

Atmos 5210/6210: Synoptic Meteorology II Course Overview



Akakura, Japan
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Jim Steenburgh
Department of Atmospheric Sciences
University of Utah
jim.steenburgh@utah.edu
801-581-8727
488 INSCC (In Suite 480)

Introductions

- Name
- Where you are from
- Major/Academic Year
- Share a great winter weather anecdote

Learning Objectives

- At the end of this course, you should be able to:
 - Describe and identify the three dimensional structure of surface-based and upper-level fronts
 - Apply the frontogenesis function and frontogenesis diagnostics for explaining observed or numerically forecast frontogenesis and frontolysis
 - Characterize and explain the global and regional distributions of precipitation and snowfall, including variations in complex terrain
 - Diagnose the dynamic, thermodynamic, and microphysical processes affecting cool-season precipitation in a variety of synoptic, mesoscale, and orographic settings.

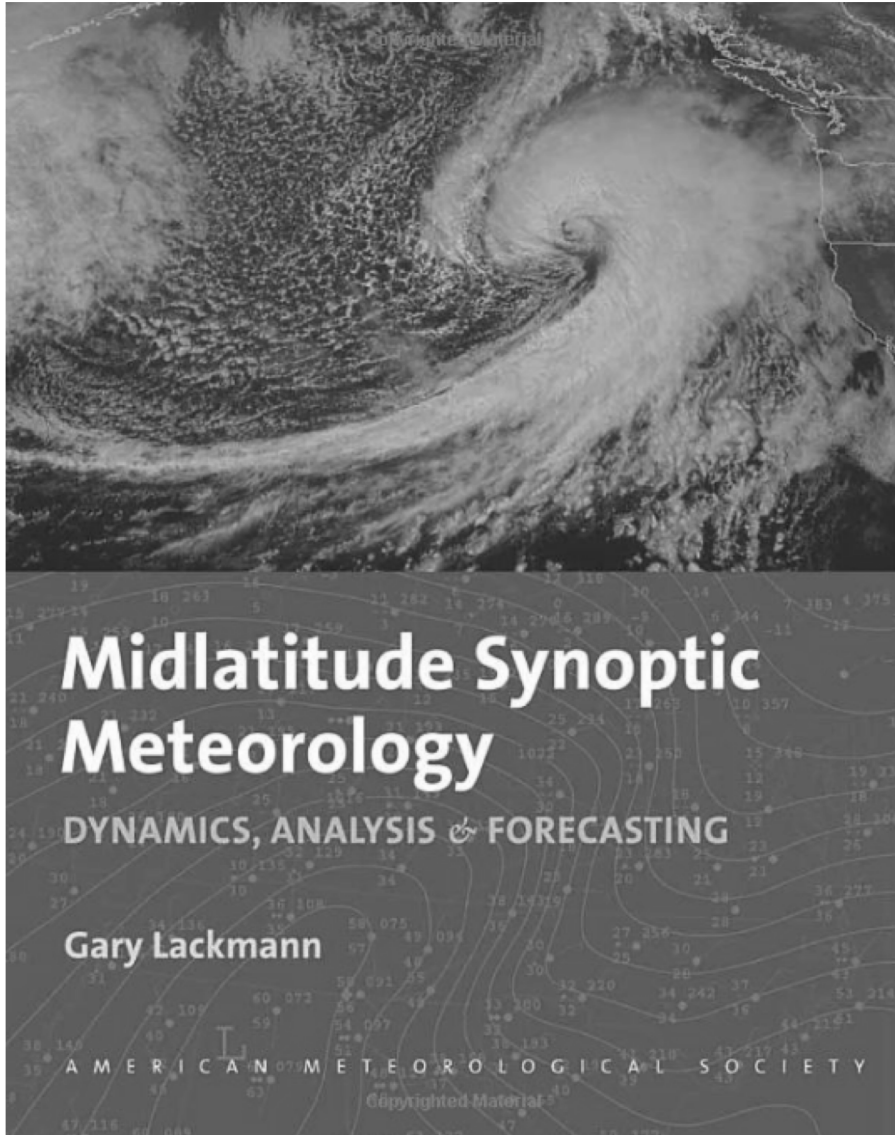
Format

- Two classes per week (10:45–12:05 TH)
 - 711 WBB
 - Mixture of lecture, real-time weather analysis and discussion, and active-learning activities

Schedule

- Fronts
- Precipitation systems and microphysical processes
- Global precipitation characteristics
- Winter-storm fundamentals
- Exam
- Extratropical cyclones
- Cold-air damming
- Atmospheric rivers
- Orographic precipitation
- Lake- and sea-effect precipitation
- Student presentations

Text and Materials



- *Midlatitude Synoptic Meteorology*
 - By Gary Lackmann
 - Recommended but not required
- Additional readings as assigned
- Online learning modules as assigned
- Course notes
- Students should complete reading and learning module assignments before class as outlined on course web page


Grading

- 30% labs (probably 4)
- 25% exam
- 25% presentation
 - During 75 min class period on Feb 25
- 20% attendance and participation
- See online syllabus for gory details

Student Presentations

- Feb 25
- Pick a topic by 21 January in consultation with instructor
- See online syllabus for ideas

Course Web Page & Syllabus

Department of
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COURSE RESOURCES

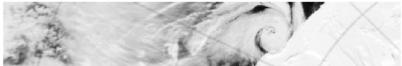
[Syllabus](#)
[Lab I \(TBD\)](#)
[Lab II \(TBD\)](#)
[Lab III \(TBD\)](#)
[Lab IV \(TBD\)](#)
[Exam \(TBD\)](#)
[Presentations \(25 Feb\)](#)

RELATED WEBSITES

[NCEP Global Ensembles](#)
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Atmos 5210/6210: Synoptic Meteorology II



Spring Semester 2020

DESCRIPTION

An upper-division/introductory graduate level survey of contemporary topics in midlatitude synoptic meteorology.

LEARNING OUTCOMES

At the end of this course, students should be able to:

1. Describe and identify the three dimensional structure of surface-based and upper-level fronts.
2. Apply the frontogenesis function and frontogenesis diagnostics for explaining observed or numerically forecast frontogenesis and frontolysis.
3. Characterize and explain the global and regional distributions of precipitation and snowfall, including variations in complex terrain.
4. Diagnose the dynamic, thermodynamic, and microphysical processes affecting cool-season precipitation in a variety of synoptic, mesoscale, and orographic settings.


FORMAT

Two classes per week (10:45-12:05 TH) in 711 WBB. Classes involve a mixture of lectures, real-time weather analysis and discussion, and active-learning exercises.

GRADING

Grading is based on labs (30%), an exam (25%), an oral presentation (25%), and attendance and participation (20%). The exam will be given after the lecture on winter storm fundamentals. Oral presentations will be given on 25 February. For the attendance and participation grade, students are allowed to miss one class without penalty. Additional absences reduce the attendance grade by 5/20 points per absence. The scoring rubric for class participation, applied to the remainder of the score after any deductions for absences is based on:

- 0% - Student is rude and disruptive
- 40% - Student does not ask questions or contribute to discussions
- 70% - Student infrequently asks questions or contributes to discussions
- 88% - Student sometimes asks questions and contributes to discussions
- 100% - Student is attentive, asks questions, and provides comments without dominating the conversation



Jim Steenburgh

Professor

488 INSCC

581-8727

jim.steenburgh@utah.edu

Office hours: Drop in or by appointment

<http://www.inscc.utah.edu/~steenburgh/classes/5210/>

Syllabus; links to labs, notes, and reading materials; schedule

ADA Accommodations

The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability services, 162 Olpin Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangement for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability Services.

U of U Counseling Services

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426 SSB

801-581-6826

24/7 Crisis Line: 801-587-3000

Campus Safety

Campus Police: 801-585-COPS (801-585-2677)

<https://safeu.utah.edu>