percent is assigned "A", "B", etc. Instead, you are competing against my expectations, not your classmates, and there is no predetermined percentage of "A", "B", and "C". The exact division between letter grades will not be determined until the final points are totaled, but the grade breaks will not be raised above typical values (e.g., the A-B grade break will be 90% or lower, etc.). No items are weighted—your grade is based solely on total points received.

Dates for Withdrawals:

There is a course withdrawal deadline—check the college calendar to find the course withdrawal deadline for this semester. The course withdrawal deadline is a no-tolerance policy. When the withdrawal period ends, students only have one option – a grade of F for the course.

Incomplete Grade:

A mark of "I" is given only when a student who is otherwise doing acceptable work is unable to complete a course because of an illness or other situation beyond the student's control. The student is required to arrange for the completion of the course requirements with the instructor. The university does not allow instructors to assign a grade of "I" simply because a student has quit attending classes and/or completing assignments.

Attendance

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class (does not apply to special circumstances). Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See General Catalog for details.
- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.

Classroom Netiquette

- What is netiquette? Netiquette is internet manners, online etiquette, and digital etiquette all rolled into one word.
- Netiquette rules to remember: (1) identify yourself, (2) include a subject line, (3) avoid sarcasm, (4) respect others' opinions and privacy, (5) acknowledge and return messages promptly, (6) copy with caution, (7) do not spam or junk mail, (8) be concise, (9) use appropriate language, (10) use appropriate emoticons (emotional icons) to help convey meaning, and (11) use appropriate intensifiers to help convey meaning [do not use ALL CAPS or multiple exclamation marks (!!!!!)].

Academic Honesty

- Plagiarism is taking and presenting as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to 'cite a source' correctly, you must ask for help.
- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.
- Anyone caught cheating or will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the General School Catalog for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment; (c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.

Additional Help – Discretionary Section and Language

Help Along The Way: Many students enter this class with a bit of anxiety. Other students may have various disabilities, including test anxiety, which may make traditional classroom environments very difficult. Don't worry, almost all such students before you have passed this course – many with very high grades! The success of many of these students, though, was in part because they attended class regularly, took advantage of my office hours, or obtained help from their peers. If you are having difficulty understanding the course work, please contact me immediately. Also, the college has learning centers, disability resource centers, and counseling centers to address the various needs of students. (see examples next):

- Learning Labs: There are several 'labs' on campus to assist you through the use of computers, tutors, or a combination. Please consult your college map for the Math Lab, Reading & Writing Lab, and Study Skills Center (library). Please speak to the instructor about labs unique to your specific program.
- Library Services: There is more to our library than just books. You have access to tutors in the Study Skills Center, study rooms for small groups, and online access to a wealth of resources.

Disabled Student Programs and Services (DSPS)

Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs and Services (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6313, if you feel you need to be evaluated for educational accommodations.

Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee. We now also have a fulltime mental health counselor. For information see <http://www.imperial.edu/students/student-health-center/>. The IVC Student Health Center is located in the Health Science building in Room 2109, telephone 760-355-6310.

Student Rights and Responsibilities

Students have the right to experience a positive learning environment and due process. For further information regarding student rights and responsibilities, please refer to the IVC General Catalog available online at http://www.imperial.edu/index.php?option=com_docman&task=doc_download&gid=4516&Itemid=762

Information Literacy

Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. Students can access tutorials at <http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/library-department/info-lit-tutorials/>

Anticipated Class Schedule / Calendar

Course Schedule for Geol 130: Climate and Weather Studies, Spring 2024

*All due dates and distribution of grade points is subject to change according to class needs.

Week of	Topic/Lecture/Test	Readings
Feb 12-18	Chapter 13: Weather Analysis and Forecasting Introductory Post and Discussion Question Investigation 13A (lab manual)- Weather Analysis and Forecasting Chapter 13 Quiz	Lesson 1: Chapter 13
Feb 19-25	Chapter 1: Monitoring the Weather Investigation 1A (lab manual)- Surface Air Pressure Patterns and Winds Chapter 1 Quiz Chapter Review (Survey) Questions	Lesson 2: Chapter 1
Feb 26-Mar 3	Chapter 2: Atmosphere: Origin, Composition and Structure Investigation 2A (lab manual)- Surface Weather Maps and the Atmosphere in the Vertical Natural Disaster Tracking (Week 1) Chapter 2 Quiz Chapter Review Questions (Survey)	Lesson 3: Chapter 2
Mar 4-10	Chapter 3: Solar and Terrestrial Radiation Investigation 3A (lab manual)- Solar and Terrestrial Radiation Natural Disaster Tracking (Week 2) Chapter 3 Quiz Chapter Review Questions (Survey)	Lesson 4: Chapter 3
Mar 11-17	Chapter 4: Heat, Temperature and Atmospheric Circulation	Lesson 5: Chapter 4

	<p>Investigation 4A (lab manual)- Temperature and Atmospheric Circulation</p> <p>Natural Disaster Tracking (Week 3)</p> <p>Chapter 4 Quiz</p> <p>Chapter Review Questions (Survey)</p>	
Mar 18-24	<p>Chapter 5: Air Pressure</p> <p>Investigation 5A (lab manual)- Air Pressure Change</p> <p>Natural Disaster Tracking (Week 4)</p> <p>Chapter 5 Quiz</p> <p>Chapter Review Questions (Survey)</p>	Lesson 6: Chapter 5
Mar 25-31	<p>Chapter 6: Humidity, Saturation and Stability</p> <p>Investigation 6A (lab manual)- Air Pressure, Temperature and Clouds</p> <p>Natural Disaster Tracking (Week 5)</p> <p>Chapter 6 Quiz</p> <p>Chapter Review Questions (Survey)</p>	Lesson 7: Chapter 6
Apr 1-7	<p>Spring Break</p> <p><i>(going for a higher grade; optional Concord Consortium Assignment over Climate Change- Due during June)</i></p>	Spring Break
Apr 8-14	<p>Test 1 Chapter's 1-6 and 13 (50 pts)</p> <p>Natural Disaster Tracking (Week 6)</p>	Test 1
Apr 15-21	<p>Chapter 7: Clouds, Precipitation and Weather Radar</p> <p>Investigation 7A (lab manual)- Precipitation Patterns</p> <p>Natural Disaster Tracking (Week 7)</p> <p>Chapter 7 Quiz</p> <p>Chapter Review Questions (Survey)</p>	Lesson 8: Chapter 7
Apr 22-28	<p>Chapter 8: Wind and Weather</p>	Lesson 9: Chapter 8

	<p>Investigation 8A (lab manual)- Wind and Weather</p> <p>Natural Disaster Tracking (Week 8)</p> <p>Chapter 8 Quiz</p> <p>Chapter Review Questions (Survey)</p>	
Apr 29-May 5	<p>Chapter 9: Atmosphere's Planetary Circulation</p> <p>Investigation 9A (lab manual)- Atmosphere's Planetary Circulation</p> <p>Natural Disaster Tracking (Week 9)</p> <p>Chapter 9 Quiz</p> <p>Chapter Review Questions (Survey)</p>	Lesson 10: Chapter 9
May 6-12	<p>Chapter 10: Weather Systems of Middle Latitudes</p> <p>Investigation 10A (lab manual)- The Extratropical Cyclone</p> <p>Natural Disaster Tracking (Week 10)</p> <p>Chapter 10 Quiz</p> <p>Chapter Review Questions (Survey)</p>	Lesson 11: Chapter 10
May 13-19	<p>Chapter 11: Thunderstorms and Tornadoes</p> <p>Investigation 11A (lab manual)- Thunderstorms and Tornadoes</p> <p>Natural Disaster Tracking (Make-up Week if needed)</p> <p>Chapter 11 Quiz</p> <p>Chapter Review Questions (Survey)</p>	Lesson 12: Chapter 11
May 20-26	<p>Chapter 12: Tropical Weather Systems</p> <p>Investigation 12A (lab manual)- Hurricanes</p> <p>Natural Disaster Tracking (Make-up Week if needed)</p> <p>Chapter 12 Quiz</p> <p>Chapter Review Questions (Survey)</p>	Lesson 13: Chapter 12
May 27-June 2	<p>Chapter 15: Climate and Climate Change</p>	Lesson 14: Chapter 15

	Investigation 15A (lab manual)- Climate and Climate Data Chapter 15 Quiz Chapter Review Questions (Survey)	
June 3-7	Test 2 Chapter's 7-12 and 15 Natural Disaster Tracking Assignment Due: Top 10 Disasters; Plotted Map and Essay	Test 2 (Final's Week)