

AATM 210: Atmospheric Structure, Thermodynamics, and Circulation

Fall 2020 Syllabus

Instructor: Prof. Andrea Lopez Lang
alang@albany.edu
Office Hours: Wed 10:00–11:00 am in Blackboard
Thur 11:00 am–noon (by appointment) via Zoom

Teaching Assistant: Brian Filipiak
bfiliapiak@albany.edu
Office Hours: Tues 4:00–5:00 pm via Blackboard
Wed 2:00–3:00 pm via Zoom & *by appointment*

Location: Online course (Blackboard & Zoom) **Class Number:** 1183
Time: Asynchronous, see schedule for exceptions **Credits:** 3

Prerequisites: A Mat 111 or A Mat 112 or A Mat 118; **Co/prerequisites:** A Phy 140

Course Description: This course is a technical survey of the atmosphere that introduces and applies essential principles and concepts from atmospheric dynamics and thermodynamics, radiative energy transfer, and cloud and precipitation physics to describe and understand the processes that govern weather and climate that impact our environment.

Course Learning Objectives: By taking this course you will be able to

- Explain how atmospheric composition impacts the global energy balance of Earth's atmosphere.
- Understand and discuss the various roles of water in our atmosphere.
- Identify and explain the role of atmospheric forces in atmospheric phenomena at different weather and climate timescales.
- Evaluate the role of atmospheric composition, water, and atmospheric forces in real world examples of atmospheric flow.

Successful completion of the Fall 2020 version of ATM 210 course requires:

- Reliable internet access
- An environment conducive to watching educational video content
- Engaging in course content on at least a weekly basis
- A device with a camera for documenting assignments and other activities

Textbook:

Highly recommended: *Meteorology Today: An Introduction to Weather, Climate, and the Environment*, 12th ed. C. D. Ahrens and R. Henson (available online and used)

Course Mode: Online via UAlbany Blackboard and Zoom

Videos and other content for the upcoming week will be posted on the course Blackboard page every Sunday night. Zoom will be used for office hours and occasional class activities.

Grading: A-E

- Homework problem sets (6): **30%** (5% each)
Homework will involve answering questions related to the recent course material, sometime involving calculations or longer explanations or activities. These will be due every 2 weeks.
- Assignments & Activities: **15%**
Assignments and Activities will include 3-4 mini-projects you'll do on your own or via a small group discussion and be based on the weekly content. The dates of these are TBD.
- Course engagement: **10%**
On at least a bi-weekly basis, you are expected to upload, via a BB Journal post, documentation of your engagement with the course video content. See the course schedule for the bi-weekly periods of assessment and see BB for instructions about of these posts. Example scores out of 10: (10) well thought out, reflective update, (5) minimal content, but I turned something in, (0) did nothing.
- Quizzes: **30 %** (top 10 of 12 used, 3% each)
Once a week, on average, we will have a short 'quiz' of 5-7 questions. These will be online in BB, open note, and will cover the topics in the weekly course content. Your top 10 of the 12 quiz scores will be used in the calculation of you final grade, where each of the 10 quizzes used will be 3% of you overall grade. Quizzes will be open for 24 hours, but may only be submitted once.
- Final Exam: **15%**
The final will be cumulative and similar in question types and format to the quizzes. This will be a time exam with more details to come later this semester.

Academic Integrity:

Despite the unusual times, the University at Albany maintains its commitment to the special responsibility of academic integrity and truth that binds us together as a community of scholars, a responsibility embodied in the Standards of Academic Integrity outlined here:

http://www.albany.edu/undergraduate_bulletin/regulations.html.

Accessibility and Accommodations:

Please contact me early in the semester to arrange accommodations. If you need forms or information on accommodations, please visit the DRC; <http://www.albany.edu/disability/>

Inclusive Online Class:

When communicating online, either in the Class Discussions via Blackboard or in a Zoom video call, we must all be respectful of each other. There are a few rules we want to follow when posting in the Class Discussions in Blackboard or in a Zoom chat, you should:

- Make posts that are on topic and ask yourself, is this within the scope of the course material or the current topic of conversation.
- We understand typos happen, but always review/proofread your text before posting it.
- Be concise with your posts. Avoid longwinded wordy posts.
- Give proper credit, always reference when paraphrasing or quoting another source. This will be a continuing theme as you advance in your degree program.
- Read all messages in a thread before replying, don't repeat someone else's post without adding something of your own to it.
- Avoid short, generic replies such as "I agree." Try to add context for your statement or reply.
- Always be respectful of others' opinions even when they differ from your own. There are rules of conduct you must follow as a student enrolled at UAlbany. Do not make personal or insulting remarks, you will be reported.

Tentative ATM 210 Fall 2020 Schedule

Week	Dates	ATM 210 Topics	HW Schedule	Quiz Schedule
1	Aug 24–28	Welcome! Defining the atmosphere (Ch1)		
2	Aug 31–Sept 4	Atmospheric density, pressure, & temperature. Atmospheric layers (Ch1) & Energy transfer (Ch2)		Quiz 1 by Friday @ 4:00 PM ET
3	Sept 7–11	Types of energy transfer in the atmosphere (Ch2)	HW 1 due by Thur @ 11:00 PM ET;	Quiz 2 by Friday @ 4:00 PM ET
4	Sept 14–18	Earth's global energy budget and climate (Ch2) & seasons and local energy budgets (Ch3)		Quiz 3 by Friday @ 4:00 PM ET
5	Sept 21–25	Controls of surface temperature (Ch3) & water in the atmosphere (Ch4)	HW 2 due by Thur @ 11:00 PM ET;	Quiz 4 by Friday @ 4:00 PM ET
6	Sept 28–Oct 2	Dew point temperature (Ch4) & dew, fog, and clouds (Ch5)		Quiz 5 by Friday @ 4:00 PM ET
7	Oct 5–9	Atmospheric stability (Ch6)	HW 3 due by Thur @ 11:00 PM ET;	Quiz 6 by Friday @ 4:00 PM ET
8	Oct 12–16	Atmospheric stability and clouds (Ch6) & precipitation processes (Ch7)		Quiz 7 by Friday @ 4:00 PM ET
9	Oct 19–23	Precipitation types (Ch7) & Atmospheric pressure and atmospheric forces (Ch8)	HW 4 due by Thur @ 11:00 PM ET;	Quiz 8 by Friday @ 4:00 PM ET
10	Oct 26–30	Atmospheric force balances and wind (Ch8)		Quiz 9 by Friday @ 4:00 PM ET
11	Nov 2–6	Large-scale atmospheric circulation and climate (Ch9&10)	HW 5 due by Thur @ 11:00 PM ET;	Quiz 10 by Friday @ 4:00 PM ET
12	Nov 9–13	Synoptic-scale atmospheric circulations (Ch12)		Quiz 11 by Friday @ 4:00 PM ET
13	Nov 16–20	Small-scale atmospheric circulations (Ch14)	HW 6 due by Thur @ 11:00 PM ET;	
14	Nov 23–27	Bringing it all together.		Quiz 12 by Monday @ 4:00 PM ET
Finals	Nov 30–Dec 7	Date and time are TBA		

Bi-weekly journals are checked at the end of weeks 2, 4, 6, 8, 10, 12, and 14

What can I expect from a typical week in ATM 210?

ATM 210 Weekly Template						
SAT	SUN	MON	TUE	WED	THUR	FRI
BB content posted by 10pm (weekly)	Watch videos & participate in activities/discussions/office hours (weekly)					Quizzes due before 4pm (weekly)
			Zoom activity 11-11:50am (dates TBD)	Prof. Lang's BB Office Hours 10-11am	HW due before 11pm (bi-weekly)	Activity assignments due before 4:00 pm (dates TBD)
			Brian BB Office Hours 4-5pm	Brian's Zoom Office Hours 2-3pm	Prof. Lang's Zoom Office Hours 11am-noon	Engagement evaluated @ 4:00pm (bi-weekly)

Orange boxes: Activities of note for students enrolled in ATM 210.

Yellow boxes: When your TA has office hours.

Purple boxes: When Prof. Lang has office hours or posts content.

ATM 210 Zoom Office Hours information:

<https://albany.zoom.us/j/92578196509?pwd=TjIRYWpIK3J0SDRQazZHeHM1Uy9EZz09>

Meeting ID: 925 7819 6509 Passcode: 953113

Dial by your location

+1 646 558 8656 US (New York)

+1 312 626 6799 US (Chicago)

Meeting ID: 925 7819 6509

Find your local number: <https://albany.zoom.us/j/92578196509?pwd=TjIRYWpIK3J0SDRQazZHeHM1Uy9EZz09>

ATM 210 BB Office Hours information:

Prof. Lang and Brian will spend time answering questions in the weekly Blackboard discussions during 4:00–5:00 pm Tuesdays and 10:00–11:00am Wednesdays. If you have a question, post it during or before one of those times to get them answered by Prof. Lang or Brian. We will answer as many question as we can during the allotted time.

If you have a question outside of that time, post it anyway, both posting and answering questions can count toward your engagement grade. Please make sure you question is well formed, not something like “Can you help me with number 3 on the homework?”

Have a ATM 210 question but can't make Zoom or BB office hours? Please reach out to Prof. Lang or Brian via email and we can make arrangements on a case-by-case basis.