

METO 1010-X02 & X51

Introduction to Meteorology

Spring 2024

Courses CRN's:

METO 1010-X02: 23526

METO 1010-X51: 13560

Course Workload: 3 credit hours

Instructor:

Name: Dr. Alessandro (Alex) Zanazzi

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Virtual Office Hours: any time by appointment on **Microsoft Teams**

Instructor Assistants:

Name: AdriAnn Olsen

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Name: Sarah Marchant

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Textbook #1 (Optional):

Lutgens, F.K., Tarbuck, E.J., Tasa, D., The Atmosphere: An Introduction to Meteorology. Prentice Hall, New Jersey.

Any edition from the 11th to the newest is fine.

11th edition ISBN-13: 978-0321587336

12th edition ISBN-13: 978-0321756312

13th edition ISBN-13: 978-0321984623

14th edition ISBN-13: 978-0134758589

You can also buy an electronic version of this textbook at the [Pearson website](#). The eText has embedded videos, animations, study tools, self-reading, highlighting options and more. The cost is \$9.99 per month, or \$14.99 per month for two or more Pearson eTexts.

Textbook #2 (Required):

Carp, A., Egger, A.E., 2011. The Process of Science. Revised Edition. Vision Learning.

ISBN-13: 978-0557614394

This textbook is freely available at the [Vision Learning website](#).

Course Description:

This fully online course is an introduction to the processes that produce weather. We will cover the basic elements of meteorology including temperature, atmospheric pressure, humidity, forms of condensation and precipitation, and winds. We will also cover the basic aspects of mid-latitude cyclones and weather forecasting.

Course Goals:

The overarching learning objective for this course is for the students to understand the principles and laws that govern the functioning of the atmosphere. More specifically, at the end of this course students will be able to:

- Convert meteorological variables among different units and report their value in scientific notation
- Recall the chemical composition and thermal structure of the atmosphere

- Apply the laws of radiations to compare and contrast the radiative properties of different bodies
- Explain the heating mechanisms for the atmosphere, the greenhouse effect, and the heat budget of the Earth
- Discuss the factors that affect the temporal and spatial variations in temperature on the Earth's surface
- Define humidity and atmospheric stability and identify atmospheric stability conditions
- Compare and contrast the different measurements of humidity
- Define and describe the different forms of condensation and precipitation
- Identify the forces that affect the direction and strength of surface winds and winds aloft
- Interpret weather maps
- Recall global wind and pressure belts
- Describe the characteristics of mid-latitude cyclones and their stages of development
- Describe the steps involved in a weather forecast
- Apply the scientific method to analyze and evaluate weather data and problems outside the classroom
- Understand the process of science

Assessment:

Your final grade will be determined based on these components:

- Quizzes 20%
- Labs 20%
- Midterm exams 30%
- Process of Science Quizzes 10%
- Cumulative final exam 20%

Course averages are normalized to a percentage. Final grades will be based on the following scale:

- A = 92-100%
 - A- = 88-92%
 - B+ = 85-88%
 - B = 81-85%
 - B- = 78-81%
 - C+ = 74-78%
 - C = 71-74%
 - C- = 67-71%
 - D+ = 64-67%
 - D = 60-64%
 - D- = 57-60%
 - E < 57%
- Quizzes will consist of multiple-choice questions on the material of each module. Quizzes will be graded directly by CANVAS. These quizzes will mostly test your quantitative and critical thinking skills. Quizzes are “**open book and open notes**”, and you will have unlimited time. You will have **two attempts** and keep the higher of the two scores.
 - The Process of Science Quizzes will consist of 5 multiple-choice questions on each chapter of the book “The Process of Science” by Carpi and Egger. These quizzes will be graded directly by CANVAS, are “**open book and open notes**” and you will have unlimited time. You will have **two attempts** and keep the higher of the two scores.
 - Labs will consist for the most part of problem sets and questions involving the analysis of real weather data. Labs will be graded by me or by my IA and will mostly test your quantitative skills. Labs are also “**open book and open notes**”. You will have unlimited time and **only one attempt**.
 - Midterm exams will consist of fifty multiple choice questions on everything covered since the previous exam. Midterm exams will be graded directly by CANVAS and will mostly test your content knowledge. Midterm exams are “**closed book and closed notes**”. You will have **75 minutes**

- available to complete them and you will have **only one attempt**. Midterm exams will be remotely proctored by Proctorio.
- The cumulative final exam will consist of one hundred multiple choice questions on everything covered during the semester. The final exam will be graded directly by CANVAS and will mostly test your content knowledge. The final exam is “**closed book and closed notes**”. You will have **150 minutes** available to complete it and you will have **only one attempt**. The final exam will be remotely proctored by Proctorio.
 - The following grades will be dropped from your final grade:
 - The lowest grade of the quizzes
 - The lowest grade of the labs
 - The lowest grade of the midterm exams
 - The lowest grade of the Process of Science quizzes

Missed/Late Exams and Assignments:

Late quizzes and labs will not be accepted under any circumstance. If you have a **serious excuse**, you can communicate with me **before the due date** and make up **one** exam within a week after it has been scheduled for the whole class.

Canvas:

This course will be entirely managed through [CANVAS](#).

Material Required:

To succeed in this class, **you will need a computer with a microphone, a webcam, Microsoft Office, and Google Chrome with the Proctorio extension**. You also need a reliable internet connection. Access to a printer may also be helpful.

Academic Misconduct:

UVU and the Department of Earth Science take plagiarism and other forms of cheating **very seriously**. The penalty for the first offense will be a negative grade for the assignment that is even in part plagiarized or fabricated (i.e., if an assignment was worth 10 points, the student will score -10 points, thereby demonstrating that this act is even worse than simply not doing your work). The penalty for the second offense will be an E in the course. After the second offense, you will also be reported to [Student Rights and Accountability](#) by the faculty member. The conflict resolution process could lead to greater actions, such as expulsion from the University. The department wants you to learn and to learn you need to submit and get feedback on your own work. Cheating disrupts learning and takes away from your education. Please do not participate or support nefarious websites. **Many websites like Course Hero can seem useful, but they may lead you to violate the student code of conduct and may ruin your educational experience.**

Inclusion:

Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran’s status or genetic information. If you or someone you know has experienced or experiences harassment or sexual assault including dating and domestic violence and stalking or sexual exploitation, you are encouraged to report it to the Title IX Coordinator in the [Office for Equal Opportunity and Affirmative Action](#), BA 203, (801) 863-7999. Please be aware that all faculty members and university employees are considered “Responsible Employees” and are required to report incidents of sexual misconduct and relationship violence and thus cannot guarantee confidentiality. Please know that you can seek confidential resources at UVU Student Health Services, SC 221, (801) 863-8876.

Disability:

Students needing accommodations due to a disability, including temporary and pregnancy accommodations, should contact Accessibility Services at accessibilityservices@uvu.edu or 801-863-8747 located in LC 312. Deaf/Hard of Hearing students who are already approved for accommodations and need to request ASL interpreters, transcription services, or closed captioning, please email dhhservices@uvu.edu.

Struggling Students:

A list of student support resources can be found at this link: [UVU Resources for Students & Parents](#). You can also request the support of a Learning Specialist, who meets with all students (no accommodation needed) to teach organization, study skills, and test-taking strategies. Students can schedule an in-person or virtual appointment through this link: [Learning Specialist Appointment Booking](#).

Student Responsibilities:

Even if this is an introductory course, it is demanding, especially because it requires you to become reasonably fluent in math (mostly arithmetic and algebra). **If you are just looking for an easy science course to satisfy a science requirement, this is not the class for you. This is the class for people that want to learn and that like to be challenged.** In addition, because of its online format, **you will have to be highly disciplined and self-motivated to succeed in this class.**

Here are some tips for success:

- **Learn how to use CANVAS**, including the communication tools. If you have technology-related problems, contact the [Service Desk](#).
- Complete and **put effort** in all assignments. Turn them in on time.
- **Ask questions** to me personally (i.e., write to alessandro.zanazzi@uvu.edu) or post them in the discussion forums.
- **Do not wait until the last minute** to study and to do your assignments. You should start working on each lab and quiz **no later than Tuesday** of each week.
- **Study hard.** As a rule of thumb, you are expected to study on average 3 hours per week for each credit hour you are taking. So, you are expected to study 9 hours a week for this class.
- **Contact me early**, do not wait until the end of the semester. I am here to help you.
- You can also get tutoring from my IA's and from the [Math Lab](#).

Instructors Responsibilities:

- Respond to emails within TWO business days.
- Provide timely, meaningful, and constructive feedback on assignments.
- Facilitate an effective learning experience.
- Refer students to appropriate services for issues that are non-course content specific. For instance, technical issue, accessibility services, etc.
- Mentor students through the course.

COURSE ITINERARY*

Date	Day	Module Number	Module Title	Reading	Assignments**
Jan. 12	F		Orientation		Orientation Quiz Orientation Discussion
Jan. 19	F	1	Background	Pages vii-22 Carpi & Egger	Lab 1 Quiz 1 PS Quiz 1
Jan. 26	F	2	Introduction	Chapter 1 Lutgens et al., Pages 23-46 Carpi & Egger	Lab 2 Quiz 2 PS Quiz 2
Feb. 2	F	3	Heating the Earth and the Atmosphere 1	Chapter 2 Lutgens et al., Pages 47-72 Carpi & Egger	Lab 3 Quiz 3 PS Quiz 3 Practice Exam***
Feb. 9	F	4	Heating the Earth and the Atmosphere 2	Chapter 2 Lutgens et al.	Lab 4 Quiz 4 Exam 1
Feb. 16	F	5	Temperature	Chapter 3 Lutgens et al., Pages 73-102 Carpi & Egger	Lab 5 Quiz 5 PS Quiz 4
Feb. 23	F	6	Humidity and Atmospheric Stability 1	Chapter 4 Lutgens et al., Pages 103-128 Carpi & Egger	Lab 6 Quiz 6 PS Quiz 5
Mar. 1	F	7	Humidity and Atmospheric Stability 2	Chapter 4 Lutgens et al., Pages 129-158 Carpi & Egger	Lab 7 Quiz 7 PS Quiz 6
Mar. 8	F	8	Condensation and Precipitation	Chapter 5 Lutgens et al.	Lab 8 Quiz 8 Exam 2
Mar. 15			Spring Break		
Mar. 22	F	9	Atmospheric Pressure and Winds 1	Chapter 6 Lutgens et al., Pages 159-186 Carpi & Egger	Lab 9 Quiz 9 PS Quiz 7
Mar. 29	F	10	Atmospheric Pressure and Winds 2	Chapter 6 Lutgens et al., Pages 187-212 Carpi & Egger	Lab 10 Quiz 10 PS Quiz 8
Apr. 5	F	11	Atmospheric Circulation	Chapter 7 Lutgens et al.	Lab 11 Quiz 11 Exam 3
Apr. 12	F	12	Air Masses and Mid-Latitude Cyclones	Chapters 8 and 9 Lutgens et al., Pages 213-234 Carpi & Egger	Lab 12 Quiz 12 PS Quiz 9
Apr. 19	F	13	Weather Forecasting	Chapter 12 Lutgens et al., Pages 235-264 Carpi & Egger	Lab 13 Quiz 13 PS Quiz 10
May 1	W				Cumulative Final Exam

*This course itinerary is subject to change.

** Assignments are due at 11:59 PM Mountain Time.

***The practice exam does not count for your final grade.