Master Course Syllabus

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

Semester: Spring
Year: 2025
Course Prefix: METO
Course and Section #: meto-1010-002-202520
Course Title: Intro to Meteorology
Credits: 3

Course Description

This 3 credit course is designed to provide a broad introduction to Meteorology (Weather/Climate/Earth-Systems-Science) and to prepare you to think critically about what constitutes scientific knowledge and how such knowledge is produced and used. We will discuss the origin, composition, and structure of the atmosphere. We will study the dynamics of the atmosphere that results in local and world-wide weather phenomena. We'll also investigate feedbacks between the Earth system and the atmosphere that impact local and global climate. ***The goal of the class is to build a foundation of knowledge about meteorology and pair that with basic analytical skills so you can evaluate critical issues related to the environment and society throughout your life.***

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: Stephen Campbell

Student Learning Outcomes

Students will learn the basic principles of meteorology including aspects of weather, climate, and earth systems science. *Note that this class is a gateway to the Earth Sciences major, a useful class for students majoring in Earth Science Education, and fulfills a GE science distribution credit. To receive credit as an elective as an Earth Science major you also need to take the meteorology lab METO 1020.*
Specifically, in regards to content, at the end of this course, students will be able to:

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

3. Explain various properties of the atmosphere, including the heating mechanisms, the greenhouse effect, stability, and the heat budget of the Earth
4. Discuss the factors that affect the temporal and spatial variations in temperature, precipitation, wind, humidity, severe weather, and pressure on the Earth's surface
5. Interpret weather maps
6. Apply the laws of radiation to compare and contrast the radiative properties of different bodies.
7. Explain the scientific evidence of anthropogenic impacts on the atmosphere, including climate change, air pollution, and heat island impacts at local and global scales.
8. Explain the role of federal agencies relating to climate and meteorology.

Course Materials and Texts

TEXTBOOK: The Atmosphere: An Introduction to Meteorology 14th Ed. Lutgens | Tarbuck | Herman

Course Requirements

Course Assignments, Assessments, and Grading Policy

Reading Quizzes	16	= 15%
Assignments	12	= 40%
Canvas Discussions	16	= 15%
Midterm Exam	1	= 15%
Final Exam	1	= 15%
Total		**= 100%**

Grading Standards:

A = 94% & above	A- = 90-93.9%	B+ = 87-89.9%
B = 84-86.9%	B- = 80-83.9%	C+ = 77-79.9%
C = 74-76.9%	C- = 70-73.9%	D+ = 67-69.9%
D = 64-66.9%	D- = 60-63.9%	E (failing) = Below 60%

- Assignments (practical application of subject material, written answers to questions, a written thinking assignment, etc.) Due by midnight @ 11:59:59pm.
- Late assignments will only be accepted for 50% credit after 3 days of their due date.
- Quizzes on class readings, textbook terms, and lectures
  Due by midnight @ 11:59:59pm. (Lowest 3 will be dropped)
- ***THERE ARE NO MAKEUPS FOR QUIZZES***

Required or Recommended Reading Assignments

Meteorological theme videos will be presented to expand on topics covered in class.

General Description of the Subject Matter of Each Lecture or Discussion

Date	Topics	Ch.	Assignments	Due Dates
Jan 11	Welcome & Background Introduction	1	(1) Introduction*	Chapter 1: Assign. Disc. Quiz
Jan 18	Heating the Earth & Atmosphere In-Class Assignment	2	(2) Heating Earth	Chapter 2: Assign. Disc. Quiz
Jan 25	Temperature In-Class Assignment	3	(3) Temperature	Chapter 3: Assign. Disc. Quiz
Feb 1	Moisture & Atmosphere Stability In-Class Assignment	4	(4) Moisture	Chapter 4: Assign. Disc. Quiz
Feb 8	Forms of Condensation & Precip. In-Class Assignment	5	(5) Precipitation	Chapter 5: Assign. Disc. Quiz
Feb 15	Air Pressure & Winds In-Class Assignment	6	(6) Air Pressure	Chapter 6: Assign. Disc. Quiz
Feb 22	Circulation of the Atmosphere In-Class Assignment	7	(7) Circulation	Chapter 7: Assign. Disc. Quiz
Mar 1	**Midterm Review** **Midterm Exam (online)**			**Midterm Exam**
Mar 8	Air Masses In-Class Assignment	8	(8) Air Masses	Chapter 8: Assign. Disc. Quiz
Mar 15	**SPRING BREAK** **(no classes)**			
Mar 22	Mid-Latitude Cyclones In-Class Assignment	9	(9) Mid-Lat. Cyclones	Chapter 9: Assign. Disc. Quiz
Mar 29	Thunderstorms and Tornadoes In-Class Assignment	10	(10) Thunderstorms	Chapter 10: Assign. Disc. Quiz
Apr 5	Hurricanes Weather Analysis & Forecasting	11 12	(11) Hurricanes* (12) Weather Forecasting*	Chapter 11: Assign. Disc. Quiz Chapter 12: Disc. Quiz
Apr 12	Air Pollution, Climate Change World Climates	13, 14 15		Chapter 13 & 14: Disc. Quiz Chapter 15: Disc. Quiz
Apr 19	Optical Phenom. **Final Review**			Chapter 16: Disc. Quiz Assignment 12, Extra Credit
Apr 26	**Final Exam (online)**			**Final Exam**

Required Course Syllabus Statements

Generative AI

This course requires the student to apply their understanding, application, and problem-solving skills towards the meteorological sciences. Students are expected to work on their own and/or in small groups. Problem solving and critical thinking are important skills needed to succeed in this course. Use of resources outside of the course can bring miss information such as definitional differences between the scientific disciplines, falsehoods, or concepts beyond the introductory nature of this course. Use of AI

based tools such as ChatGPT or web browsing sites such as Google can give incorrect information if the student is unaware of proper search methods. All answers and guides are provided in the textbook, lectures, and through communication with the instructor, as such, use of external tools not authorized by the instructor are prohibited.

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.