

SYLLABUS
GR 4753-501: Satellite and Radar Meteorology
Spring Semester 2013

Instructor: David Keeney

Discussion Board

All students must read postings in the “Instructor Messages” topic on the discussion board at least once each week. Discussions in the “Student Questions” section are recommended but not mandatory, postings in the “Off-Topic” section are optional, and I strongly encourage students to post current events-related links in the “Current Events” topic on the discussion boards.

E-mail

SatRad internal (MyCourses) email should be used for all private messages sent to the instructor. SEND MESSAGES TO ANY EXTERNAL EMAIL ADDRESS only in the case of an emergency. In this case, an email may be sent to [David Keeney \(dpk15@msstate.edu\)](mailto:dpk15@msstate.edu); however, you must expect a delay in receiving an answer.

Phone Calls

Please do NOT call my office number unless you have an emergency. I cannot provide course content-related assistance via the telephone to every student, so therefore, I will not offer assistance to any student that calls me. Again, if it is an emergency, I'll do my best to provide help. However, I always prefer e-mail as a first resort to any emergency problem. If you have course-related questions, you are always more than welcome to e-mail me through MyCourses or post on the bulletin board.

Other contacts:

- ALL technical issues (access denied, server down, etc.) – Tracy Craven: TCraven@aoce.msstate.edu 662-325-8374
- Registration, change of address, DVD problems, general inquiries - Joy Bailey: JBailey@aoce.msstate.edu
- Degree evaluations, degree requirements – Mary Dean: Mary@geosci.msstate.edu
- Admissions issues – Lisa Carraway: lcarraway@aoce.msstate.edu
- MSU Bookstore 662-325-1576

REQUIRED SOFTWARE

- **GRLevel III Radar Display Software from Gibson Ridge Software, LLC**
http://www.grlevelx.com/grlevel3_2/
- **Make sure and download version 2 as it allows you to view Dual-pol data**

RECOMMENDED TEXTBOOK

- **An Introduction to Satellite Image Interpretation by Eric D. Conway and The Maryland Space Grant Consortium**; this book is only recommended because it is a good reference material to have; it is not needed to complete the course.
-

COURSE DESCRIPTION

This course is an introductory survey of meteorologically based remote sensing platforms, systems and image interpretation for purposes of operational meteorological analysis and climatological research.

SCHEDULE OF DEADLINES

January 23: Quiz 1, Lab 1

January 30: Quiz 2, Lab 2

February 6: Quiz 3, Lab 3 and 1st Quarter HW Test

February 13: Quiz 4, Lab 4

February 20: Quiz 5, Lab 5

February 27: Quiz 6, Lab 6 and 2nd Quarter HW Test

MIDTERM: Opens FRIDAY, March 1 and closes WEDNESDAY, March 6

March 20: Quiz 7, Lab 7

March 27: Quiz 8, Lab 8

April 3: Quiz 9, Lab 9 and 3rd Quarter HW Test

April 10: Quiz 10, Lab 10

April 17: Quiz 11, Lab 11

April 24: Quiz 12, Lab 12 and 4th Quarter HW Test

FINAL: Opens FRIDAY, April 26 and closes WEDNESDAY, May 1

Each assignment will be due at 11 a.m. CT on the dates listed above. It is suggested that each student study the calendar and set his/her own dates to complete each assignment. Do not wait until the last minute to do the assignments! Procrastination by the student will not constitute an emergency for the instructor.

SCHEDULE OF LECTURE MATERIAL

SATELLITE PORTION

Lecture 1. Intro to Remote Sensing

Lecture 2. Intro to POES

Comet Module Polar Satellite Products for the Operational Forecaster (POES) Module 1: POES Introduction

Quiz 1, Lab 1

Lecture 3. Intro to GOES

Comet Module GOES-R: Benefits of Next-Generation Environmental Monitoring

Lecture 4. Cloud ID

Quiz 2, Lab 2

Lecture 5. Cloud Features

Lecture 6. Intro to Enhancements

Comet Modules Feature Identification Using Environmental Satellites
Satellite Feature Identification: Blocking Patterns

Quiz 3, Lab 3

1st QTR Test

Lecture 7. Local Winds

Lecture 8. Deep Convection

Quiz 4, Lab 4

RADAR PORTION

Lecture 9. Intro to Radar*

Quiz 5, Lab 5

Lecture 10. Radar Principles

Lecture 11. What makes Doppler Radar Doppler

Supplemental reading: Radar Principles

Quiz 6, Lab 6

2nd QTR Test

Midterm

Lecture 12. Radar Products

Lecture 13. The Pulse Storm*

Quiz 7, Lab 7

Lecture 14. The Lemon Technique (WER and BWER identification)

Supplemental Reading "LemonTech"

Quiz 8, Lab 8

Lecture 15. Three Body Scatter Spike*

Supplemental Reading "TBSS" and "TBSS II"

Quiz 9, Lab 9

3rd QTR Test

Lecture 16. Severe Winds (Squall Line, Bow Echo, and MARC)

Quiz 10, Lab 10

Lecture 17. The Supercell Storm*

Quiz 11, Lab 11

Warning Exercise*

Quiz 12, Lab 12

4th QTR Test

Final

An asterisk (*) indicates the lab contains Dual-pol data

ACADEMIC HONESTY

You are required to read and will be held accountable to the standards set out in Mississippi State University's policies and procedures for Academic Honesty. Acceptable practices in this course are as follows:

QUIZZES – The quizzes will be based on the Lab work, videos, Lectures and assigned readings. If you do all of the weekly assignments each corresponding quiz should be relatively straight forward. You may not share your Quiz answers with anyone.

HOMEWORK EXERCISE TESTS – Open book/notes/work. The 1st, 2nd, 3rd and 4th Quarter Homework Tests are a mix of question based on material from the Lectures (i.e. Powerpoints), Videos and lab work. No timed homework exercise test or exam may be viewed until you are ready to complete the test and submit it within the specified time period. Failure to comply with this, for any reason, will result in your grade being penalized. The easiest way to avoid this problem is to not open the homework tests or exams until you are ready to take them! Do not share your Test answers with anyone. ***Do not print or save any homework exercise test until its deadline has passed and the Instructor has released its results to the class.***

EXAMS (Midterm and Final) - Open book/notes/work. Use any and all available resources to complete the examination questions in this course. However, remember that since these are timed exams, time spent looking for the material can potentially take significant time away from answering the questions. Therefore, it is more important to know the material and concepts than simply having the resource materials available. Do not share your Exam answers with anyone. ***Do not download, save, print or otherwise possess either exam at any time unless individually authorized to do so by the Instructor.***

COMET MODULES – You will need to register with COMET to access the Modules. It is free and gives you access to a variety of Modules covering a wide range of topics. Here is the website to register: <https://www.meted.ucar.edu/>. Click “Sign Up” at the top.

TIMED TEST POLICY - You will have 60 minutes to complete the homework tests, midterm, and final. If you exceed the allotted time, each question after the **FIRST** late question will not be credited. For example, if you answer six questions after the time limit, the first question will count (provided it is correct). You will lose total credit for the other five questions, regardless if they are correct.

MISCELLANEOUS - please don't wait until the last minute to take the quizzes, homework tests, and midterm & final. Do NOT log into the homework tests or exams until you are ready to take them. If you log into a quarterly homework test or exam and do not submit it within one hour of logging in, you will receive a zero for that test.

HONOR CODE - please take some time to read over the MSU Honor Code:

“As a Mississippi State University Student I will conduct myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do.”

<http://www.students.msstate.edu/honorcode/>.

Ignorance of the rules does not exclude any member of the MSU community from the requirements or the processes of the Honor Code. If you observe or suspect cheating you are required to inform the instructor. Failure to do so will result in the same penalty as those caught cheating. You may not share or discuss

Quiz, Test or Exam answers. This includes using social media outside this course or in the course. If you are caught cheating you could receive any of the following punishments: a zero on the question, a zero on the Quiz/Test/Exam, a lowered final course grade, an "XF" in the course and/or expulsion from the MSU program. Do your own work and you will be fine.

SPECIAL NEEDS

Students with special needs, learning disabilities etc. must contact the university's Student Support Services to provide documentation of disability to MSU. Specific instructions can be found at <http://www.msstate.edu/dept/sss/>

SEMESTER GRADES

Letter grades for the semester are assigned on the following scale: A ($\geq 90\%$), B (80%-89%), C (70-79%), D (60%-69%), F ($\leq 59\%$)

Average of 11 highest quiz scores, i.e. 1 drop quiz grade = 15%

Average quarterly exercise test score = 40%

Average exam score = 45%

This syllabus is a guide and may be subject to change