

**De Anza College**  
**Physical Science, Mathematics & Engineering Division**  
**Meteorology 12, Introduction to Climate Change**

<b>Section(s):</b>	25865 Fall 2021
<b>Instructor:</b>	Terrence J. Mullens (Pronouns: They/Them)
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<b>Email:</b>	<a href="mailto:mullensterrence@fhda.edu">mullensterrence@fhda.edu</a>
<b>Office Location</b>	Online (at <a href="https://cccconfer.zoom.us/j/6625783048">https://cccconfer.zoom.us/j/6625783048</a> )
<b>Office Hours (on Zoom):</b>	M/W 9-9:25am and 1:30-1:50pm, T/Th 11:30-12:20pm, and by Appointment (schedule an appointment at <a href="https://terrence-mullens-meeting-appointments.appointlet.com/b/terrence-mullens">https://terrence-mullens-meeting-appointments.appointlet.com/b/terrence-mullens</a> )
<b>Class Days/Time:</b>	Mon/Wed 11:30-1:20pm, PLUS, one hour independent.
<b>Classroom:</b>	Online
<b>Prerequisites:</b>	None (Some basic math skills may be helpful)

### **Introduction**

This syllabus is like the “Terms of Service” that you agree to when you download iTunes or anything else off the internet. However, this is much shorter and I actually expect you to read it! Our first quiz will be heavily based off of it! Your continued enrollment is your agreement to abide by the terms and conditions outlined in this syllabus.

### **Course Description**

Welcome to the debut of Climate Change at De Anza! Regardless of if a friend/counselor recommended this class to you, or you signed up because of RateMyProfessors, I’m really glad you’re here! This course will cover all of the fundamental concepts behind the topic of Climate Change. This includes Global Warming, The Greenhouse Effect, Natural and Human-Caused Climate Change, Paleoclimatology, Climate Modeling, and Mitigation Strategies. We’ll also cover areas of interest such as how current events relate to Climate Change, and the local impacts Climate Change.

### **Student Learning Outcomes**

Upon successful completion of this course, students will be able to:

1. Distinguish Science from Pseudoscience
2. Assess the tools and procedures used by climate scientists to reconstruct earth’s previous climate and to predict future climate shifts
3. Explain the terms and concepts of climate science and use those terms and concepts to communicate local and global issues of climate concern.

### **Course Website and Communication**

Everything you need for this course (Syllabus, Assignments, Lectures, etc.) can be found on the course page which can be accessed through Canvas. I will also make all communication (announcements/reminders, emails, etc) through the Canvas webpage.

Please enable your Canvas settings to receive notification when an announcement is posted.

Also note that it is your responsibility to stay on top of assignments and deadlines... while I try my best to send out reminders often, a lack of a reminder isn't a valid excuse for missing work (just like in the working world). Once I announce any assignment/deadline in class, any additional reminders (with the exception of necessary changes) are a courtesy.

### **Textbook and Course Materials:**

1. **Textbook:** "Climate Change: Causes, Consequences, and Solutions" by Arnold J. Bloom (2018). The textbook is a **free** online resource, which can be accessed at: <https://indd.adobe.com/view/8f2ed4a1-a1b0-4f12-b5bb-5009bbbada0f3>
2. **Computer with access to the internet and browser that meets Canvas' system requirements** (Info: <http://www.deanza.edu/online-ed/students/>)
3. **Recommended: A webcam and access to a printer and scanner (you can get by without them, but they will make your life easier).**

### **Contacting Me:**

If you need to get a hold of me for any reason, you can email me directly at [mullensterrence@fhda.edu](mailto:mullensterrence@fhda.edu), or via the messenger on Canvas. I check my email often during business hours, less often at nights/weekends (please don't feel discouraged if I don't immediately reply to an email sent at 2:30am). **If, you do not hear from me within 24 hours (48 hours on the weekend), please re-send your email.**

### **In the Classroom/Class Rules**

#### **How this class is going to work:**

Because of the crazy circumstances we find ourselves in right now, I understand that many of you are in a different situation than you were in when you originally signed up for this class (unemployed, different work hours, or even back in your home country). As such, while the class is structured for Synchronous delivery (meaning regularly scheduled face-to-face class sessions), we can find alternatives for students who can no longer make our regularly scheduled time. Please inform me if you have any such situations.

**Synchronous sessions:** Many students still prefer a traditional face-to-face type of environment, with scheduled class sessions... I don't want to take those away from them, even in this time. Therefore, synchronous, face-to-face sessions will take place **every Monday/Wednesday at 11:30am on Zoom**. Attendance at these sessions is determined by completing the daily "participation question" along with any assigned in-class activities. During these sessions, we will do a mix of traditional lecture, discussion, and group activities. Links to any activities we do will be provided both on Canvas, and in Zoom during our class session.

**Independent Sessions:** As a Hybrid class, one hour of class time a week, is carved out for independent work. Quizzes will be assigned on even weeks, while Independent

Climate investigations will be assigned on odd weeks. These activities make up the fifth hour of our 5-hour class week (with the other 4 hours being synchronous). **THESE ARE NOT HOMEWORK!!!** Rather, they make up the fifth hour of our class time.

**Issues/Grievances:** While I try my best to make this class a positive learning environment, there is always the chance that either something I or someone else in class does might not sit well with you; if that is the case, I am more than happy to hear any grievances in private. I've found that 99.9% of any issues that arise are easily settled (and to everyone's satisfaction) by a brief conversation. With that said, be respectful and professional when approaching me about any issues that arise; grievances aired in a rude and disrespectful manner won't be considered, and won't help your case.

**Attendance/Punctuality:** Attendance will be taken in each class session via a participation question at the beginning of class, which will be worth 2 points. **Students who are late (meaning, they are completing the class session more than 48 hours after it was held) may still make up the participation question, but will only get half the possible points. Two late submissions will count as an absence for dropping purposes (see section on dropping\*).** While most (if not all) class sessions will end on time, there may be a time or two where class runs a minute or two late. If you must leave immediately at the scheduled end time, you are more than free to do so without penalty. However, I ask that if you must leave, that you do so quietly and respectfully.

**\*\*\*HUGE Personal Request: While I understand that some of you are in a situation where either you don't have a webcam, or aren't in a place where you feel safe using it, I implore you to please turn on your webcam if you have one, and feel safe using it. If you do not have a webcam, please create/upload an avatar or a profile picture that you can use. I know it's a lot, but I cannot tell you how tough it is lecturing to a bunch of black boxes on Zoom... I always do my best to be well prepared for class, but so much of this learning environment depends on your involvement as well.**

**Leaving Class Early:** While I understand that 1hr and 50mins is a long time, I expect you to be present for the entire class session. About half way through the class, we'll take a short 10 minute break... however, this break is by no means a "Thanos Snap" (if you haven't seen Avengers Infinity War, you probably don't know what I mean here), and so with the rare exception/emergency, I expect you to return. I will try my best to make the entire class engaging and enjoyable, but it takes two to tango and so I rely on you to participate and be engaged in class the whole time. If I notice that a large number of people are not returning at the break, I reserve the right to institute increasingly draconian measures (such as pop quizzes, moving classwork to the second half of the session, and even good old fashioned attendance taking).

**PLEASE READ: NORMALLY, it would be assumed that you are completing your course work at home, in the United States, with a high speed internet connection and access to Canvas and Zoom. HOWEVER, I know that the current circumstances surrounding COVID-19 have given each of you unique challenges, and I don't want anything to keep you from succeeding in this class... a list of resources available to you is given in Appendix B of this syllabus. I also encourage you to reach out to me specifically regarding any particular challenges you may have during this course.**

### My Expectations (how to get an “A” in this class):

1. Attend every (or almost every) class session, and be on time, or reach out to me if you have to miss. While in class, be fully present (i.e. not on your phone/tablet). **Also, know that if you need to miss class, you are still responsible for any material that you missed that day!**
2. Put in the work, and briefly (15-20 minutes) review after each class.
3. Reach out when you need help or something is wrong; I’m happy to help!
4. Accept constructive criticism/feedback. When I took Meteorology, I didn’t get a perfect score on everything... but I learned/grew from it.
5. Become less focused on the points and more focused on the POINT! Students who take an interest in the class almost always get A’s.

### Assignments and Grading

Warm-Up Questions...	approx. 50 pts
In-Class Activities	approx. 50pts
Homework Assignments...	50 pts
Independent Climate Investigations (6 @ 10pts each, I drop your lowest one)...	50 pts
Quizzes (5 @ 25 points each, lowest dropped)...	100 pts
Carbon Footprint Project	100 pts
Final Exam...	100 pts
<b>Total...</b>	<b>approx. 500 pts</b>

#### Grading Scale:

>97% = A+, 90% = A, 88% = A-, 87% = B+, 80% = B, 78% = B-.  
77% = C+, 65% = C, 55% = D, < 55% = F

Note: I reserve the right to adjust this scale, but only to benefit you.

**In-Class Activities and Participation Questions:** Throughout the quarter, we’ll be doing numerous in-class activities that will be submitted online. These activities include group and individual assignments that will build on in-class discussions. These are designed to be low-risk, high-reward activities to help you go deeper in your understanding of course material. Some “lecture” will be assigned as homework to free up in-class time for more engaging activities.

**Homework:** There will be a homework assignment almost every week! There will either be an activity or brief video/quiz. These assignments will be assigned and completed online through the Canvas Learning Management System.

**Independent Climate Investigations:** Normally, we get to go outside and make direct measurements and experiments of our local weather. While our current pandemic makes such outside work difficult (if not impossible), there are still plenty of online Climate Investigations we can do to apply what we’re discussing to real-life situations. One hour a week is carved out in this class for independent work. On odd-numbered weeks (non-quiz weeks), the hour will be spent working on an independent climate investigation.

**Midterm Quizzes:** There will be five quizzes during the independent hour of even weeks (2, 4, 6, 8, and 10), and one comprehensive final exam. The quizzes will consist of 10 multiple choice/true-false questions, fill in the blank questions, and one or two short answer questions. I will drop your lowest midterm quiz, but will not drop the final!

**Late Work/Makeup Policy:**

1. Quizzes/Midterms: Any Quiz Makeups need to be arranged with me in advance, and will result in a 20% deduction (5 points for a quiz, 20 points for an exam), regardless of reasons. Otherwise, I will NOT grant any makeups!
2. Homework and Independent Weather Investigations: I will accept homework up to two days late, with a 10% per day (or part of a day) late penalty.

**Returned Work:** Once I return an assignment to you, it is your responsibility to hold on to it until the conclusion of the quarter in case a mistake is made with your final grade.

**Dropping**

I will drop you if:

- You miss more than 3 class sessions\* (2 late arrivals or early departures count as a missed class) -or-
- You miss more than two quizzes.

Otherwise, if you choose to drop the class, you must do so on your own, **and no later than Friday, November 12<sup>th</sup>** (or be awarded a grade of FW, which is treated as an F)

**Other Policies**

**Disabilities:** If you need any accommodation due to a disability (note taker, etc.), please don't hesitate to let me know and I'll be happy to help! All accommodations will need to be made through Disability Support Programs and Services (DSPS), which is located at RSS-141, or online at <https://www.deanza.edu/dsps/>.

**Academic Integrity:** I will NOT tolerate cheating or plagiarism of any kind! **This includes copying stuff off the internet!** While you're allowed (actually, encouraged) to work together on assignments, you must turn in your own paper, and in your own words! The first offense results in a grade of "0" on the assignment and a stern warning. Any subsequent offense results in a report filed with the dean's office.

**Safety:** Nothing we do in this class will involve using potentially hazardous materials. However, even the safest of situations can quickly become unsafe in either the event of an emergency or when a student is acting disruptively. In the latter case, any unsafe behavior will not be tolerated! Normally, this is a bigger deal in a traditional on-campus environment, but still don't do anything unsafe during our online class meetings!

**Final Grade Changes:** At the end of every term, almost without fail, at least one or two students approach me to ask for additional work/some leeway with their grade to earn a higher grade. While I appreciate the gravity that grades can have, I need to both be fair to the rest of the class (I don't think other students would appreciate it if I just bumped another student's grade without merit, or gave them extra work without making it

available to the rest of the class) and maintain my own academic integrity (i.e. I can get in trouble for awarding grades that were not earned), so I must deny all requests for a higher grade, except in instances where I made a mistake. However, I am more than happy to help you earn a good grade if you reach out to me for help before the end of the term. There will also be plenty of extra credit during the course.

**TL;DR:** Engage in the class, try your best, turn in your work on time, don't cheat/copy off of others/submit identical written work, and reach out whenever you need help and I promise you that I won't let you fail this class! Everything else is just details (still read them because I will adhere to them, but the gist is above)!

**Important dates/deadlines:**

**Deadline to Add: 10/2**

**Deadline to Drop with Refund: 10/3**

**Deadline to Drop with a W: 11/12**

**Holidays: 11/11 (Veterans Day), 11/25 and 11/26 (Thanksgiving)**

## Course Schedule

Week	Dates	Topics, Readings, Assignments, Deadlines
1	9/20, 9/22	Introduction to the Course, Global Warming vs. Climate Change, Scientific Method. <b><i>Investigation 1 – Create an Experiment</i></b>
2	9/27, 9/29	History of Earth's Climate, and Climate Science, <b><i>Quiz #1</i></b>
3	10/4, 10/6	Heat, Temperature, Radiation and the Greenhouse Effect <b><i>Investigation 2 – Greenhouse Effect – Earth vs. Venus</i></b>
4	10/11, 10/13	The Carbon Cycle, and how we've messed it up!, <b><i>Quiz #2</i></b>
5	10/18, 10/20	Natural Climate Changes, Radiative Forces <b><i>Investigation 3 – IPCC Radiative Forcings</i></b>
6	10/25, 10/27	Climate Feedback Mechanisms, Runaway Warming, and Future Projections <b><i>Quiz #3</i></b>
7	11/1, 11/3	Consequences of Climate Change – Globally and in the Bay Area Course Project Assigned <b><i>Investigation 4 – Calculate your Carbon Footprint</i></b>
8	11/8, 11/10	Energy and Carbon Footprint, <b><i>Quiz #4, Project Week 1</i></b> <b><i>Deadline to Drop with a "W": 11/12</i></b>
9	11/15, 11/17	Transportation and Mitigation Strategies, <b><i>Project Week 2</i></b> <b><i>Investigation 5 – Clean Energy and Nuclear Power</i></b>
10	11/22, 11/24	Human Perceptions of Climate Change and Climate Policies, <b><i>Quiz #5</i></b>
11	11/29, 12/1	Course Project Presentations (5 minute videos), Review for Final <b><i>Investigation 6 – Project Takeaways</i></b>
12	12/6-12/10	<b><i>Final Exam (Opens on 12/6 and due by 12/10).</i></b>

**NOTE: This schedule is tentative and Subject to Change for any reason!**

## Appendix A: Grading Rubric

**Grading Rubric:** While each assignment/exam/activity is different, I always use the following guidelines when I award points (I don't "take points off," I award points):

The maximum number of points are awarded for work that is:

1. Clearly written and answers the question.
2. Detailed and thorough, leaving no doubt that you understand the material.
3. Submitted following directions and is on time.
4. Accurate (aka your answer is correct)

A reduction in the number of points awarded (aka "points taken off") happens when:

1. You don't put your name on the assignment (5 points for an exam, 1 point for all other assignments).
2. You don't show work... *Always show your work and provide evidence.*
3. You don't follow directions, or you don't answer the question.
4. You don't explain your answer: Whenever I say "list and explain/describe," an explanation or description is required in order to earn maximum credit.
5. You include irrelevant/incorrect information. There is such a thing as saying too much (I call this "throwing everything onto your paper and expecting credit for what sticks"). Remember that you are trying to show me what you understand.
6. Using an unverified or inappropriate source (i.e. Wikipedia, Quora, etc).
7. The work is copied from a source and not put in your own words. A quote or "blurb" is okay, but when the majority of your answer isn't actually your work, it's not fair to award you points for someone else's work. When the work is copied from another student or a source without proper credit given, this also becomes an academic dishonesty issue (see my policy on academic dishonesty).
8. The submitted work is poorly written or unclear. Always proofread your work!
9. The work is submitted late, or missed due to unexcused absences.

I will share any other details regarding a specific assignment prior to attempting/submitting that assignment. Please note that whenever I grade an assignment, I approach it from an "I know nothing" standpoint, meaning that your job on every assignment in this course is to teach me the material (you know 90% of what you can teach). A lower number of points are awarded when there are holes in your explanation, major details are left out, or the information is inaccurate.

**Commonly Asked Question: "Do you grade on completion, or accuracy?"**

**My Answer: It depends... but only on the type of assignment:**

1. **Participation Questions: 100% on Completion, 0% on Accuracy**
2. **In-Class Activities: 80% on Completion, 20% on Accuracy**
3. **Climate Investigations: 50% on Completion, 50% on Accuracy**
4. **Homework, Quizzes and Final Exam: 0% on Completion, 100% on Accuracy**

## Appendix B: Technology Resources

**Comprehensive List of Resources:** <https://www.deanza.edu/online-ed/students/remotlearning.html>

**Need a computer?:** Contact Lisa Mandy at Financial aid ([mandylisa@deanza.edu](mailto:mandylisa@deanza.edu)), and she will be able to provide information on a number of resources available to get a computer.

**Need internet?:** Several internet companies are offering free wifi hotspots/internet accounts for students during this crisis. They include:

- Comcast Xfinity WiFi: <http://wifi.xfinity.com/>
- Charter Spectrum: <https://corporate.charter.com/newsroom/charter-to-offer-free-access-to-spectrum-broadband-and-wifi-for-60-days-for-new-K12-and-college-student-households-and-more>

**Need to learn Zoom fast?:** <https://ccctechconnect.zendesk.com/hc/en-us/articles/360009517753-Overview-of-ConferZoom-in-Canvas>

**Need to learn Canvas?:** <https://deanza.instructure.com/courses/272>

**\*\*\*Please note: This is NOT an exhaustive list! If you find a resource that is valuable, let me know, and I'll add it to our course Canvas Page!\*\*\***



## Appendix C: Frequently Asked Questions (aka FAQ's):

1. **Is this class entirely online:** Yes! There will be no sessions held on campus at De Anza, nor any other physical location.
2. **Are there class meetings:** Yes! Every Monday and Wednesday we'll have a class meeting at 9:30am-11:45am.
3. **Do I need to attend those class meetings:** Yes! These are a part of the 5 hours/week this class entails. While I make recordings available, you are still expected to attend and engage all class sessions.
4. **Can I work with others:** Yes, **BUT...**
  - a. You must turn in your own work and any written/problem solving questions must be **YOUR OWN WORK**. I will not award any credit for identical submissions from two different students (meaning, **PUT ANY WRITTEN QUESTIONS IN YOUR OWN WORDS!!!**... I can't emphasize this enough... I even put it in **bold**, **ALL CAPS**, underlined and *italicized*, with three exclamation points... I don't know how to further emphasize it!).
  - b. You are not allowed to work together on quizzes or the final... I need to know what YOU understand.
5. **Do you enforce your late policy and academic honesty policy:** Yes! It's not to be a jerk... it's just to be fair! It's not fair to other students if I accept late work for full credit, or allow students to turn in identical answers. Plus, when two (or more) students turn in the exact same answer, I don't know who did what, and so I can't fairly award credit.
6. **What do you "take points off" for?:** Points are mine to give, not yours for me to take away... every point is earned. However, a reduction in points is given for inaccurate answers, a lack of work shown (always show your work!), or academic dishonesty. Most questions are objective "right or wrong" questions, while others will have a set criteria provided in the feedback. **Appendix A above has a great breakdown of my grading policy.**
7. **What if campus re-opens during the quarter?:** I wouldn't count on it, however, if it is deemed safe for students to return to campus, I will begin to offer on-campus office hours/appointments. However, this class will be delivered entirely online, regardless of what happens. **But again, I don't see this happening!**
8. **What should I call you?:** Terrence is fine... So is Mr. Mullens... but don't call me "Dr." ... I don't have a PhD... nor do I want one!
9. **Are all of your syllabi this long?:** No! This one is longer because of all of the additional information related to COVID-19 and changes to course modality. I don't expect you to have this all memorized... but please keep it handy!

**Student Learning Outcome(s):**

\*Distinguish Science from Pseudoscience.

\*Assess the tools and procedures used by climate scientists to reconstruct earth's previous climate and to predict future climate shifts.

\*Explain the terms and concepts of climate science and use those terms and concepts to communicate local and global issues of climate concern