ATMOSPHERIC DYNAMICS III: MID-LATITUDE SYNOPTIC-SCALE
DYNAMICS

METR 4133

Fall 2006

Time and location of class: Tues., Thurs. at 10-11:15 AM in NWC 5600

Instructor: Prof. Howie "Cb" Bluestein
    Office: NWC 5351-A (Also underneath wall clouds!)
    Office phone: 325-3006
    E-mail: hblue@ou.edu (I get dozens of non-spam e-mails each day; please be
        patient, especially when I am out of town and/or I fall behind in reading
        my e-mail.)
    Office hours: Mon. 4-5 PM; Thurs. 3:30 – 4:30, except first Thurs. of month,
        when hours are 3-3:30 PM.   Other times by appointment please! I will be
        doing extensive traveling this semester (scientific conferences, national
        committee meetings, invited seminars, etc.); Wednesday is the most likely day
        I will be in my office. It would be best to see when I plan to be available
        (ask me in class) before dropping by. Since I may be difficult to reach at times,
        I will try to make myself available as much as I can when I am in transit or
        taking a break outside…in other words, feel free to accost me in the hallways,
        in elevators, or outside.

Teaching assistant: Nathan Dahl
    Office: NWC 5340
    Office phone: 325-0385
    E-mail: droughtman@ou.edu, Nathan.A. Dahl-1@ou.edu
    Office hours: Tues. – Thurs. 4:30 – 6 PM
    • See Nathan for questions about the problem sets and questions about the exams.
    • See me for questions about the course material, concepts, etc.

Texts (required):
    1. *Synoptic-Dynamic Meteorology in Midlatitudes. Vol. I: Principles of
    Kinematics and Dynamics* by H. Bluestein, Oxford Univ. Press, 1992.
    2. *Synoptic-Dynamic Meteorology in Midlatitudes. Vol. II: Observations and
    theory of Weather Systems* by H. Bluestein, Oxford Univ. Press, 1993.

    Important: Errata sheets for the textbooks are posted on my website
    http://weather.ou.edu/~hblue/corrections/errata1.gif and
    http://weather.ou.edu/~hblue/corrections/errata2.gif. If you want to download the
    errata as Word documents, go to
    http://weather.ou.edu/~hblue/corrections/errata1.doc.
    Please let me know if you find any more errors!

Text (recommended):
> *An Introduction to Dynamic Meteorology* by J. Holton, Academic Press, 1979 or 1992 or 2004

Prerequisites: METR 3213 (Physical Meteorology I: Thermodynamics) and METR 3123 (Atmospheric Dynamics II) or the equivalent. Familiarity with vector calculus and simple differential equations is essential. If you have not taken an elementary course in dynamics, kinematics, and thermodynamics, or if you received a grade of less than C in dynamics or advanced calculus, do not enroll in this course; I recommend that you repeat these courses before enrolling in METR 4133.

Course website: weather.ou.edu/~hblue/metr4133

Topics:
> 1. Brief review of elementary dynamics, thermodynamics, and kinematics of the horizontal wind field and of scalar fields.
> 2. Quasigeostrophic theory.
> 3. Behavior of extratropical disturbances in the context of quasigeostrophic theory; baroclinic instability.
> 4. Behavior and theory of fronts, jets, and the dryline.
> 5. Atmospheric waves; linear perturbation theory. (from Holton's text)

(Also see the "Knowledge Expectations" document at http://weather.ou.edu/knowexpect.php)

Grades: 2 quizzes (20% each; the second quiz will be given at the next-to-last class meeting), 1 comprehensive final exam (60%)

Problem Sets: Selected problems from text to be worked out on your own. Answers will be provided. Problem sets will be collected and used to determine borderline grades.

Etiquette, etc.: As a courtesy to your fellow students and to your instructor, *please be sure your cell phones are turned off when you are in class.* Please e-mail the instructor only with urgent messages (e.g., you cannot make an exam because you are ill). Please see me in person during office hours for all other concerns that the T. A. cannot address. I am most able to help you with questions about the understanding of course material. When you need to see me, but I am out town, and the T. A. cannot help you, please e-mail me, but I may not be able to give a prompt or detailed reply.

Reasonable accommodation policy: Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact me personally as soon as possible so we can discuss accommodations necessary to ensure full participation and facilitate his or her educational opportunities.

Academic misconduct: Academic misconduct is defined as "any act that improperly affects the evaluation of a student's academic performance or achievement." All faculty at the University of Oklahoma expect academic integrity from each student. Misconduct such as plagiarism, submission of work for more than one class, fabrication, and fraud, as well as attempting to commit such act or assisting others in so doing, will not be tolerated. Students are responsible for knowing the OU Academic Code, which can be found at http://www.ou.edu/studentcode.