

The University of North Carolina – Asheville
Department of Atmospheric Sciences
Syllabus For:
ATMS 373-02 – GIS in Meteorology (3)
Spring 2009
MW: 11:25am – 12:40pm

Instructor: J. Greg Dobson

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Classroom / Lab: ZH 101

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Mail Box: Rhoades Hall 201

Office Hours: By Appointment M/W

Class Blog: <http://atms373.blogspot.com/>

Class Google Group: <http://groups.google.com/group/atms-373/web>

PREREQUISITES

None. However, basic computer literacy is necessary.

COURSE DESCRIPTION

This course will introduce students to the field of Geographic Information Systems (GIS) and demonstrate its applications to meteorology, climatology, and hydrology. Through a series of lectures and computer lab exercises, students will gain an understanding of basic GIS theory, principles, software, and data formats. They will learn how GIS is being utilized in the Atmospheric Sciences and Meteorological communities. Students will learn how to use ArcGIS Desktop, Google Earth, and other Open Source software to integrate and incorporate a variety of weather and climate datasets into GIS-based atmospheric science applications to assist with analysis, decision-making, and cartography. This class will also introduce basic GIS 3D visualization and animation of weather and climate data.

REQUIRED TEXTBOOK

None.

While there is no required text for the class, readings will be assigned and provided through handouts, placed in the Library electronic reserves, or made available online. These will include chapters from other textbooks and journal articles. It will be up to the student to be sure they receive these materials and use them to prepare for class, quizzes, and exams.

SUGGESTED SUPPLIES

Software:

- Trial Version of ArcGIS Desktop
<http://www.esri.com/software/arcgis/arcview/eval/evaluate.html>
- Google Earth

Hardware:

- USB Portable Flash Drive – 1 Gigabyte minimum recommended.

COURSE OUTCOME GOALS

- Basic knowledge and understanding of GIS and Geospatial theory, principles, and applications.
- Become fluent in GIS and Geospatial terminology.
- Understanding of data formats and data models (vector vs. raster).
- Demonstrate competency and familiarity with ArcGIS Desktop software.
- Knowledge of data sources, data entry, and data creation.
- Be able to manipulate, geoprocess, convert, and query data.
- Basic understanding of projections and coordinate systems.
- Demonstrate basic cartographic skills by creating effective maps.
- Be able to display data effectively through symbolization, classification, and labeling.
- Understand attribute data and tables.
- Be able to use Google Earth and other Virtual Globe software as a GIS platform.
- Understand the integration between Google Earth and ArcGIS software through data conversions.
- Understand NOAA and NWS GIS data standards, and how the Atmospheric Sciences and Meteorological Community are integrating GIS into daily operations.
- Be able to integrate weather and climate data into a GIS.
- Be able to analyze weather and climate data with GIS.
- Understanding of basic Visualization (2D and 3D) and Animation of weather and climate data with GIS and Geospatial software.

CLASS SCHEDULE AND IMPORTANT DATES

Class will meet every Monday and Wednesday from 11:25am - 12:40pm with the following exceptions:

- Wednesday, Jan. 14th – No Class
- Monday, Jan. 19th – Holiday
- Monday, Feb. 1st – Open Lab
- Monday and Wednesday, March 9th and 11th – Spring Break
- Monday, May 4th – Last Class Meeting

The Final Exam will be on May XX. Details to follow.

METHODS OF EVALUATION

During the course you will be required to demonstrate your knowledge and skills in a variety of formats including traditional written tests, hands-on performance, and completion of projects and lab assignments that simulate real world working situations.

Final Grading:

Test 1 - 15%
Test 2 - 15%
Final Exam - 20%
Final Project - 15%
Quizzes - 10%
Lab / Homework Assignments - 25%

Grading Scale:

93 – 100	= A
91 – 92	= A-
89 - 90	= B+
83 – 88	= B
81 – 82	= B-
79 – 80	= C+
73 – 78	= C
71 – 72	= C-
69 – 70	= D+
61 – 68	= D
0 – 60	= F

Quizzes:

Announced quizzes will be given through out the semester to help the student gauge their understanding of the weekly lecture and lab material.

Lab / Homework Assignments:

Lab and homework assignments will consist primarily of lab exercises using GIS software. The end product of these exercises will vary from screen captures, maps, questions about the data, etc. Each student will hand in his or her own assignment. Assignments to be handed in printed form unless otherwise instructed.

Tests / Final Exam:

Tests and the final exam will be written and will consist of short answer, multiple choice, and fill in the blank. The final exam WILL BE comprehensive.

Assignments and Tests - Make-up Policy:

Late assignments are discounted 25% and will not be accepted later than 1 class meeting after the due date. No missed test will be excused unless you inform your instructor before the test. E-mail is available 24 hours a day, everyday; therefore, you will be expected to make this effort.

Final Project:

Details on the final project will be announced.

ATTENDANCE POLICY

Regular class attendance is necessary in order for you to receive the maximum benefit from your education and to develop professional work habits of responsibility, dependability, and self-direction which are all highly valued by employers in today's competitive workplace.

Please notify the instructor of your absence. You may e-mail or leave a voice mail message. If it becomes necessary for you to withdraw from class, you must bring the appropriate form for the instructor to sign. For more information, see the Student Handbook

DISABILITIES

Let the instructor know early in the semester if you have a disability that requires special accommodations.

ACADEMIC INTEGRITY

Cheating or plagiarism results in a failed assignment, quiz, or exam on the first infraction. A second infraction results in course failure and a report to the UNCA administration. See <http://www.unca.edu/catalog/academicregs.html> under "Student Responsibilities" for a refresher on the UNCA policy.

HOW TO APPROACH THIS CLASS

This is a 3-credit class. You should expect to spend 1 – 2 hours outside of class for every lecture hour put into normal classroom time in order to master this material. This time estimate depends on student's prior computer skills and knowledge of the subject matter. I encourage the student not to rush through the lab exercises, rather think about what is happening. *If you are having problems or get behind, contact me immediately and let me know. Communication between the instructor and student is critical to everything we do. If I don't know anything is wrong, I can't help.*

OTHER

- Manage your digital information logically and consistently and MAKE A REGULAR BACK-UP!!