SP22 - GEOL 130: Climate and Weather (20406)

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Geology 130: Climate and Weather

Spring 2022/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 and read through other important information regarding this course, and get started on your assignments when you are ready.

Basic Course Information

Semester	Spring 2022	**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 14-June 10	**Office Hours**	TBD
Class Days	Online	**Office Phone #**	760-355-5761 (N/A this semester)
Class Times **Units**	Online 3	**Office contact if student will be out or emergency**	(Science Dept) at 760-355-6155

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 climate science (ILO1, ILO2).

3. Use the vocabulary and concepts of 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 2021-22 Rental

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 700 possible points, which are outlined below:

Point Distribution Summary*	Points
Course Project: **Natural Disaster Tracking (current weather disasters)**	~115
Investigation Manual Questions	~240
Chapter Review Questions (additional prep for tests)	~65 (graded surveys; auto points)
13 Quizzes Three Tests	~280
Total Points Possible	~700

Chapter Quizzes and Chapter Review Questions; Three Tests (generally after every four chapters):

This course covers 13 chapters from your textbook. Chapter Quizzes are due generally each week by Sunday night at 11:59 pm and consist of 20 multiple choice questions (10 pts total). The chapter quizzes are timed, you will have 60 minutes (and up to two attempts within those 60 minutes) to complete the 20 questions (keep in mind once you begin a quiz, the 60 minutes runs continuously so you need to finish it in one sitting; in other words, you can't stop the timer and come back later to finish the quiz).

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

The **Chapter Review Questions** are graded 'surveys' (short essay style questions) that are available as a study guide for your three tests. These (along with your multiple choice chapter quizzes described above). The 'surveys' are recommended to help you prepare for your tests (points are given automatically for attempts and not graded for accuracy).

Possible **Discussion Boards including Introductory Post: Initial Posts and Response Posts**

Possibly (and only occasionally) you are expected to participate in discussion boards (submit a post) over a topic posed by your instructor. These may not have a right or wrong answer (subjective) but draw on your ability to research topics and formulate responses, sometimes opinions, that are supported by your research (when you state ideas/opinions support your statements with evidence or data, for example). Be thorough and concise in your posts (meaning, keep your discussion relevant, staying on topic, but not too brief; generally your responses should be 2-3 paragraphs to address the topics). Some of the discussion boards require a response post to at least one of your classmate's posts. Your initial posts are generally due on Day 5 (but if no response post is required, then on Day 7) and if there is a response post, it is due on Day 7. At this time, and because this textbook/class format is new, there are very few discussion posts required (i.e., the Introductory Post).

Course Project: (Weather-related) Natural Disaster Tracking:

Natural Disaster Tracking Assignment: Beginning during Lesson 3 (or Week 3), you are required to track current natural disasters related to severe weather events. These must be natural disasters (not those created by us such as, for example, oil spills or mine collapses) and to qualify as a disaster the event must affect people (not all events, such as tornado outbreaks, are natural disasters if there is no economic loss or injuries/fatalities- in other words, then must affect people in some way). The tracking assignment has three parts (see guidelines found under Module 3) and the first part consists of weekly students submissions of two weather-related disasters (they must be current and occur during the week the submission is due). After 10 consecutive weeks of tracking, part's 2 and 3 are due. Under Module 3 a printable map can be downloaded and printed (with latitude and longitude marks) to plot each of your disasters (provide a legend or map key with a brief description of each plot such as location and disaster type). See guidelines under "Modules" for more. This assignment is worth approximately 115 points.

LAB WORK FROM LAB MANUAL: There are approximately 240 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.

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 Studies, Spring 2022

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

Week of	Topic/Lecture/Test	Readings
Feb 14-20	Chapter 1: Monitoring the Weather	Lesson 1: Chapter 1

	Introduction to course; Get your textbook (ebook) Posts: Introductory Post Chapter Quiz and Chapter Review Questioons Investigation 1A (lab manual)- Surface Air Pressure Patterns and Winds	
Feb 21-27	Chapter 2: Atmosphere: Origin, Composition and Structure Chapter Quiz and Chapter Review Questions Investigation 2A (lab manual)- Surface Weather Maps and the Atmosphere in the Vertical	Lesson 2: Chapter 2
Feb 28-Mar 6	Chapter 3: Solar and Terrestrial Radiation Chapter Quiz and Chapter Review Questions Investigation 3A (lab manual)- Solar and Terrestrial Radiation **Natural Disaster Tracking (BEGIN) DUE Sunday nights**	Lesson 3: Chapter 3
Mar 7-13	Chapter 4: Heat, Temperature and Atmospheric Circulation Chapter Quiz and Chapter Review Questions Investigation 4A (lab manual)- Temperature and Atmospheric Circulation **Natural Disaster Tracking DUE Sunday nights**	Lesson 4: Chapter 4
Mar 14-20	Chapter 5: Air Pressure Chapter Quiz and Chapter Review Questions Investigation 5A (lab manual)- Air Pressure Change **Natural Disaster Tracking DUE Sunday nights**	Lesson 5: Chapter 5
Mar 21-27	Test 1 Chapter's 1-5 (Multiple Choice) **Natural Disaster Tracking DUE Sunday nights**	Test 1
Mar 28-Apr 3	Chapter 6: Humidity, Saturation and Stability Chapter Quiz and Chapter Review Questions Investigation 6A (lab manual)- Air Pressure, Temperature and Clouds **Natural Disaster Tracking DUE Sunday nights**	Lesson 6: Chapter 6
Apr 4-10	Chapter 7: Clouds, Precipitation and Weather Radar Chapter Quiz and Chapter Review Questions Investigation 7A (lab manual)- Precipitation Patterns **Natural Disaster Tracking DUE Sunday nights**	Lesson 7: Chapter 7
Apr 11-17	Chapter 8: Wind and Weather Chapter Quiz and Chapter Review Questions Investigation 8A (lab manual)- Wind and Weather **Natural Disaster Tracking DUE Sunday nights**	Lesson 8: Chapter 8 Spring Break

Apr 18-24	SPRING BREAK **Optional (make up) Natural Disaster Tracking DUE Sunday nights (i.e., can make up a previously missed entry if needed)**	SPRING BREAK
Apr 25-May 1	Chapter 9: Atmosphere's Planetary Circulation Chapter Quiz and Chapter Review Questions Investigation 9A (lab manual)- Atmosphere's Planetary Circulation **Natural Disaster Tracking DUE Sunday nights**	Lesson 9: Chapter 9
May 2-8	Test 2 Chapter's 6-9 (Multiple Choice) **Natural Disaster Tracking DUE Sunday nights**	Test 2
May 9-15	Chapter 10: Weather Systems of Middle Latitudes Chapter Quiz and Chapter Review Questions Investigation 10A (lab manual)- The Extratropical Cyclone **Natural Disaster Tracking DUE Sunday nights**	Lesson 10: Chapter 10
May 16-22	Chapter 11: Thunderstorms and Tornadoes Chapter Quiz and Chapter Review Questions Investigation 11A (lab manual)- Thunderstorms and Tornadoes **Natural Disaster Tracking DUE Sunday nights**	Lesson 11: Chapter 11
May 23-29	Chapter 12: Tropical Weather Systems Chapter Quiz and Chapter Review Questions Investigation 12A (lab manual)- Hurricanes **Natural Disaster Tracking ASSIGNMENT DUE (parts 2 and 3 including top ten disasters; map and short essay)**	Lesson 12: Chapter 12
May 30-June 5	Chapter 15: Climate and Climate Change Chapter Quiz and Chapter Review Questions Investigation 15A (lab manual)- Climate and Climate Data **NASA Climate Time Machine?????????? Also, Post over Chasing Ice Video and Discussion??????**	Lesson 15: Chapter 15
June 6-10	Test 3 Chapter's 10-12 and 15 (Multiple Choice)	Test 3 (Final's Week)
June 11	Commencement	Commencement