

## EVSC 1300—Earth's Weather and Climate

Spring, 2017

Robert E. Davis (Instructor)

386-B New Clark Hall

924-0579 (office)

924-7761 (department)

e-mail: red3u@virginia.edu

Office Hours

Monday, 3:00–4:30 p.m.

Wednesday, 10:30–11:30 a.m.

By appointment

Graham Dillon (Teaching Assistant)

386 New Clark Hall

e-mail: wgd4ac@virginia.edu

Office Hours

Tuesday, 3:00–4:00 p.m.

Thursday, 2:00–3:00 p.m.

By appointment

Home Page Address: <http://climate.evsc.virginia.edu/EVSC1300/>

Note: the EVSC in “EVSC1300” must be in CAPS.

### COURSE OUTLINE

Required Text: *Meteorology Today* (ANY edition) by C. Donald Ahrens, Brooks/Cole, Cengage Learning. (The latest edition is the 11th.)

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 versions are also available. Feel free to use any of the earlier editions of the textbook if you wish; the content is very similar although the chapters may be organized 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.

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 your three best exams, each of which counts as one-third of the total. 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.

Because your total points (maximum of 120) from your best three exams (40 points each) will be curved (in your favor only), the grading scale varies from year to year based on the ability of the class and the relative difficulty of the exams. But to give you rough idea of what to expect, here is the average for the last six classes:

- A: 96 out of 120
- B: 82
- C: 69
- D: 55
- F: < 55

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

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 8**
- Exam #2**    **Wednesday, March 15**
- Exam #3**    **Wednesday, April 12**
- Exam #4**    **Monday, May 1**

Other Important Dates:

Drop deadline	Thursday, February 2
Add/Audit deadline	Wednesday, February 1
Class cancelled	Friday, March 3
Withdraw deadline	March 15 (no extensions can be given beyond this date)

(These 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.)

### Class Rules

- 1) email: All of my communication with you outside of class will be via your UVa email account (or whatever is linked via Collab). If you are not a frequent email user, plan to log on at least once daily.
- 2) Collab: In this class, I will only be using Collab to post your exam grades. Everything else that you need can be found on the class webpage ([climate.evsc.virginia.edu/EVSC1300](http://climate.evsc.virginia.edu/EVSC1300)). Add this link now to your favorite web browser.
- 3) Electronic devices: There is an increasing body of evidence that students who take notes using their computers, etc. get lower grades than students who take notes by hand. However, I know that some of you strongly prefer to use your laptops. If you wish to do so, you must turn off Facebook, Instagram, email, etc. before class starts. All cell phones must be turned off before class. (If you have an emergency issue, set your phone to vibrate and if you get a call, quietly get up and leave class to take it.) Even phones on vibrate are distractions to your fellow classmates. Failure to follow this policy will result in me dropping you from the class...please respect me and your fellow students by obeying this policy.
- 4) Disruptive behavior: Please keep unnecessary talking to a minimum. This is a large class, and it is easy to become disengaged. Do your best to focus for 50 minutes.

### How To Do Well

#### *Show Up*

I do not teach from a textbook...this course has evolved in its current form based upon years of continuous revision and updates, trial and error. Attending class is the most important factor in getting a good grade. (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.)

#### *Pay Attention*

Showing up and not paying attention is effectively the same as not showing up at all, right?

#### *Take Notes*

Although I will provide you with my Powerpoint slides, everything that you need to know will NOT be on those slides. Pay particular attention to points that I emphasize in class. (Jokes or lame attempts at jokes will not be on the exam, but feel free to take notes on them if you are so inclined.)

#### *Engage*

Ask questions, provide examples, request clarifications. See me after class or during office hours. Send me emails (<https://medium.com/@lportwoodstacer/how-to-email-your-professor-without-being-annoying-af-cf64ae0e4087#.sroi79ro7>). In many cases, I will get back to you surprisingly quickly.

*Prepare*

Read the associated pages in the textbook (many students find it better to do so AFTER the lecture rather than before, but this varies from person to person). Review (and even rewrite) your notes after class—this is a great way to begin studying for exams well before the exam date.

*Be Thorough*

There are roughly eight lectures before each exam and 40-point exams, so on average, you can expect five test questions to come from each lecture. The exams tend to be comprehensive. If there are topics that you do not understand, make every effort to figure them out prior to the test. Hoping that this topic will not be on the exam is a dangerous gamble. I welcome your questions, emails, and office hour visits!

READING ASSIGNMENTS/LECTURE SCHEDULE

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). Chapters numbers are linked to the 11th edition of the text...these may vary by edition number. **You are not responsible for material in the textbook that has not been covered in class.**

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 18: Class organization, Introduction, basic principles (Chapter 1)
- Jan 20: Basic principles, atmospheric pressure (1, 8)
  
- Jan 23: Weather and weather map basics, temperature and pressure (1, 8)
- Jan 25: Weather and weather map basics, temperature and pressure (1, 8)
- Jan 27: Atmospheric structure and composition (1)
  
- Jan 30: Earth/sun geometry: reasons for the seasons (3)
- Feb 1: Basic principles of radiation (2)
- Feb 3: Global radiation: Balancing the books; the “Greenhouse Effect” (2)
  
- Feb 6: Global radiation: Balancing the books; the “Greenhouse Effect” (2)
- Feb 8: **EXAM 1**
- Feb 10: Global warming and climate change (18)
  
- Feb 13: Exam One review/more on Global warming and climate change (18)
- Feb 15: Atmospheric humidity (4)
- Feb 17: Weather and human comfort (4)
  
- Feb 20: Why do clouds form? (5, 6)
- Feb 22: A tutorial on cloud identification (5)
- Feb 24: Precipitation (7)
  
- Feb 27: Advanced cloud identification (5)
- Mar 1: Weather map symbology (Appendix B)
- Mar 3: CLASS CANCELLED

(SPRING BREAK)

- Mar 13: Air masses and fronts (11)  
Mar 15: **EXAM 2**  
Mar 17: The Norwegian Cyclone Model: Weather changes and fronts (11, 12)
- Mar 20: Exam 2 review/The Norwegian Cyclone Model: Weather changes and fronts (11, 12)  
Mar 22: Norwegian cyclone model (finally finished!) (11, 12)  
Mar 24: Basic principles of atmospheric motion (8)
- Mar 27: Global wind patterns (10)  
Mar 29: Cyclones and anticyclones (8)  
Mar 31: Monsoons, ocean currents (9, 10)
- Apr 3: Air Pollution and air quality (19)  
Apr 5: Local winds, from mountains to beaches (9) (Guest lecture: Prof. Stephan De Wekker)  
Apr 7: Antarctic ozone depletion (Guest lecture: Prof. Kevin Grise) (19)
- Apr 10: Climates of Earth (17)  
**Apr 12: EXAM 3**  
Apr 14: Exam 3 review/Climates of Earth continued (17)
- Apr 17: El Niño (10)  
Apr 19: Lightning (14)  
Apr 21: Thunderstorms and severe thunderstorms (14)
- Apr 24: Tornadoes (15)  
Apr 26: Hurricanes (16)  
Apr 28: Atmospheric optics (rainbows, halos, mirages, etc.) (20)
- May 1: EXAM 4**