

ATMS 325 GIS in Meteorology

Fall 2020

What is all about this course?

Introduces students to the field of Geographic Information Systems (GIS) and demonstrates its applications to meteorology, climatology, and hydrology. Through a series of lectures and 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 disciplines of atmospheric sciences. This course is totally ONLINE in fall 2020.

Prerequisite: ATMS 205 or permission of instructor. See department chair.

Who is the instructor?

Dr. Huo-Jin (Alex) Huang, RRO 236B
Dept. of Atmospheric Sciences, UNCA
e-mail: ahuang@unca.edu
<http://www.atms.unca.edu/ahuang>

What is the structure of the course?

- Online PowerPoint Lectures
- Online homework assignments
- Reading assignments
- Online student presentations
- Term project
- Final exam



Virtual Office Hours by Zoom:

3—4 pm, Tuesdays, Thursdays.
(or communicating by e-mail to set up an online appointment)

When and Where do we meet?

3:15— 5 pm, Wednesdays, ONLINE using Zoom

References:

Getting to know ArcGIS Pro, 2nd edition, by ESRI.
Getting to Know GIS, 5th edition, by ESRI.
GIS Fundamentals, 6th edition;
The GIS 20 Essential Skills, 3rd edition;
Mastering ArcGIS, 7th edition;
GIS Workbook Tutorials by ESRI;
NCAR GIS Workshop Materials.
<https://www.esri.com/training/>

How will you be graded?

- Assignments: 50%;
- 1 Student Presentation: 10%
- 1 Project: 20%
- Final Exam: 15%
- Classroom participation: 5%.



Grade Scale (100%)

A \geq 93; A-: 92.5-90;
B+: 89.5-87; B: 86.5-83; B-: 82.5-80;
C+: 79.5-77; C: 76.5-73; C-: 72.5-70;
D+: 69.5-67; D: 66.5-60; F: \leq 59.5.



How can you succeed in this course?

- Active learning
- Do your homework
- Read materials
- Ask Instructor
- Ask questions
- Form study group
- Think, review, connect
- Be healthy, stay safe
- Choose right friends
- Check out Moodle daily!



Exam Date:

Final Exam: by midnight, 11/19/2020



The best way to contact the instructor anytime? By e-mail to ahuang@unca.edu

ATMS 325 COURSE OUTLINE

WEEK	DAY	DATES	SUBJECTS
1	Wednesday	8/12	Introduction to GIS ArcMap: HW01 Intro to ArcMap (US, rivers, rawinsonde stations)
2	Wednesday	8/19	Introduction to ArcGIS Pro ArcMap: HW02 Input XY Data (Weather stations)
3	Wednesday	8/26	ArcMap: HW03 Symbology and Join (COVID-19 cases) ArcMap: HW04 Inquiries and Intersect (Hurricanes)
4	Wednesday	9/2	Coordinate Systems and Projections ArcMap: HW05 Geocoding (Buncombe Voters)
5	Wednesday	9/9	ArcMap: HW06 Layout View (NC County Statistics)
6	Wednesday	9/16	Introduction to ArcGIS Pro
7	Wednesday	9/23	Pro: HW07 Introduction to ArcGIS Pro: West Virginia Data
8	Wednesday	9/30	Pro: HW08 Introduction to ArcGIS Pro: Maryland Data
9	Wednesday	10/7	Student Presentations
10	Wednesday	10/14	Pro: HW09 Introduction to ArcGIS Pro (METAR and Upper air data)
11	Wednesday	10/21	Pro: HW10 Selections and Intersect (US and NC Tornadoes)
12	Wednesday	10/28	Pro: HW11 Spatial Analysis: NA hurricanes
13	Wednesday	11/4	Pro: HW12 Layout View (NC Severe Weather)
14	Wednesday	11/11	Pro: HW13 Modeling (2017 Harvey and 2005 Katrina) Pro: HW14 Raster Data (Digital Elevation Model)
15	Wednesday	11/18	Pro: HW15 NETCDF data (US rainfall)
	Friday	11/20	Final Exam, Term Project is due
16	Wed—Sun	11/25-29	Thanksgiving Holidays

Student Learning Outcomes: Upon completing this course successfully, you should be able to:

- To learn fundamental understanding and applications of GIS software;
- To input various data to GIS software, and the capability to process, manipulate and present data using GIS software;
- To develop critical thinking in making decision for planning and risk management;
- To develop research ideas using GIS software, and to learn research methodology;
- To develop writing and presentation skills;
- To learn collaborative skills in a team working environment.



Special Remarks: **Online presence is strongly recommended.** You are solely responsible for the consequences due to your absence. A **significant** reduction of your score on your late assignments. An exception may be granted for uncontrollable circumstances and medical reasons. You have to consult with the instructor at your earliest convenience for exceptions. **You will receive an F for the semester if you miss more than 4 assignments without any justifiable and excusable reasons.** **No smartphones or other operational electronic devices are allowed during the online class period except for internet connection and educational purposes.**



Academic Integrity: Individual honesty and responsibility are expected, and academic integrity is enforced. Any act of plagiarism or cheating is academic dishonesty. A person who knowingly assists another in cheating is likewise guilty of cheating. According to the instructor's view of the gravity of the offense, a student may be punished by a failing grade or a grade of zero for the assignment or test, or a failing grade in the course. If it seems warranted, the instructor may also recommend to the Provost dismissal or other serious university sanction. Please review the procedures outlined in Section 8.3 of the UNCA Faculty Handbook (<http://www3.unca.edu/aa/handbook/8.htm>) that relate to academic dishonesty.



Office of Academic Accessibility

UNC-Asheville values the diversity of our student body as a strength and a critical component of our dynamic community. Students with disabilities or temporary injuries/conditions may require accommodations due to barriers in the structure of facilities, course design, technology used for curricular purposes, or other campus resources.



Students who experience a barrier to full access to this class should let the professor know, and/or make an appointment to meet with the Office of Academic Accessibility as soon as possible. To make an appointment, call 828.232.5050; email academicaccess@unca.edu; use this link <https://uncaoaaintake.youcanbook.me/>; or drop by the Academic Accessibility Office, room 005 in the One Stop suite (lower level of Ramsey Library). Learn more about the process of registering, and the services available through the Office of Academic Accessibility here: <https://oaa.unca.edu/>

While students may disclose disability at any point in the semester, students who receive Letters of Accommodation are strongly encouraged to request, obtain and present these to their professors as early in the semester as possible so that accommodations can be made in a timely manner. It is the student's responsibility to follow this process each semester. timely manner. It is the student's responsibility to follow this process each semester.

Sexual Harassment and Misconduct

All members of the University community are expected to engage in conduct that contributes to the culture of integrity and honor upon which the University of North Carolina at Asheville is grounded. Acts of sexual misconduct, sexual harassment, dating violence, domestic violence and stalking jeopardize the health and welfare of our campus community and the larger community as a whole and will not be tolerated. The University has established procedures for preventing and investigating allegations of sexual misconduct, sexual harassment, dating violence, domestic violence and stalking that are compliant with Title IX federal regulations. To learn more about these procedures or to report an incident of sexual misconduct, go to titleix.unca.edu. Students may also report incidents to an instructor, faculty or staff member, who are required by law to notify the Title IX Office.

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AGE SEXUAL
SEXUAL ORIENTATION
STALKING ASSAULT
ETHNICITY
RELIGION BATTERY
HARASSMENT
DATING VIOLENCE RACE
POLITICAL AFFILIATION
MISCONDUCT

Understanding Academic Alerts

Faculty at UNCA are encouraged to use the university's Academic Alert system to communicate with students about their progress in courses. Academic Alerts can reflect that a student's performance is satisfactory at the time the alert is submitted, or they can indicate concerns (e.g., academic difficulty, attendance problems, or other concerns). Professors use the alert system because they are invested in student success and want to encourage open conversations about how students can improve their learning, and students who respond to alerts quickly are consistently more likely to earn credit for the course. Please note, professors of 100-level courses are required to submit at least one alert about each student on or before the seventh week of classes.

When a faculty member submits an alert that expresses a concern, the student receives an email from Academic Advising notifying them of the alert and subsequent registration hold on their account. To clear the hold, the student must complete a short Google Response Form included in the alert e-mail; the results will be shared with their instructor and advising staff. Instructors may also request to meet with the student to discuss the alert.

Questions about the Academic Alert system can be directed to Anne Marie Roberts (amrober1@unca.edu) in OneStop Advising and Learning Support.

Writing Center

The University Writing Center (UWC) supports writers in one-on-one sessions lasting 10 to 45 minutes. Consultants can help writers organize ideas, document sources, and revise prose. If you visit the UWC, bring a copy of your assignment, any writing or notes you may have, and the sources you are working with. Make an appointment by visiting writingcenter.unca.edu and clicking on "Schedule an Appointment," or drop in during open hours Monday-Friday.

Disclaimer: This syllabus is the contract between the instructor and students. Most information will not be changed. However, the schedule may be altered due to unforeseeable circumstances impacts by the development of COVID-19 pandemic.