

MET 3503 Syllabus

Weather and Forecasting

Instructor

Stephen Mullens, stephen.mullens@ufl.edu

My office: Turlington Hall, Geography Department, Room 3126-B (room in a room)

Office hours: Mondays periods 4 & 6 (10:40-11:30a; 12:50-1:40p),

Wednesdays periods 4, 6, & 7 (10:40-11:30a; 12:50-2:45p), and

Fridays period 4 (10:40-11:30a).

It's best to let me know in class or via email if you're coming to office hours. You are also free to just stop by during those times. If you want to make an appointment at another time, just email me. I will try to accommodate you as my schedule permits.

Class times:

Time: Mondays period 7-8 (1:55-3:50pm), Wednesdays period 8 (3:00-3:50pm)

Location: Turlington Hall 3018

Textbook:

Cox, John D., 2002: *Storm Watchers: The Turbulent History of Weather Prediction from Franklin's Kite to El Niño*. Wiley, 252 pp.

Fleming, James Rodger, 2020: *First Woman: Joann Simpson and the Tropical Atmosphere*. Oxford University Press. 224 pages. isbn 978-0198862734.

Stull, Roland, 2018: *Practical Meteorology: An Algebra-based Survey of Atmospheric Science*. version 1.02b. Univ. of British Columbia. 940 pages. isbn 978-0-88865-283-6.

Course Objectives – What we're going to cover:

- Apply the forecast process when making your own weather forecasts.
- Analyze current weather through satellite and radar imagery.
- Translate raw meteorological surface and upper air observations.
- Plot translated meteorological observations onto maps.
- Evaluate weather conditions through hand-analyzed meteorological observations.
- Explain the physics underlying current synoptic and mesoscale storm developments.
- Explain wind-related forces and how they contribute to geostrophic, gradient, and hydrostatic force balances.
- Plot meteorological rawinsonde observations onto thermodynamic charts.
- Analyze thermodynamic charts and evaluate the potential weather that might occur.
- Explain how common meteorological indices are calculated from thermodynamic charts.
- Explain how the quasigeostrophic equations are useful for determining areas of rising motion and forecasting synoptic scale weather.
- Evaluate numerical model output to make a weather forecast.

Grading Structure:

10% - Book Homework

10% - Readings Quiz

40% - Homework

15% - Exam 1

25% - Final Project

Grades:

A	90.0-100%	B+	87.0-89.9%	C+	77.0-79.9%	D+	67.0-69.9%
		B	83.0-86.9%	C	73.0-76.9%	D	63.0-66.9%
		B-	80.0-82.9%	C-	70.0-72.9%	D-	60.0-62.9%

Schedule

The precise dates may change. I will update you as we go.

Week starting	Monday-1	Monday-2	Wednesday	Readings
Aug		Introduction	Review temperature	Ch 1,2
	Temp Analysis	Review moisture	Review rain creation	Ch 4,5,6
Sep	Labor Day	Labor Day	Pressure analysis	Ch 10,12
	Upper Air analysis	Review wind forces	Map analyses	Ch 13,14
	Wind force balances	Wind Equations		Ch 7,9
	Review air masses, ETCs		Upper Air Analysis	Ch 3,17
Oct	Midterm Review		Homecoming	
	Big Paper Day	Midterm questions	Midterm Exam	
	Big Paper Day 2		Satellite	Ch 18,19
	Exam Review		Radar	Ch 24
	Wind balance equations	Air masses & fronts	Jet streams	Ch 20,21
Nov		Review ETC life cycle	Veterans Day	Ch 22,27
	Numerical Wx Models		Discussion	Dr Simpson
	No class	Thanksgiving		
	Discussion		Review for Reading Quiz	Ch 11,23,26
Dec	Discussion	Review	Reading Day	
--	Finals Project – Thursday, Dec 14, 10:00am			

UF POLICIES

ACADEMIC HONESTY:

You are all bound by the student academic honor code.

“We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”

“On my honor, I have neither given nor received unauthorized aid in doing this assignment”

ACCOMMODATIONS:

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

CAMPUS RESOURCES:

- **U Matter, We Care:** If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit umatter.ufl.edu to refer or report a concern. A team member will reach out to the student in distress.
- **Counseling and Wellness Center:** For crisis or non-crisis services, visit counseling.ufl.edu or call 352-392-1575.
- **Student Health Care Center:** For 24/7 information to help you find health care visit shcc.ufl.edu or call 352-392-1161.
- **University Police Department:** 911 for emergencies, or police.ufl.edu, or call 352-392-1111.
- **UF Health Shands Emergency Room / Trauma Center:** For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road. The website is ufhealth.org/emergency-room-trauma-center.
- **Writing Studio:** Help brainstorming, formatting, and writing papers. writing.ufl.edu/writing-studio/
- **Student Complaints On-Campus:**

EXCUSED ABSENCES:

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

I appreciate that unexpected events occur in all of our lives. Acceptable reasons for absence from or failure to participate in class include illness, serious family emergencies, special curricular requirements (e.g., judging trips, field trips, professional conferences), military obligation, severe weather conditions, religious holidays, court-imposed legal obligations, and participation in official university activities such as music performances, athletic competition or debate. If such events occur, and it causes you to attend an event (e.g., funeral, job interview) or a facility (e.g., doctor's office, courthouse), then you will need to prove that you went to this

event/facility on that date by providing some form of documentation of the event. An event program, a doctor's note, or similar paperwork will suffice. Upon producing this documentation, you will be able to make up the midterm exam or any graded class activities from that date.

A student should inform the faculty member of the religious observances of his or her faith that will conflict with class attendance, with tests or examinations, or with other class activities prior to the class or occurrence of that test or activity.

IN CLASS RECORDING:

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include student presentations, academic exercises involving solely student participation, assessments (quizzes, tests, exams), private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

DISCLAIMER:

This syllabus represents my current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.