

EVSC 1300—Earth's Weather and Climate
Spring, 2014

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Office Hours
Monday, 2-3 p.m.
Wednesday, 10:30–11:30 a.m.
By appointment

Home Page Address: <http://www.evsc.virginia.edu/~evscta/EVSC1300/>
(the final portion of the address must be in CAPS) or access it via Collab.

COURSE OUTLINE

Required Text: *Meteorology Today* (ninth edition) by C. Donald Ahrens, Brooks/Cole, Cengage Learning, 2009.

The textbook is available at the bookstore and has also been placed on reserve at both Clemons Library and Brown Library in Clark Hall. Used copies should be available for sale at various venues and web sites. Electronic editions are also available. Feel free to use earlier editions of the textbook if you wish; the content is very similar although the chapters may be numbered differently.

There will be four “in-class” examinations during the semester. There will be no cumulative final exam. The exams will consist of objective-type multiple choice questions. The exam questions will be based almost entirely on the material presented in class, therefore, class attendance is essential if you are to obtain the information necessary for the exams.

(IF YOU MISS CLASS, the best strategy is to get the lecture notes from at least two of your classmates, copy them, make note of any confusing material, and see us with any questions. Neither I nor the TA have a clean set of lecture notes worthy of photocopying.)

Honor Policy: I trust every student will fully comply with all of the provisions of the UVa honor system. In addition to pledging that you have neither received nor given aid while taking your exam, your signature also affirms that you have not accessed any notes, study outlines, problem sets, old exams, answer keys, or the textbook while taking an exam and that you have not obtained any answers from another student's exam. All alleged honor violations brought to my attention will be forwarded to the Honor Committee. If, in my judgment, it is beyond a reasonable doubt that a student has committed an honor violation with regard to a given exam, that student will receive an immediate grade of 'F' (zero points) for that exam, irrespective of any subsequent action taken by the Honor Committee. Furthermore, for this course, the use of exams from prior semesters (including EVSC 1300, EVSC 150, or EVSC 250) for any purpose, including preparation for an exam, is considered to be an honor violation.

Grading: The lowest of the four exam scores will be dropped before determining your final grade. Therefore, you need not take the last exam if you are satisfied with your grade based on the first three tests. If you miss an examination for any unexcused reason, that exam grade will be the one that you drop.

Your grade will be based on the total points you receive on three exams, each of which counts as one-third of the total. Because of the statistical complexity inherent in this grading scheme, I will not provide you with letter grade approximations for each exam—your final cumulative point total is the sole criterion used in determining your course grade. Final grades will be curved in your favor if a curve is warranted. In no case will I ever curve the grades to your detriment—in this course, the curve only serves to potentially raise your final course grade. Individual extra credit is not available to anyone in this course under any circumstance.

The following exam dates will not be changed regardless of whether we are ahead of or behind schedule in the lectures. Please place these dates on your calendars and plan your study and social schedules accordingly.

Exam #1 Wednesday, February 5
Exam #2 Wednesday, March 5
Exam #3 Wednesday, April 2
Exam #4 Monday, April 28

Other Important Dates:

Drop deadline without penalty	Tuesday, January 28
Add deadline	Monday, January 27
Class canceled	Friday, March 7
Drop with “W” deadline	March 17 (no extensions can be given beyond this date)

(Above are the Arts and Sciences dates but they generally apply across all schools except for Engineering.)

(You may take this course under the credit/no credit option. Before making this decision, check with your departmental advisor regarding the acceptability of this option for your major. A grade of D– or higher is needed to receive credit.)

Other Important Course Information:

The main method by which we will keep in touch with you is via your UVa email account. This means that you need to check this account regularly for important information about the course. I will also be sending messages to you occasionally about exam information, studying hints, or mistakes I made in lecture.

If you have questions about the course or anything else, do not hesitate to send me an email. (Although I’m not suggesting that email is a substitute for office visits, in many cases you may have short or simple questions that can easily be addressed in this manner.)

The class home page is designed to provide you with basic information about the class and links to atmosphere-related web sites, many of which we'll be accessing throughout the semester. Use your free time to check out some of these sites and don't hesitate to ask questions about them.

One of the best ways to learn about the weather is to talk about the weather that we are experiencing on a daily basis. So part of this class will involve reviewing current weather maps and forecasts. Often there are interesting atmospheric events taking place that will be of interest to many of you. My Twitter account name is: WxClim1300.

You can access Twitter via the internet at "Twitter.com." If you wish to participate, you need to set up an account (this is free). You may also elect to send and receive information via your cell phone, and there may be an associated charge depending on your service plan.

For example, if there is a good example of a pileus cloud forming (a cloud that is notorious for only existing for a minute or two), I might send out a tweet ("look for pileus cloud toward the southwest") from the account listed above, perhaps with a photo. To receive this tweet, you need to be registered as a follower of my account. Note that we will NOT be using these accounts for any other purposes or for providing updates related to class.

A Few Other Issues:

Each of us has pet peeves. To be fair to you, I want to let you know mine at the outset. Don't come to class to sleep, text your friends, or check your Facebook accounts. I will not hesitate to throw you out if you are disruptive. I'm sure if our roles were reversed you would expect the same courtesy of me. This also applies to unnecessary talking during lectures. Please turn OFF all cell phones, beepers, and other electronic noise-making devices before class. I know that some professors do not allow the use of laptops during lectures because of distractions that arise from Facebook posting, email checking, etc. I also know that many of you legitimately use your laptops to take notes, to review the Powerpoint slides, etc. Please do not abuse this opportunity by inappropriate laptop usage during class.

I welcome questions during (and after) my lectures. Please ask questions!

The best thing you can do to excel in this course, aside from perfect attendance (in mind and body), is to regularly review your notes. A 30-minute time investment twice weekly will do wonders when the time comes to begin studying in earnest. If you have questions, please don't wait until the week (or the day) before the exam—that's often too late. One of the beauties of this course is how it builds on previous knowledge. Loose ends are continuously tied along the way. The danger is that, if you don't really understand radiation (the first major section), for example, problems will arise later. It's very important that you keep up with the lectures.

Detailed Explanation of Grading System

Because one of the four exam grades is dropped, the curve will always shift after the fourth exam, as at least some students will improve upon their lowest exam grade.

		SPRING, 2012			
Total, Exams 1, 2, and 3 (out of 120 possible points)				Final Total (Best 3 Exams) (out of 120 possible points)	
>= 92	A	>= 96	A		
78-91	B	82-95	B		
63-77	C	66-81	C		
51-62	D	51-65	D		
<= 50	F	<= 50	F		

As you can see, in 2012 the curve shifted by about 0 to 4 points (depending on the grade). So a person who had 78 points after the first three exams and did not take the final would end up with a C+ instead of a B-. However, the extent to which the curve shifts depends on the difficulty of the final exam, how much students improve on the last exam compared to previous exam scores, and other factors. Below is the same information for 2008.

		SPRING, 2008			
Total, Exams 1, 2, and 3				Final Total (Best 3 Exams)	
>= 95	A	>= 99	A		
84-94	B	90-98	B		
70-83	C	78-89	C		
54-69	D	64-77	D		
<= 53	F	<= 63	F		

In 2008, the shift was huge (as much as 10 points). So either than 4th exam was less difficult than in 2012 or students who had one bad exam really improved their grade by a strong performance on the last exam.

The point of this long explanation is that it is almost impossible to predict what your final grade will be after the third exam because some people will take the fourth exam and improve upon their grade, in some cases quite significantly. If you do not take the last exam, you cannot improve your grade, but it may stay the same. You will need to assess your situation after you have taken the first three exams. If you have questions about this, please feel free to ask me.

Note once again that the curve only works in your favor. There are 120 total points available (best 3 scores in 40 question exams). With no curve, out of 120 possible points, the final grades would be as follows:

>= 108	A
96-107	B
84-95	C
72-83	D
<= 82	F

So 98 points would have been an A- in 2012 and an B+ in 2008, but a B- without a curve.

The final grades DO include plus and minus grades—for simplicity, I don't show them here.

Finally, to give you some idea of what to expect for the final distribution, here is the average over the last five years that I taught this course:

>97	A
84–96	B
71–83	C
57–70	D
<=56	F

So odds are that if you get 33/40 on your 3 best exams, you'll get an A (really A minus), and 18/40 on your three best exams will be a failing grade.

READING ASSIGNMENTS/LECTURE SCHEDULE

Reading assignments will not be made in class, so you will be expected to keep up with the assigned readings on your own. Rather than assign specific pages in the book that correspond with the lecture topics, I merely refer you to the proper chapter (in parentheses in the schedule, below). **If the text covers something that we have not discussed in class, you will not be responsible for that material on the exams.**

I will try to keep to this schedule but I reserve the right to change topics depending on the pace of the class, unusual weather events, or possible guest lectures.

- Jan 13: Class organization, Introduction, basic principles (Chapter 1)
- Jan 15: Basic principles, atmospheric pressure (1, 8)
- Jan 17: Weather and weather map basics, temperature and pressure (1, 8)

- Jan 20: No Class
- Jan 22: Weather and weather map basics, temperature and pressure (1, 8)
- Jan 24: Atmospheric structure and composition (1)

- Jan 27: Earth/sun geometry: The reasons for the seasons (3)
- Jan 29: Basic principles of radiation (2)
- Jan 31: Global radiation: Balancing the books; the “Greenhouse Effect” (2)

- Feb 3: Global radiation: Balancing the books; the “Greenhouse Effect” (2)
- Feb 5: EXAM ONE**
- Feb 7: Exam one review/Global warming and climate change(18)

- Feb 10: Global warming and climate change (2, 16)
- Feb 12: Moisture variables (4)
- Feb 14: Weather and human comfort (4)

- Feb 17: Why do clouds form? (5, 6)
- Feb 19: A tutorial on cloud identification (5)
- Feb 21: Hydrometeors (or wet stuff that falls from the sky) (7)

- Feb 24: “Strange clouds” (advanced cloud identification) (5)
- Feb 26: Weather symbology (Appendix B)
- Feb 28: Air masses and fronts: interpreting weather maps (11)

- Mar 3: The Norwegian Cyclone Model: Weather changes and fronts (11, 12)
- Mar 5: **EXAM TWO**
- Mar 7: **CLASS CANCELED**

- (SPRING BREAK)

- Mar 17: Exam 2 review/The Norwegian Cyclone Model: Weather changes and fronts (11, 12)
- Mar 19: Norwegian cyclone model (finally finished!) (11, 12)
- Mar 21: Basic principles of atmospheric motion (8) (a.k.a. Toilet flushing in the Southern Hemisphere)

- Mar 24: Global wind patterns (10)
Mar 26: Cyclones and anticyclones (8)
Mar 28: Monsoons, ocean currents (9, 10)
- Mar 31: Local winds, from mountains to beaches (9)
(How to impress your friends at the beach this summer.)
- Apr 2: EXAM 3**
Apr 4: Exam 3 review/Climates of Earth (17)
- Apr 7: Climates of Earth (continued) (17)
Apr 9: Antarctic Ozone Depletion (or Why Penguins Should Wear Hats) (18)
Apr 11: Air Pollution and Air Quality (Guest lecture: Stephan De Wekker) (18)
- Apr 14: El Niño ate my homework (10)
Apr 16: Lightning (or How not to get yourself killed by weather) (14)
Apr 18: Thunderstorms and severe thunderstorms (14)
- Apr 21: Tornadoes! (14)
Apr 23: Hurricanes! (15)
Apr 25: Atmospheric optics (rainbows, halos, mirages) (19)
- Apr 28: EXAM 4**