

## EVSC 1300—Earth's Weather and Climate—Spring, 2022

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### Office Hours

Monday, 2:30–4:00 p.m.  
Thursday, 10:30–11:30 a.m.  
or by appointment

*Home Page:* <http://climate.evsc.virginia.edu/evsc-1300>

### COURSE OUTLINE

*Required Text: Meteorology Today* (12th edition) by C. Donald Ahrens & Robert Henson, Cengage Learning, MindTap (You must use the MindTap version, which you can access via Collab). If you wish to also buy the physical textbook, you can do so at a deeply discounted rate after you purchase MindTap.

There will be four in-class examinations during the semester. The exams will consist of objective-type multiple choice questions and will be administered on-line via Collab. You will need to bring your laptop to class on exam days. There will be no cumulative final exam.

*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 online "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. 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 you have committed an honor violation with regard to a given exam, you 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:* Your grade will be based on the points you accumulate from two sources: the 4 exams and on-line exercises associated with the readings from each chapter. Each of these will be worth 30 points (4 exams @ 30 points each plus the on-line exercises scaled to be worth 30 points). I will drop the lowest of these five grades, so your final, course grade will be based on your highest

point total from the best 4 out of 5 sources. That means that you can skip one exam or choose not to do the on-line exercises and still complete all of the requirements for the course. Of course, the best strategy is to do the exercises and to take all four exams so that you will have one grade to drop. (FYI, last year the median grade on the on-line exercises was higher than the median grade on any of the exams, so for most of you, doing these quizzes will provide a chance to raise your course grade.) Each exam will be worth 30 points, so your maximum total points for the semester is 120.

Your final grade will be based on the total points you receive from your four best sources. 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.

Please put the following exam dates on your calendars and plan your study and social schedules accordingly.

**Exam #1: Wednesday, February 9**

**Exam #2: Wednesday, March 16**

**Exam #3: Wednesday, April 6**

**Exam #4: Monday, May 2**

*Extra Credit:* There will be a number of different opportunities for you to earn extra credit this semester. Importantly, any extra credit points that you accumulate will be applied after the final grades are curved. For example, if you end up with 85 points on the exams and A minus begins at 87, with two bonus points you will raise your final course grade from B plus to A minus.

In class, on an occasional basis, we will be doing group exercises, and I will be recording your responses using software provided by Learning Catalytics. Therefore, if you wish to participate, you need to sign up for an account by going to the “learningcatalytics.com” website on your laptop, phone, or tablet. There is a relatively small cost, so you’ll need a credit card to make the payment. For every response to class questions, you’ll receive 1/3 of an extra credit point that will be applied at the end of the semester.

In addition, I will be provided some optional, sample questions periodically to summarize topics we’ve been covering in class. If you get all of the questions correct in these exercises, you will gain 1 extra credit point. Therefore, via class participation/attendance and attempting these sample questions outside of

class, you will be able to boost your final course grade. Individual extra credit for additional work is not available to anyone in this course under any circumstance.

*Other Important Dates:*

Add deadline: February 2

Drop deadline: February 3 (everyone but SEAS)

SEAS drop deadline: March 2

Class cancelled: March 4

Withdraw deadline (drop with "W"): March 23

(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: You will take your exams on Collab and I will likewise use Collab to post your grades. However, most everything else that you will need can be found on the class webpage ([climate.evsc.virginia.edu/evsc-1300](http://climate.evsc.virginia.edu/evsc-1300)). 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, Twitter, email, etc. before class starts. All cell phones must be silenced 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. Please 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 me with any questions.)

*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). Do the assigned exercises. Review (and even rewrite) your notes—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 30-point exams, so on average you can expect four 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 not a smart strategy. I welcome your questions, emails, and office hour visits.

*Summary:* The workload for this class is not onerous and I think most of you will find the material to be interesting and useful for your daily life. If you keep up with the lectures and with reading the related chapters, you should do well. Try not to fall behind and let confusing topics fester by not asking questions.

## Notes about COVID

If you are sick, you have a responsibility to yourself and to your fellow classmates to stay home. I promise that I will not come to class if I am not feeling well. This is the appropriate behavior if you have COVID-19, influenza A/B, ebola, or any other communicable disease. Our species has managed to coexist with viruses for centuries and we will continue to do so. By taking personal responsibility, we can get past the current wave of this epidemic and have something close to a normal semester.

## 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 12th edition of the text. In the lectures, I will provide more specific page numbers for partial chapters. 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, etc.

- Jan 19: Class organization, introduction, basic principles (Chapter 1)
- Jan 21: Basic principles, atmospheric pressure (1, 8)
  
- Jan 24: Weather and weather map basics, temperature, pressure (1, 8)
- Jan 26: Weather and weather map basics, temperature, pressure (1, 8)
- Jan 28: Atmospheric structure and composition (1)
  
- Jan 31: Earth/Sun geometry: reasons for the seasons (3)
- Feb 2: Basic principles of radiation (2)
- Feb 4: Global radiation: Balancing the books, the "greenhouse effect" (2)
  
- Feb 7: Global radiation: Balancing the books, the "greenhouse effect" (2)
- Feb 9: EXAM 1**
- Feb 11: Exam 1 review; Global warming and climate change (18)
  
- Feb 14: Global warming and climate change (18)
- Feb 16: Atmospheric humidity (4)
- Feb 18: Weather and human comfort (3, 4)
  
- Feb 21: Why do clouds form? (5, 6)

- Feb 23: A tutorial on cloud identification (5)  
Feb 25: Precipitation (7)
- Feb 28: Advanced cloud identification  
Mar 2: Weather map symbology (Appendix B)  
Mar 4: Class is cancelled
- Mar 14: Air masses (11)  
**Mar 16: EXAM 2**  
Mar 18: Exam 2 review; The Norwegian Cyclone Model (11, 12)
- Mar 21: The Norwegian Cyclone Model: Weather changes and fronts (11, 12)  
Mar 23: The Norwegian Cyclone Model: Weather changes and fronts (11,12)  
Mar 25: The Norwegian Cyclone Model: Weather changes and fronts (11,12)
- Mar 28: Basic principles of atmospheric motion (8)  
Mar 30: Global wind patterns (10)  
Apr 1: Cyclones and anticyclones (8)
- Apr 4: Monsoons, ocean currents (9, 10)  
**Apr 6: EXAM 3**  
Apr 8: Exam 3 review; Climates of Earth (17)
- Apr 11: Climates of Earth (17)  
Apr 13: Local winds (9)  
Apr 15: Air quality (19)
- Apr 18: El Niño (10)  
Apr 20: Lightning (14)  
Apr 22: Thunderstorms and severe thunderstorms (14)
- Apr 25: Tornadoes (15)  
Apr 27: Hurricanes (16)  
Apr 29: Atmospheric optics (rainbows, halos, mirages, etc.) (20)
- May 2: EXAM 4**

**Disability accommodations:** If you anticipate or experience any barriers to learning in this course, please let me know. If you have a disability, or think you may have a disability, you may also want to meet with the Student Disability Access Center (<https://www.studenthealth.virginia.edu/sdac>). If you have already been approved for accommodations through SDAC, please confirm that I have received this information.

**Discrimination, Harassment, Violence, and Retaliation:** Discrimination, harassment, and retaliation are defined in the University's Preventing and Addressing Discrimination and Harassment policy ("PADH Policy") and the Preventing and Addressing Retaliation policy ("PAR Policy"). The PAR Policy not only prohibits retaliation against individuals who complain of discrimination and harassment under the PADH Policy, but also those who assist or participate in a resolution of such a complaint (e.g., an investigative witness). Students and employees who believe that they have been subjected to discrimination, harassment, or retaliation under the PADH and/or PAR Policy are encouraged to contact the EOCR office. You may report discrimination, harassment, and retaliation to the University through "Just Report It" (<https://justreportit.virginia.edu/>) or by contacting EOCR at (434) 924-3200 or [UVAEOCR@virginia.edu](mailto:UVAEOCR@virginia.edu) to speak with a member of the EOCR team.

The UVa faculty and administration are committed to providing a safe and equitable classroom environment. The University prohibits discrimination, including sexual and gender-based harassment and violence, on the basis of sex, sexual orientation, gender, and gender identity or expression in all of its programs and activities, including academics, employment, athletics, and other extracurricular activities. For more information, please see: <https://eocr.virginia.edu/title-ix>, where you can also find information about procedures for resolving prohibited conduct. Those who believe that they, or someone else, have been subjected to the above forms of conduct are encouraged to contact the Title IX office at (434)-297-7988 or [titleixcoordinator@virginia.edu](mailto:titleixcoordinator@virginia.edu). You may also report prohibited conduct through "Just Report It" or by contacting the Title IX office to speak with a member of the Title IX staff. The Title IX Policy and Procedures are also available at <https://eocr.virginia.edu/title-ix>.

In accordance with UVa policies, faculty are required to report any information disclosed by students regarding alleged acts of prohibited conduct to the Title IX Coordinator. "Confidential Employees" are exempt from this requirement, and they include various licensed professionals who are not bound to disclose.

You can find a listing of them here: <https://eocr.virginia.edu/chart-confidential-resources>.

**Final note:** I promise to do my best to treat you as an individual with dignity and respect. By agreeing to take this course, you implicitly agree to abide by the rules set forth in this syllabus. My grading policy is entirely objective—I do not link names to grades when I am determining the grade distribution.

Thanks for taking this class—I'm looking forward to a fun semester and I am very happy that we are back to meeting in person.