

INTRODUCTION TO METEOROLOGY

ATMS 103.H01 (Honors)

SPRING 2026

The science of meteorology explores the ever-changing atmosphere that affects all of our lives, from the mundane choice of what to wear to the devastating impacts of tornadoes and hurricanes. Over the next few months, you will develop an appreciation for the beauty and complexity displayed by the atmosphere every day. We'll begin by learning about the physical processes that govern our atmosphere, laying the groundwork necessary for a few death-and-destruction topics later in the semester. Before the year is out, you will be able to locate and interpret your own sources of weather information and not only understand the meteorologists on television, but explain to your friends and family the scientific principles behind current weather events. Ask lots of questions and enjoy!



PROFESSOR

Dr. Christopher Godfrey

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Office hours: **4:15–5:00 p.m. Tuesdays** and **3:45–5:00 p.m. Wednesdays**, or by appointment. You may call my office (it bounces to my cell phone) during regular business hours. You may send me as many email messages as you wish. If my door is open at any other time, please drop in.

CLASS INFORMATION

Meeting times: TR 1:20–2:35 p.m.

Location: Robinson Hall, room 239

Required text: Ahrens, C. D., and R. Henson, 2017: *Essentials of Meteorology: An Invitation to the Atmosphere*. 8th ed. Cengage Learning, 509 pp. (ISBN-13: 978-1305628458). Older editions are acceptable, but the page numbers may differ from those listed here.

Website: <https://www.atms.unca.edu/cgodfrey/courses/atms103/>

- » Class will start and end on time. Please arrive on time and stay for the entire class.
- » When combined with ATMS 111 in any semester, this course satisfies the natural sciences requirement of UNC Asheville's general education curriculum.
- » Please visit <https://weather.unca.edu> for a list of the student learning outcomes for the Department of Atmospheric Sciences.

GETTING QUESTIONS ANSWERED

I will be either in my office or available on Zoom during scheduled office hours (find the QR code on my door). Just drop in. If at any other time you have a question and my office door is open, you are more than welcome to visit. Otherwise, email is by far the best way to reach me and you will usually get a speedy reply. You may also schedule an appointment with me. Please don't hesitate to ask questions about class, other coursework, or the stresses of college life whenever the need arises.

PREREQUISITES

There are no prerequisites for this course, but I will present a few simple equations that you should be able to manipulate using techniques learned in your high school algebra class. Please see me if this sounds scary and we'll go from there.

IMPORTANT DATES

| | | |
|---------------------------|-------------|----------------------|
| Tuesday, 24 February 2026 | Exam I | 1:20–2:35 p.m. |
| Tuesday, 24 March 2026 | Exam II | 1:20–2:35 p.m. |
| Thursday, 30 April 2026 | Final Exam* | 11:30 a.m.–2:00 p.m. |

*Graduating seniors may not take the final exam at an earlier date or time.

COURSE SCHEDULE

With the exception of examination dates, this course schedule is approximate and subject to modifications.

| Date | Topic | Reading | Homework |
|-------------|---|--------------------------------------|----------------------|
| 13 January | Geography, Describing the atmosphere | Chapter 1 | Memorize U.S. States |
| 15 January | Describing the atmosphere (States quiz) | Chapter 1 | #1 Assigned |
| 20 January | Energy | Chapter 2 | |
| 22 January | Radiation, Earth's energy budget | Chapter 2 | |
| 27 January | Greenhouse effect, Seasons | Chapter 2 | #1 Due |
| 29 January | Water vapor in the atmosphere | Chapter 4 | #2 Assigned |
| 3 February | Water vapor, Observations | Ch. 4, pp. 140–141, 243–247, 468–469 | |
| 5 February | Atmospheric motion | Chapter 6 | |
| 10 February | Atmospheric motion | Chapter 6 | #2 Due |
| 12 February | Pressure systems, Radar | pp. 141–143, 311–314 | #3 Assigned |
| 17 February | Radar, Satellites | pp. 106–110 | |
| 19 February | Stability | pp. 115–126 | #3 Due |
| 24 February | Exam I | | |
| 26 February | Air masses | Chapter 8 | #4 Assigned |
| 3 March | Fronts | Chapter 8 | |
| 5 March | Midlatitude cyclones | Chapter 8 | |
| 10–12 March | Spring Break–No class | | |
| 17 March | Thunderstorms | pp. 174–175, 273–280 | #4 Due |
| 19 March | Mesoscale complexes, Supercells | pp. 280–286 | |
| 24 March | Exam II | | |
| 26 March | Watches, warnings, and advisories; SPC | pp. 255–256, 300–302 | |
| 31 March | Lightning | pp. 290–296 | |
| 2 April | Hail | pp. 138–140 | #5 Assigned |
| 7 April | Tornadoes | pp. 296–314 | |
| 9 April | Tornadoes | pp. 296–314 | |
| 14 April | General circulation, El Niño | pp. 188–206 | |
| 16 April | Hurricanes | Chapter 11 | #5 Due |
| 21 April | UGR Symposium–No class | | |
| 23 April | Hurricanes | Chapter 11 | |
| 28 April | Climate and climate change | Chapters 12 and 13 | |
| 30 April | Final Exam | | |

EVALUATION

There will be two preliminary exams and a comprehensive final exam to assess your progress through the semester. The preliminary exams will take place during regular class meeting times. Five problem sets will strengthen your skills and reinforce the lecture material and will be due on the dates indicated above. Five to ten unannounced quizzes will be given during the class period at irregular intervals throughout the semester. Though attendance is not explicitly required, these quizzes will serve as a measure of attendance, help to gauge your understanding of the material, and provide you and me with some feedback. Since life happens, I will drop the lowest two quiz grades.

There will be no opportunities for make-up quizzes or exams. Exams must be taken on the scheduled date. If you miss the class, you miss the grade. The *only* exceptions to this rule are: (1) serious medical condition (illness or injury) of you or an immediate family member; (2) University excused absence; (3) jury duty; or (4) military orders. Only in such instances will an exam or another quiz be dropped or rescheduled depending on your best interests, but *only if I am notified at least 24 hours in advance*. Except under the circumstances described above, **homework is due 45**

minutes after the end of class on the date listed in the syllabus (i.e., 3:20 p.m.). This should allow you to run home and get your completed assignment if you forgot it! This is not a 45-minute window for you to sit in my office and start working on the assignment. I will accept homework up to 24 hours late (3:20 p.m. the following day) for a 50% late penalty. *Homework more than 24 hours late will not be graded.* In the event of an unforeseen circumstance that causes you to miss an exam, quiz, or homework due date, *you must notify me by phone or e-mail within 24 hours of the event.* Appropriate documentation must accompany any excused absence from an exam or quiz and should be attached to a late homework assignment.

GRADING

| | | |
|----------------------|-----|---------------------------|
| Preliminary Exams | 30% | |
| Quizzes | 15% | Lowest two grades dropped |
| Homework Assignments | 30% | |
| Honors Component | 10% | |
| Final Exam | 15% | |

I reserve the option to curve the final grades upward at my discretion. However, you are guaranteed *at least* the following based on your final score before applying any curve:

| | | | |
|----|---------------|----|------------|
| A | $\geq 92.0\%$ | C | 72.0–77.9% |
| A- | 90.0–91.9% | C- | 70.0–71.9% |
| B+ | 88.0–89.9% | D+ | 68.0–69.9% |
| B | 82.0–87.9% | D | 60.0–67.9% |
| B- | 80.0–81.9% | F | <60.0 |
| C+ | 78.0–79.9% | | |

Final grades are not negotiable. If you see a problem with a quiz, exam, or homework grade, you may plead your case no later than 14 days from the date I return the assignment to the class. I do make mistakes. Under no circumstances will your grade be *lower* if you see me with a question.

ACADEMIC INTEGRITY

Since the point of this or any class is to learn, you may collaborate on homework assignments, but *you absolutely must make sure that you hand in your own work and that you understand the material.* Copying your friend's answers will not only be obvious to me, but will result in both of you sharing the credit for that answer. For example, if you do a fantastic job on the homework assignment and then let three of your friends copy *any part of it*, you will each receive a maximum grade of 25% for the assignment. Any collaboration on exams and quizzes is simply cheating. I have zero tolerance for academic misconduct and will deal with the problem by immediately filing charges through the regular University channels. Treat artificial intelligence (i.e., ChatGPT and its friends) with the same rules. If you use AI to do your homework for you, you are cheating yourself and you will probably fail the exams because you don't understand the course material. I will also figure it out and we will have an uncomfortable conversation about your future. Do your own work and learn something.

NOTES

The University of North Carolina Asheville is committed to making courses, programs and activities accessible to persons with documented disabilities. Students requesting accommodations and/or academic adjustments must do so through the Office of Academic Accessibility and may be required to provide supporting documentation. All information provided will remain confidential. For more information, please contact the Office of Academic Accessibility at (828) 232-5050 or academicaccess@unca.edu or visit them in the Academic Success Center.

ATTENDANCE

Students who attend class in-person tend to earn better grades. Yet common illnesses and new variants of the COVID-19 virus still circulate, and I want this and every classroom to be a safe and healthy place for everyone. Please always demonstrate respect for yourself, your classmates, your professor, and their families and friends. If you have been exposed to COVID-19, influenza, RSV, or any other illness (i.e., someone you've been around within the last three days has tested positive or displayed obvious symptoms), tested positive yourself within the past five days, or have any symptoms (e.g., fever, runny nose, congestion, sore throat, lethargy, etc.) please **DO NOT COME TO CLASS.**

You can participate remotely via Zoom if you let me know of your need for a remote connection prior to 12:00 p.m. on the day of class. There will be *no penalty* if you need to participate remotely to promote safety!

HONORS

For honors credit, you will complete the following three tasks in addition to the requirements for the regular section of this course:

1) Participate in the WxChallenge (60%)

The WxChallenge is a national forecasting competition. As part of the UNC Asheville team, you will make your own daily forecasts Monday through Thursday during the competition, including during Spring Break. You can record your forecasts several days in advance and change them until just before 0000 UTC prior to the 0600 to 0600 UTC forecast period. The contest begins on Monday, 19 January 2026 and grading will end on March 30. Please see me for specific instructions and guidance. Final scores that are better than the national consensus (i.e., negative scores) will receive full credit, scores that are worse than the national consensus (i.e., positive scores) will receive 75% credit, and scores that are worse than the climatology score will receive no credit for each of the four regular forecast cities during the competition. For each city for which your score is better than Dr. Godfrey's score, you will receive one extra point on your final grade.

2) Class presentation (15%)

In lieu of your professor's regular weather briefing at the beginning of each class, you will have 10 minutes to teach your classmates about a specific weather- or climate-related topic that I do not generally cover in ATMS 103. This could include atmospheric optics, cloud types, atmospheric oscillations, gravity waves, atmospheric acoustics, or any other fun topic of your choice. Please work with me to come up with an appropriate topic and presentation date.

3) Topic summary (25%)

Write a 3–5 page (Times New Roman, 12-point font) paper that describes the physical principle(s) behind your chosen topic (see item #2 above). Your goal is to teach me about the topic, including what it is, how and where it forms, what factors influence the phenomenon, and the current state of knowledge about the phenomenon, as applicable. Include any references in a separate reference section following the American Meteorological Society's reference formatting guidelines found at https://www.atms.unca.edu/cgodfrey/courses/atms455/pdf/reference_guide_comp.pdf. You may include any relevant figures, but these are not included in the calculation of the page limits. You are welcome to share a draft of your paper for an initial review. Upload your final draft to Moodle by Tuesday, 28 April at 5:00 p.m.