ATMO 1010: SEVERE AND HAZARDOUS WEATHER (PS)

TEXTBOOK: FREE online resources! Please check canvas regularly for links to readings.

COURSE TECHNOLOGY: Internet connection, Canvas, video playing (Youtube, Vimeo, Kaltura, etc.), SLCC ePortfolio, Zoom, Google Apps (slides, sheets, etc.).

COURSE DESCRIPTION

This course introduces the fundamentals of the atmosphere with a focus on severe and hazardous weather, including impacts on human activities and the environment. Severe weather topics will be used to explore our dynamic atmosphere, including hurricanes, thunderstorms, tornadoes, snowstorms, and more.

COURSE LEARNING OUTCOMES

In order to fulfill the goals of the College-wide Learning Outcomes, the following course learning outcomes of been established for this course. Upon completion of this course a student should be able to:

- Explain the relevance of severe and hazardous weather to human societies.
- Describe the basic properties of the atmosphere and explain their values and behavior.
- Differentiate between meteorological measurements and collect meteorological data.
- Analyze weather maps and information, synthesize data, and formulate a weather prediction.
- Interpret climate data and distinguish weather from climate.
- Outline the properties of moisture in the atmosphere and apply to precipitation formation.
- Model atmospheric stability and identify in meteorological data.
- Diagram force balances in the atmosphere and relate to observed winds.
- Identify airmasses and illustrate frontal boundaries.
- Examine extratropical cyclones and appraise their human impacts.
- Collect meteorological data to analyze and forecast ice storms and lake-effect snowstorms.
- Discriminate the impact of mountains on snow and windstorms.
- Assemble meteorological data to describe and forecast thunderstorms.
- Model tornado formation and assess the human impacts of tornadoes.
- Describe hail and lightning formation and justify safety guidelines.
- Differentiate tropical cyclones from extratropical and evaluate storm impacts.
- Analyze the accuracy of weather as depicted in popular media.
- Demonstrate the relevance of weather to your future career and reflect on learning.

HOW TO DO WELL IN THIS CLASS

- Be an active participant by attending and participating in class, engaging in canvas, and asking and answering questions.
- Keep up with readings every week.
- Complete all assignments.
- Message me or come to office hours with questions or concerns.

COURSE PROCEDURES

Active participation in activities is expected. You will be expected to interact with others during class and participate in group discussions.

Most of the assignments you complete for the course will be submitted online using Canvas LMS. Please note that you can set up social media services in Canvas within your profile settings. There are also Canvas apps available. Some assignments may be difficult to complete on a tablet or phone. It is HIGHLY recommended you set up Canvas so it can send you messages to your email, cell phone, Facebook, or Twitter accounts. When your instructor sends out announcement, messages, and information on Canvas, you will be notified in the media you designate.

LATE WORK

Students are expected to complete all assignments on time. Late work will be accepted, but it is in your best interest to hand all assignments in on time.

INCOMPLETE GRADES

If circumstances lead you to not be able to complete the course in the regular time frame, you may work with the instructor to take an incomplete. Students must be passing and have completed 75% of the course work in order to be granted an incomplete. Students are responsible for planning for successful course completion.

GRADING SCALE

93-100 = A	90-92 = A-	87-89 = B+	84-86 = B	80-83 = B-	77-79 = C+
74-76 = C	70-73 = C-	67-69 = D+	64-66 = D	60-63 = D-	0-59 = E

RESOURCES FOR STUDENTS

General Learning Support & Tutoring Services provide support for SLCC students enrolled in any class at the College. All resources are provided free-of-charge. Ask your instructor about discipline-specific learning support and tutoring services.

- **Tutoring**: index of all tutoring resources.
- **STEM Learning Centers**: provide free assistance in Math, Science, Accounting, CSIS and Allied Health Classes at 6 campus locations.
- **Student Writing and Reading Center**: provides in-person and online feedback on all writing assignments.
- **Library Services**: provides research help, print and online resources, computers and study space.
- **ePortfolio Lab**: provides drop-in assistance for all ePortfolio questions.
- **eLearning Support**: provides support for navigating online and hybrid classes.

Advising and Counseling Support Services provide support for students enrolled in any class as the college.

- **Center for Health and Counseling**: provides health care, mental health counseling, massage therapy services and healthy lifestyle programs.
- **Veterans' Services**: assists hundreds of students in using their VA education benefits each semester.
- **Academic and Career Advising**: helps students plan, explore, make decisions, access resources, and evaluate their academic and career goals.
- **#SLCCSAFE**: resources for students to stay safe at SLCC.

ASSIGNMENTS

Assignment Type	Lowest Scores Dropped	Points	Total	Percent
CQ: Chapter Quizzes (12)	2	10 @ 2 points	20	10%
HW: Homework (12)	2	10 @ 4 points	40	20%
IL: Interactive Labs (12)	2	10 @ 6 points	60	30%
P: Projects (2)	0	2 @ 20 points	40	20%
R: Review Assignments (2)	0	2 @ 10 points	20	10%
R: Peer Reviews (4)	0	4 @ 5 points	20	10%
		Grand Total	**200**	**100%**

CHAPTER QUIZZES

For each Chapter covered there will be a multiple choice, timed quiz on Canvas. The quizzes will be worth 2 points each and they will comprise 10% of your final grade.

HOMEWORK

About once a week you will have a 1-2-hour homework assignment. Generally, it will involve watching a video, completing a tutorial, or reading an article and responding to questions and submitting on Canvas. Homework assignments will be worth 4 points each and they will comprise 20% of your final grade.

INTERACTIVE LABS

About once a week we will have an interactive lab activity that will be graded. Interactive labs will be worth 6 points each and they will comprise 30% of your final grade.

PROJECTS (ePortfolio Signature Assignments)

During the semester you will complete two projects to enhance your learning, critical thinking, and research skills. Each project will be worth 20 points and they will comprise 20% of your final grade.

Project #1: Weather in the Movies

For this project you will choose a feature film (movie) that highlights weather in some way (e.g. Twister, The Day After Tomorrow). You will conduct research on the weather phenomena in the film, using quality sources, and analyze the accuracy of the weather in the film. On your ePortfolio you will create a multimedia blog post or webpage detailing how weather was important for the film and your scientific analysis. Here is an example from Physics Today of a scientific analysis of the film, The Martian:
http://scitation.aip.org/content/aip/magazine/physicstoday/news/10.1063/PT.5.9047

Project #2: Weather and your Major

This project is an open-ended project where you will connect one of the topics we have studied in this course to your major or your career goal. The design and development of your project will depend on the topic you decide on (in consultation with the instructor), but could include a video, blog post, art piece, research paper, or something else. You will post this project on your ePortfolio and, additionally, post a response to the course/project reflection. You will present your project during class during the last week of classes or finals week.

REVIEW ASSIGNMENTS + PEER REVIEW

In lieu of exams, you will be required to complete two Review Assignments during the semester. The first on will be a Fact Sheet and you will choose one of Modules 1-6. The second will be a Weather Safety PSA and you will choose one of Modules 7-12. You will also be required to complete TWO Peer Reviews online for each of the Review Assignments. Each review assignment will be worth 10 points and each peer review will be worth 5 points and they will comprise 20% of your final grade.

CLASS SCHEDULE: This is subject to change, so make sure check Canvas regularly.
Please see Canvas for online READINGS for each Module.

MODULE	TOPIC/READING	ASSIGNMENTS DUE
0	Class Introduction & Preview	Student Survey Online Discussion
1	1: Basics of the Atmosphere	CQ-1, HW-1, IL-1
2	2: Meteorological Measurements	CQ-2, HW-2, IL-2
3	3: Atmospheric Moisture, Clouds, & Precipitation	CQ-3, HW-3, IL-3
4	4: Atmospheric Stability **PROJECT #1 DUE**	CQ-4, HW-4, IL-4 **P-1**
5	5: Airmasses, Fronts, & Cyclones	CQ-5, HW-5, IL-5
6	6: Weather Forecasting **Review #1**: Fact Sheet	CQ-6, HW-6, IL-6 **R-1**
7	7: Winter Storms & Lake Effect Snow **Review #1**: Peer Reviews	CQ-7, HW-7, IL-7 **Peer Reviews**
	Dust Storms & Great Salt Lake	
8	8: Thunderstorms	CQ-8, HW-8, IL-8
9	9: Lightning, Hail, & Winds	CQ-9, HW-9, IL-9
10	10: Tornadoes	CQ-10, HW-10, IL-10
11	11: Tropical Cyclones	CQ -11, HW-11, IL-11
12	12: Climate Change	CQ-12, HW-12, IL-12
FW	**Project #2 Presentations** **Review #2**: Weather Safety PSA + Peer Reviews	**R-2** **P-2** **Peer Reviews**