

Fall, 2017: Weather Analysis and Forecasting I (METR 360)

Lectures: 9-9:50 Monday, Wednesday, Friday in S309. Labs: 2-4:50 p.m. Wednesday in S309
Instructor: Dr. Jerome Blechman, 311B Sci I, campus phone: 3322, Jerome.Blechman@oneonta.edu
Office hours: Monday, Wednesday, Friday 10-10:50

Text: Lab workbook (available first class period)

Good references: An Introduction to Dynamic Meteorology by James R. Holton; Mid-Latitude Weather Systems by T.N. Carlson; Synoptic-Dynamic Meteorology in Midlatitudes by Howard B. Bluestein

Learning Outcomes:

- Students will apply principles of atmospheric synoptic and dynamic meteorology to the prediction of states of the atmosphere on time scales up to two weeks into the future
- Students will demonstrate their ability to communicate scientific and technical information effectively through appropriate oral, visual and written presentation.
- Students will demonstrate their ability to apply scientific reasoning, technology and collaborative skills to solve real world problems in the Earth and Atmospheric Sciences

Emergency Evacuation/Shelter-in-Place Procedures

In the event of an emergency evacuation (i.e. fire or other emergency), classes meeting in Science I are directed to reassemble at **Chase Gymnasium** so that all persons can be accounted for. Complete details of the College's emergency evacuation, shelter-in-place, and other emergency procedures can be found at www.oneonta.edu/security.

ADA (Americans With Disabilities Act) Statement

All individuals who are diagnosed with a disability are protected under the Americans with Disabilities Act, and Section 504 of the Rehabilitation Act of 1973. As such, you may be entitled to certain accommodations within this class. If you are diagnosed with a disability, please make an appointment to meet with Student Disability Services (SDS), 209 Alumni Hall, ext. 2137. All students with the necessary supporting documentation will be provided appropriate accommodations as determined by the SDS Office. It is your responsibility to contact SDS and provide the professor with your accommodation plan before a test. More information can be found at <http://www.oneonta.edu/development/sds/>

Student responsibilities and my expectations for you

You, the student, are responsible for *earning* your grade in this class. I don't "give out" grades.

In addition, I expect you to know and follow the student responsibilities established in the College Code of Student Conduct: <http://www.oneonta.edu/communitystandards/code-of-student-conduct.asp> I will follow the code as well whenever it applies to faculty.

Grading: Two exams: 20% each (total=40%, see schedule); Lab assignments: 30% Forecasting Contest: 10% (details to be announced), Final exam (cumulative): 20% (The Final Exam will be on Dec 15 at 8 a.m)

Grading Scale:

93-100% = A	90-92% = A-	87-89% = B+	83-86% = B
80-82% = B-	77-79% = C+	73-76% = C	70-72% = C-
67-69% = D+	63-66% = D	60-62% = D-	0-59% = E

First Assignment: Read the short story "Profession" by Isaac Asimov. A web link is provided here (<http://www.abelard.org/asimov.php>) and a pdf version on the course homepage (<http://employees.oneonta.edu/blechmjb/JBpages/METR360top17.html>).

Think about it and be prepared to discuss how the concepts in this story could relate to this course and to our own profession as meteorologists. There are also more general philosophical implications. We will discuss this on Wednesday,

Lecture Topics (note: on any day with interesting weather, lecture may be pre-empted for a map discussion)

1. Norwegian model review	5. Air masses (damming, lake effect)	9. Potential vorticity
2. Fronts	6. NCEP guidance products	10. Cyclogenesis
3. Stability	7. Waves in the westerlies	11. Jet streams
4. Upper air	8. Vertical motion	
EXAM (Oct 4)	EXAM (Nov 15)	FINAL EXAM (Dec 15)
		(The Final exam is cumulative)

Lab Topics

Aug 30	Surface map analysis review (Map 2 graded)
Sep 6	Synoptic code (Graded)
Sep 13	Analyze plotted maps (Graded), Radiosonde release
Sep 20	Upper air code and Sounding plotting (Graded)
Sep 27	Upper air maps I (Graded),
Oct 4	Exam 1
Oct 11	Upper air maps II (Graded)
Oct 18	Numerical Guidance (Graded)
Oct 25	Forecast teams (Not graded)
Nov 1	METAR code (Graded)
Nov 8	Lake Effect snow forecasting (Graded)
Nov 15	Exam 2
Nov 29	IDV nor'easters (Graded)
Dec 6	Forecast teams (Not graded)

Notes:

1. As standard equipment for all labs, you will need the lab workbook, a calculator, colored pens and pencils, a regular pencil with eraser, a plotting pen, and a ruler. For colored pens, get some inexpensive felt tips. At a minimum, you will need black, blue, red and green. Also, get red, blue and green pencils for shading maps. You will need a fine-tipped black plotting pen (felt-tip is fine).

2. Since we have no formal text, you must attend all labs and lectures. You should only miss a class or lab for a good reason. Sickness is a good reason. Softball practice is not. If you feel you must be absent or late, ask me first (whenever possible).

3. There will be no lab exam. The grades given for labs will be averaged and will count 30% toward the course grade. Labs are a major part of the course. Read the lab write-ups in the lab book before each lab. Graded labs must be turned in Monday following the lab, unless a different due date is announced during the laboratory period. If you are sick and miss the lab period, you must make up the assignment as soon as possible.

4. Everyone will enter the WxChallenge forecasting contest (forecasting is worth 10% of your grade). The entry fee is \$5.00 for the year. You must pay me and I will pay the Contest. Read the rules at <http://www.wxchallenge.com/info/rules.php> You will need a six-character identifier. Mine is blechm. Yours can be anything such as kissme, Mickey, or SoGood (keep it clean). It can be your name, like Lovell or StacyB. It can be someone else's name, like AJudge or Smith7. Notice that they are case-sensitive. You will type this identifier many times. Make it something you can type easily and remember, too. You also need a nine-character password. You can use any combination of 9 letters and numbers.

5. Everyone has a Linux PC account. Your username is lastname(first initial) such as blechmanj. Change the password the first time you log on (temporary password to be announced first class period).