Master Course Syllabus

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: https://catalog.uvu.edu/

Semester: Spring 2025
Year: 2025
Course Prefix: METO
Course and Section #: 1010-X02
Course Title: Introduction to Meteorology
Credits: 3

Course Description

Introduces the study of our atmosphere. Studies the Earth's dynamic weather systems. Covers structure and compositions of the atmosphere; weather patterns; air masses; and types of weather fronts, weather forecasting, and climates.

Course Attributes

This course has the following attributes:

☒ General Education Requirements
☐ Global/Intercultural Graduation Requirements
☐ Writing Enriched Graduation Requirements
☐ Discipline Core Requirements in Program
☒ Elective Core Requirements in Program
☒ Open Elective
Other: *Click here to enter text.*

Instructor Information

Instructor Name: Emily Lamas

Student Learning Outcomes

- At the end of this course students will be able to:
  - Understand atmospheric basics: Explain the composition of the atmosphere, temperature scales, time zones, and key meteorological tools and concepts.
  - Analyze heat energy processes: Describe how radiation, conduction, and convection influence the Earth's energy balance and climate.
  - Interpret weather data: Read and analyze isoplethed maps, station models, radar imagery, and satellite data.
  - Explain atmospheric phenomena: Describe the formation of weather patterns, including air masses, fronts, cyclones, and severe weather events like thunderstorms and hurricanes.
  - Discuss the role of water: Understand phase changes, relative humidity, cloud formation, and the hydrological cycle in weather and climate systems.
  - Evaluate human impacts: Assess anthropogenic and natural influences on climate and their implications for weather patterns and global warming.
  - Identify tropical weather systems: Explain tropical phenomena like the Hadley circulation, El Niño/La Niña, and monsoons.

- Enhance forecasting literacy: Evaluate weather forecasts, understand sources of error, and identify reliable information sources.

Course Materials and Texts

Lutgens, F.K., Tarbuck, E.J., Tasa, D., The Atmosphere: An Introduction to Meteorology
ISBN-13: 978-0134758589
ISBN-10: 0-134-75858-7
Calculator
Access to word or google docs or printer or digital drawing program

Course Requirements

Course Assignments, Assessments, and Grading Policy

Coursework

Quizzes: The quizzes are designed to keep you on track with the concepts from each chapter so that you are better prepared for the exams. They are open book and based on the objectives for each chapter- as are the exams. (FYI- chapter objectives are found on each week's start here page). I recommend going through the chapter notes found in the additional resource section of each week's start here page prior to completing the quizzes. You have unlimited attempts at the quizzes, but subsequent attempts may have different questions. Only the highest scores will be saved. *Your lowest quiz score will be dropped from your final grade.*

Assignments: These exercises are designed for to apply concepts from the chapters to various real life scenarios and case studies. These assignments will have you collecting and analyzing data, calculating results, and communicating ideas through writing and other media. You have **one attempt** at the assignments. Because you only have one attempt, please feel free to save your work and email me questions before submitting an assignment. *The lowest assignment score will **not** be dropped from your final grade.*

Discussions: Discussions present opportunities to explore topics together as a class. Posts to the discussion should add significantly to the conversation and support your point of view. Comments that do not add significantly to a discussion will receive no credit. It is okay to disagree in a discussion. In fact, much learning happens when we disagree. However, we need to be respectful and keep our online classroom a safe place to learn. **Discussions posts are due each Friday with comments due by Sunday each week.** *Your lowest discussion score will be dropped from your final grade.*

Midterm Exams: Midterm exams are periodic summative assessment to check your progress during the semester. Midterm exams consist of multiple choice, matching, numerical answer and short answer questions and will be open-book and open-notes, but timed. They are based on the objectives for each chapter. You have one attempt to complete the questions. *One lowest midterm exam score will be dropped from your final grade.*

Final Exam: The cumulative final exam is the summative assessment for what you have learned during the semester. The cumulative final exam consists of multiple choice and short answer questions and will be open-book and open-notes, but timed. You only have one attempt for the final, so make sure you are

well-prepared for it before taking it. *The cumulative final exam will not be dropped.*

Grading and Late Work Statement:

The following grading standards will be used in this class:

94.0 - 100% A	87.0 - 89.9% B+	77.0 - 79.9% C+	65.0 - 69.9% D+	
90.0 - 93.9% A-	83.0 - 86.9% B	73.0 - 76.9% C	59.0 - 64.9% D	Below 55.0% E
	80.0 - 82.9% B-	70.0 - 72.9% C-	55.0 - 58.9% D-	

Grade Weighting:

Quizzes: 25%
Assignments: 25%
Discussions: 15%
Midterm Exams: 23%
Final Exam: 12%

Late Work Statement:

Late work is accepted for one week past the deadline only. No penalties. (Note: The last week of assignments will be accepted until the final exam deadline only).

Extra Credit

Each student may submit 40 points of extra credit. Evert 10 points raises your grade by 1%. Please send extra credit in a canvas message or email to Emily.Lamas@uvu.edu. See the Extra Credit page for more details.

Attendance

You should maintain an active presence in this online class. This means that you will participate in discussions every week by posting original content and also commenting on at least two group members. Detailed directions are provided for each discussion.

Required or Recommended Reading Assignments

Week 1: Chapter 1: Introduction to the Atmosphere
Week 2: Chapter 2: Heating Earth's Surface and Atmosphere
Week 3: Chapter 3: Temperature
Week 4: Chapter 4: Moisture and Atmospheric Stability
Week 5: Chpater 5: Forms of Condensation and Precipitation
Week 6: Chapter 6: Air Pressure and Winds
Week 7: Chapter 7: Circulation of the Atmosphere
Week 8: Chapter 8: Air Masses
Week 9: Chapter 9: Midlatitude Cyclones
Week 10: Chapter 10: Thunderstorms and Tornadoes
Week 11: Chapter 11: Hurricanes
Week 12: Chapter 12: Weather Analysis and Forecasting

Week 13: Chapter 13: Air Pollution
Week 14: Chapter 14: The Changing Climate
Week 15: Chapter 15: World Climates

General Description of the Subject Matter of Each Lecture or Discussion

Week 1: Introduction to the Atmosphere: Topics: Weather vs. Climate, Earth as a system, composition and structure of the atmosphere

Week 2: Heating Earth's Surface and Atmosphere: Topics: the Earth-Sun Relationship, energy, temperature, and heat, mechanisms of heat transfer, Earth and Sun radiation, and Earth's energy budget

Week 3: Temperature: Topics: reporting temperature data, cycles of air temperature, the controls of temperature, global distribution of temperature, and applications of temperature data

Week 4: Moisture and Atmospheric Stability: Topics: chemistry of the water molecule, changing physical states of water, humidity, relative humidity and dew point, adiabatic temperature changes, processes that lift air, and atmospheric stability

Week 5: Forms of Condensation and Precipitation: Topics: Cloud formation and classification, types of fog, precipitation formation, forms of precipitation, and weather modification

Week 6: Air Pressure and Winds: Topics: Atmospheric pressure and wind, variations in air pressure, factors affecting wind, winds aloft, surface winds, and vertical air flow

Week 7: Circulation of the Atmosphere: Topics: Scales of atmospheric motion, local winds, global circulation, global distribution of pressure and precipitation, global winds and ocean currents, and El Nino, La Nina, and the Southern oscillation

Week 8: Air Masses: Topics: Classifying air masses, properties of North American air masses, and air mass modification

Week 9: Midlatitude Cyclones: Topics: Frontal weather, life-cycle of a midlatitude cyclone, cyclone formation, idealized weather of a midlatitude cyclone

Week 10: Thunderstorms and Tornadoes: Topics: Ordinary cell thunderstorms, severe thunderstorms, lightning and thunder, development and occurrence of tornadoes, and tornado destruction and forecasting

Week 11: Hurricanes: Topics: Profile of a hurricane, hurricane formation and decay, hurricane destruction, forecasting hurricanes

Week 12: Weather Analysis and Forecasting: Topics: Weather maps, forecast methods, satellites, types of forecasts, forecast accuracy

Week 13: Air Pollution: Topics: Natural and man-made sources of air pollution, types of air pollution, trends in air quality, meteorological factors affecting air pollution and acid rain

Week 14: The Changing Climate: Topics: The climate system, detecting climate change, natural causes of climate change, human impacts on the global climate, and consequences of climate change

Required Course Syllabus Statements

Generative AI

AI programs are not a replacement for your human creativity, originality, and critical thinking. Writing, thinking, and researching are crafts that you must develop over time to develop your own individual voice. At the same time, you should learn how to use AI and in what instances AI can be helpful to you.

The use of generative AI tools is not permitted in this course for the following activities:

- Impersonating you in classroom contexts, such as by using the tool to compose **discussion posts or comments** assigned to you or content that you put into a Teams/Canvas chat.
- Writing entire sentences, paragraphs or papers to complete class assignments or exams.

You are responsible for the information you submit based on an AI query (for instance, that it does not violate intellectual property laws, or contain misinformation or unethical content). Your use of AI tools must be properly documented and cited in order to stay within university policies on academic honesty.

Any student work submitted using AI tools should clearly indicate what work is the student's work and what part is generated by the AI. In such cases, no more than 25% of the student work should be generated by AI. If any part of this is confusing or uncertain, please reach out to me for a conversation before submitting your work.

Really though- I don't see a need to use AI in any form for this class. If something comes up where you believe the use of AI would be helpful, please reach out to me first and we can discuss it.

What will happen if I suspect AI use on a discussion post?

UVU is contracted with Copyleaks and includes two different options as part of checking a student submission:

- Plagiarism Detection
  - Checks for similarity between the student submission and other sources such as internet sources and other submitted submissions.
- AI Content Detection
  - This tool is intended to detect AI-generated content. It also detects the use of paraphrasing tools.

Should I suspect that a discussion post was created by using generative AI, I will use copy leaks to check.

Consequences of AI Use

Plagiarism has occurred if you:

- Use the exact wording of another author or source in such a manner that it appears to be your own, regardless of the form in which those words originally appeared (e.g., a book, article, lecture, web site, speech, graphic, or **any other form such as an AI text generator**)

- Paraphrase (put into your own words) another author's wording in a manner where the language and/or syntax is too similar to the original passage and is not properly cited
- Fail to clearly acknowledge the partial or full authorship of someone else when submitting work
- Fail to cite or quote textual resources properly, despite the instructor's attempts at educational intervention
- Fabricate false information that is not corroborated by the actual research used on a writing project
- Have someone else, paid or otherwise, write your paper or use a paper mill site that contains ready-to-use papers written by other people
- **Generate and submit a paper or discussion post using artificial intelligence, such as ChatGPT**

While the above actions can happen with intention to deceive, plagiarism can also happen accidentally (due to careless resource use, not using proper citation methods, and not understanding the conventions of our chosen style guide). Though intentional vs accidental is often a judgment call for an instructor, it's important to note that accidental plagiarism is still plagiarism—a serious need to address the incident arises regardless. Though the resulting consequences may vary based on the degree of intention, any form of plagiarism will be addressed with equal seriousness.

To be clear, copying the exact wording of an AI chatbot is considered plagiarism and means that a student will be held accountable for violating academic integrity. Although many citation guides are already presenting ways to properly use and cite AI, we do not currently believe that citing AI in your work is in line with the standards of academic writing that value knowing the exact author(s) or sources that informed your writing.

In keeping with UVU policy, evidence of academic dishonesty may result in a failing grade in the course and disciplinary review by the college. Academic dishonesty includes, in part, using materials obtained from another student, published literature, copying from an AI chat bot, and the Internet without proper acknowledgment of the source. Additional information on this topic is published in the student handbook and is available on the UVU website. Any student caught cheating will receive, at minimum, zero points on that particular assignment for the first offense. A second offense can result in failing the course and will entail an incident report filed with the Student Conduct and Conflict Resolution office as, at a minimum, an informational item and potentially an item for investigation, resolution, or other.

Using Remote Testing Software

☒ This course does not use remote testing software.

☐ This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

Required University Syllabus Statements

Accommodations/Students with Disabilities

Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancy-related conditions may contact UVU Accessibility Services at accessibilityservices@uvu.edu or 801-863-8747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at DHHservices@uvu.edu

DHH is located on the Orem Campus in BA 112.

Academic Integrity

At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in UVU Policy 541: *Student Code of Conduct*.

Equity and Title IX

Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – TitleIX@uvu.edu – 800 W University Pkwy, Orem, 84058, Suite BA 203.

Religious Accommodation

UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.

To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at accessibilityservices@uvu.edu. If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed

by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a specially dedicated space for meditation, prayer, reflection, or other forms of religious expression.