Meteorology (Geoscience 116)
3 Credits
Lecture: T/Th 3:30-4:50   Room: PA 337

Spring 2008 Office Hours: Tuesday 12-3 and Thursday 8-11 AM. Other times by appointment. Feel free to drop by my office anytime and I will be happy to meet with you if I am available.

Instructor
Dr. Toby Dogwiler
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Texts
Course Response Clicker (available at WSU Bookstore)

Class Materials
1. Bring your clicker to each class meeting. Extra batteries may be a good idea.
2. Bring a Scantron to each exam
3. Bring your textbook to every class. My lectures will be based on the textbook and often I will display figures during the lecture from the textbook.

Assessment
Grading: A > 90%; B 80-89; C 70-79; D 60-69; F <60  (Course must be taken for a Letter Grade)

Exams (4)  80%
Exam 1: Tuesday, February 19
Exam 2: Thursday, March 20
Exam 3: Thursday, April 17
Make-up Exam: Thursday, April 24 at 8:00 AM
Final Exam: Tuesday, April 29th 3:30-5:30 PM
(Part Comprehensive)

Quizzes/Class Participation  20%

General Course Outline
We will generally follow the outline of the Meteorology Textbook.

Policies
- **Class Attendance**: Class attendance is essential for success. You are responsible for knowing what is covered and assigned in class regardless of whether or not you are present. A lecture will not be repeated to you during office hours simply because you chose not to attend class. Attendance and participation will affect the outcome of your final grade.

- **Absences**: Examples of unexcused absences include but are not limited to: attendance at weddings, convenient rides home, oversleeping, un-preparedness. Examples of excusable absences include verifiable illness, and family emergency. Prior notice must be given by e-mailing the instructor.

- **Attendance to exams is mandatory**: If you miss an exam you must provide me with a written excuse and supporting documentation prior to the exam. A comprehensive make-up exam will be scheduled for Tuesday, April 24, 2008, 8 AM. Your score on this exam will be substituted for the score on the missed exam(s). If you fail to take the make-up exam you will receive a zero (0) for any missed exams. Please note: you will only be allowed to take the make-up exam if you have an excused reason for missing a regular exam.
• **Late assignments**- Late assignments will be penalized 15% per day, including the day it was originally due.

• **Academic Dishonesty**- Cheating of any kind will be grounds for automatically failing the course, or at the instructor’s discretion, a minimum penalty of a zero (0) for that assignment may be assessed to first time offenders. Cheating on an exam will automatically, and without exception, result in failure of the course. All cases of academic dishonesty will be reported to university authorities. If you discuss an assignment with someone else, you are both expected to write up your answers individually and in your own words. It is a violation of academic honesty (in other words, cheating) to turn in answers copied from another students paper, even if you worked together to achieve the answer!

• **Communication**- If you need to contact me outside of class for any reason, the burden of communication is upon you. I do not use voice mail or check phone messages. Please communicate with me via e-mail. You’ll find that I answer most email messages and queries very promptly during regular business hours. Please note that I generally do not check e-mail on weekends.

You may **NOT** call me at my home. I am generally in my office from 8 AM until after 5 PM Monday through Friday. The rest of my time is my own, and neither I nor the rest of my family, wish to be bothered in the evenings or on weekends. I encourage you to contact me via e-mail and to visit my office hours if you want to talk in person.

• **Check your e-mail at least daily**- I will commonly make announcements via your university webmail account

• **Assignments**- Reading and study assignments will be made throughout the semester. It is assumed that the student will come to class prepared to discuss the assignments. Pop quizzes will be administered periodically to ensure that students are keeping up with these assignments. Quizzes will cover both reading assignments and recent lectures.

**Disabilities:**
If you have a documented physical or cognitive disability, please notify me as soon as possible so that we can discuss how best to accommodate your needs. Further information and assistance is available from Student Support Services (Howell 133, x5465, www.winona.edu/studentsupportservices) or the Disability Resource Center (Howell 136, x2391, x2409 TTY, www.winona.edu/disabilityservices).

**University Studies Outcomes:**
Meteorology is a three-credit introductory –level course that satisfies the university studies non-laboratory requirement in the natural sciences. Each student studying meteorology will gain an understanding and awareness of the complexity and inter-relatedness of processes that affect the atmosphere, and how these atmosphere processes interact with the oceans to affect the weather and climate of the entire planet.

The purpose of the Natural Science requirement in the University Studies program is to provide students with the tools to understand and be able to apply the methods by which scientific inquiry increases our understanding of the natural world. These courses include requirements and learning activities that promote students’ abilities to...

a. understand how scientists approach and solve problems in the natural sciences;
b. apply those methods to solve problems that arise in the natural sciences;
c. use inductive reasoning, mathematics, or statistics to solve problems in natural science;
d. engage in independent and collaborative learning;
e. identify, find, and use the tools of information science as it relates to natural science;
f. critically evaluate both source and content of scientific information; and
g. recognize and correct scientific misconceptions.
Course activities described throughout the remainder of this syllabus will be coded to the above list of outcomes by the corresponding letter. These outcomes will be integrated throughout course content—each new topic will be presented in a manner in which the student will be able to understand and apply the methods by which scientists approach and solve problems in the natural sciences, using inductive reasoning or mathematics (outcomes a-c). Common scientific misconceptions will be identified at the start of each topic, and class material will be directed toward correcting those misconceptions (outcome g). You will be asked to work collaboratively on certain in-class activities and independently on homework and exams (outcome d). In-class and homework assignments will require that you work with the textbook, library resources, the Internet, and other sources to critically evaluate scientific information as it relates to Meteorology (outcomes e, f).

The four major goals of the course- These are the ideal outcomes of the course. However, it should be noted that an individual student’s success in achieving these goals will be dependent upon their own individual effort and diligence. Ones overall grade in the course will, for the most part, be an assessment of how successful one is in attaining these goals:

A. Each student will have a working knowledge of how the wind moves around weather areas and how weather patterns move across the U.S.

B. Each student will be able to go outside and with a few observations be able to predict the weather for the next 12-24 hours with a 70% accuracy.

C. Each student will be able to describe the forces of nature that determine the various weather elements and relate those forces to the pertinent .

D. Given a current weather map and/or upper atmospheric charts, each student will be able to predict at least 5 of the 7 main weather elements and predict the weather for the following 24 hours.

Teaching and Course Philosophy
Meteorology is a particularly interesting subject because it plays such an intimate role in our daily routines. Part of the fun of this subject is the ease with which anyone can make weather observations using readily available and easy-to-use equipment (i.e., rain gauge, thermometer, barometer, etc.). This course will follow local, regional, and national weather occurrences and phenomena by beginning each lecture with an overview of the current weather and the short-term forecasts. Students will complete short, in-class assignments where they directly measure weather phenomena and where they obtain real weather data from the internet. These observations, assignments, and research activities will allow us to maintain a solid grounding in the actual weather all around us while we investigate the more abstract concepts and processes at work in the atmosphere that are, as a sum-total, the weather.

This course is designed to stimulate and challenge your thinking (outcomes a, b, c, f, g). There are no prerequisites for this course. If you can balance your checkbook, you can do all the math that will be required (outcome c). You are expected to understand and apply fundamental concepts (outcomes a, b, c, e, f, g), rather than to simply memorize information, on exams. You should strive to achieve as complete and sound a scientific interpretation as possible, by trying to integrate information across discrete chapters of the text.

Because scientific understanding does not usually progress in a vacuum—it is through discussions and arguments with colleagues that most advances stem—you are encouraged to work in groups and to discuss your ideas and to work through confusing concepts with your classmates. One of the best ways to study and understand and learn is to form a small study group—quiz one another. Make up questions that you think will be on the exam, and be certain you can answer them. If you can accurately explain a concept to your peers, then you can feel comfortable that you understand it. If you're confused in doing this, you're likely to be confused about the material. (outcome d)
The instructor will utilize class time by (1) demonstrating concepts covered in the reading material, (2) showing relevance of the concept to meteorology, (3) demonstrating problem solving techniques, and (4) answering questions from class.

In addition to the above, the instructor will call on students to create theories and answer questions regarding the topic of the day. The purpose of these questions will be to increase the student's ability to create informed opinions regarding scientific subject material, i.e., to increase the student's scientific literacy. Mathematical discourse will be kept to a minimum but it is assumed that the students have had at least one year of algebra and also are familiar with the metric system.

**Guidelines for surviving university studies Geoscience courses at WSU:**

Here is some advice and some observations about how to achieve at your highest academic level in a Geoscience university studies courses.

**Attendance-** Consistent attendance to lectures and laboratories is directly correlated to good grades in any course.

*Arrive on time!* The first five minutes of class are often the most important part of the entire lecture. I usually use them to discuss how the day’s topics fit into the broader goals of the course, and where the course is headed in the next few lectures. Also, I will announce and discuss new assignments. Important logistical information, like items that will and won't be on exams, are often discussed here as well. Everyone is unavoidably late now and then, but my experience is that most students who consistently arrive a few minutes late for the lecture also receive a poor final grade in the course.

**Assignments-** Reading assignments should be completed before coming to class, so that more effective listening, individual and group participation, and note-taking can take place. Following class, notes should be reviewed together with careful re-reading of the assignments. If this is done on a regular basis, performance will be enhanced. Classroom sessions will be more meaningful and discussion will be possible.

**Study for the exams regularly**- Research indicates that studying for more than one or two hours at a time is unproductive. Thus, it is much more effective to study a little each day than to study 12 hours the day before an exam. If you determine that it is necessary to study 10 hours for an upcoming exam you should study 1 hour each day for 10 days, or 2 hours each day for 5 days. If you do poorly on an exam, then come to office hours and tell me you studied for 12 hours the night before, I will know exactly why you performed so poorly!

**Consultation** - I will be available for consultation throughout the semester and you are urged to keep in touch, especially if you are having difficulty. Office hours are listed above and can also be made by appointment (via e-mail is easiest way). My office is Rm 114-A in Pasteur Hall and my e-mail is tdogwiler@winona.edu

**Campus Academic Resources**- The Academic Skills Center, located in 125 Phelps, has experienced master tutors offering free individualized assistance with basic study skills, writing (including grammar and spelling), and preparation for tests. Simply register first in Student Support Services in 133 Howell. Then sign up on the schedules posted outside 125 Phelps, same building. For more information, go to http://www.winona.edu/academicskillscenter or you may contact the center at ascenter@winona.edu.

**Laptop Policy**

Laptops are an invaluable learning tool and I believe that WSU is foresighted in the implementation of our comprehensive laptop policy. As students you pay a significant fee for your laptop, software, and technical support, and I believe you should use your laptop productively for course-related work.

Nonetheless, over the past few years I have observed that laptops have become a serious impediment to learning during in-class activities. Students are too easily distracted by the temptations of e-mail, IM, on-line gaming, and other electronic activities. Students often overestimate their ability to multitask and erroneously believe that they can IM, e-mail, and participate in class simultaneously. My experience as an instructor strongly indicates that very few, if any, students can truly accomplish such a feat—at least in any manner that results in high-quality learning and class participation.

Unfortunately, the distraction is not limited to the student who is misusing their laptop. Other students and the instructor are invariably distracted too. In fact, this is the most common complaint I
receive from students about the in-class environment. Even for a student who is attempting to concentrate on the lecture or classroom discussion, it is extremely difficult to ignore images and graphics on the screens of other students. In the past, I have attempted to appeal to a common sense of decency and courtesy to encourage students to police themselves regarding appropriate laptop use. In fact, in the past, my belief in the value of the laptop as a learning tool, and the right of the student to use what they have paid for, has trumped any consideration of banning laptops from my classes.

However, based on my experience, I now believe that laptops are detrimental to many forms of in-class learning and any benefit is outweighed by the importance of fostering a high-quality learning environment. Thus, I have decided, after several months of consultation with students and other faculty, to largely ban laptop usage in my classes. For the most part, I will no longer allow laptops to be used in class. Exceptions will be made for specific lab activities and in-class (or lab) assignments and these activities will be clearly designated as “Laptop Approved”. (As an aside, I have also come to realize that tuition—what students are charged to register for their courses—is a greater expense than the charge for the laptop. Thus, even in purely financial terms, it still makes sense to restrict laptop usage during class.)

The laptop policy for this class will be as follows:
1. Students are strongly encouraged, and in fact, often necessitated, to use laptops to complete most out-of-class assignments, activities, etc.
2. Unless explicitly approved by the instructor, laptop usage will be prohibited during class meetings.
3. When explicitly approved by the instructor, laptops may be used during class to complete a specific assignment or activity.
4. For a first infraction, students
   a. using a laptop during a class meeting when not explicitly approved,
   b. or using a laptop in a non-approved manner (e.g., checking e-mail, using IM, etc.)
   during a “Laptop Approved” activity,
   will be removed from the remainder of that class meeting and receive a 5% reduction in their final grade for the course. The student will also receive a warning via e-mail reminding them of this policy and requesting that they review the laptop usage section of the syllabus.
5. For a second infraction, regardless of whether it was the same as the first infraction, students will receive a zero (0) for the course and automatic grade of failing for the semester.

Obviously, this is a strict policy with little tolerance. I believe any policy that was more lenient would lead to ambiguities, loopholes, abuse, and with a little time, obsolescence. I believe this to be a clear policy, with clear consequences, and most importantly, an issue that all students can easily avoid by following these rules.

I reserve the right to amend any portion of this syllabus during the course of the semester. If I amend the syllabus I will provide adequate notice to the class.
I attest that I have read and reviewed the syllabus for GEOS 240 Watershed Science and understand the course policies and guidelines.

____________________________________ ____________________________________
Print Signature

_______________________
Date