

Department of Geography and Geology
GISC 317: Fundamentals of GIS On-Demand

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Course Description: This four-credit hour course is an introduction to the principles and applications of computer based geographic information systems. Spatial information sources, data encoding, storage, management, analysis, and display are highlighted through the application of GIS techniques to problems in a variety of fields, including land use and natural resource management, transportation, and urban and regional planning. Students will become acquainted with both raster and vector models using ArcGIS. GISC 317 is the second of four courses in the 14-credit hour GIS certificate. For more information on the GIS certificate, please see www.wku.edu/gis

Prerequisite: Geog 316 - Fundamentals of GIS –In good standing (C or better).

Course Objectives and Outcomes: This is not just a course in how to use a software program. To ensure accurate results from the software one must understand the theoretical basis and geographic principles of GIS. **After completing this course, a student should be able to:**

- Understand and explain to others what GIS is, what the major components of the technology are and typical applications of GIS.
- Demonstrate an understanding of the geographic basis of GIS through correct use of Map projections, coordinate systems, scale, and cartographic generalization for different data sets.
- Understand the principles of the raster and vector data models and be able to create, modify, analyze and map data in both forms.
- Understand and explain the role of topology in the storage and analysis of geographic data.
- Understand the relationship between attribute and feature data and know how both are stored on disk.
- Identify, download, and manipulate into a useable format existing state and national data sets available over the internet.
- Use GIS analysis tools, including spatial and attribute queries and geographic visualization, to explore a data set and formulate a research question.
- Use basic vector analysis techniques, including buffering, overlay, and distance measurement, to solve a geographic problem.

Class Format and Policies:

This course is administered with WKU's Blackboard software, which is accessible at <http://blackboard.wku.edu/> The Blackboard web site will be your entry point for all course materials not contained in the textbook. All assignments must be uploaded to Blackboard. Assignments emailed to the professor will not be accepted.

Special Note on Blackboard & Web Browsers: Some web browsers interact with Blackboard better than others. Firefox is the preferred browser for use with WKU's Blackboard. If you receive an error message about an invalid file type when attempting to upload an assignment file, then you may need to change the browser version or type of browser that you use. In Blackboard, see the tab "Browser Compatibility" for further information or call the IT HelpDesk at 270-745-700

Material needed: If using the ArcGIS Pro Software (Recommended) you will need to purchase Mastering ArcGIS Pro by Maribeth H. Price. If you will be using ArcGIS Desktop then you will need to purchase Mastering ArcGIS 7th edition by Maribeth Price—must be the 7th edition. See blackboard for more details on choosing a software or send the instructor an email.

Disks or thumb drives to back up your homework and lab exercises only. It is not recommended to

work on data that is on an external drive as this causes problems with the software.

Students must have reliable access to a recent computer running the Windows operating System (no Macs). I will give you ArcGIS software to use.

A reliable internet source. Some students will have difficulty uploading the large files because of your connection at home. I recommend boosting your home internet during this course or heading out to McDonalds with your laptop!

To submit assignments and labs, you will need a program that does zip compression. The one that comes with Windows will work just fine. If you do use another zip package it must be compatible with my computer.

You must use your topper/WKU email or change your preferred email in TopNet. Verify with IT that your preferred email is the one I have access to in blackboard.

I will be emailing you regularly. I ask that you respond within 24 hours to questions I ask you (except over the weekends of course—if I email you on Friday please get back to me by Monday). I will extend the same courtesousness to you.

Courteousness: Civility tends to be fading in the classroom. Please be professional and courteous at all times during this course in emails, discussion boards etc., not only with the professor but also with classmates. Treat emails with professionalism and remember that you are not texting. GIS can be very frustrating at times but typically the problem lies with the user. Be patient and I will help you to help yourself but at no time will a lack of courtesousness be tolerated.

Grades & Course Expectations:

GIS skills are best learned through repeated application, so this course is structured to provide you with multiple opportunities and exercises to practice and learn GIS skills. Finally, the labs require you to synthesize the skills learned and to apply them to a new situation. The labs require a higher level of thinking and independent decision making. Learning is also a collaborative endeavor.

Grading Scale: The grading scale is as follows: A (90% - 100%), B (80-90%), C (70-80%), D (60-70%), F (Below 60%). Keep track of your grades on Blackboard. Curving will be done by my discretion. **There is no extra credit, please do not ask.**

Final Grades:

1-30% of final grade: Chapter tutorials & Practice Activities. These exercises are designed to teach you specific GIS skills and how to put them together for problem solving. We will complete these as in-class assignments. They are not meant to be time consuming but will really drive home the tasks we are learning and prepare you for the upcoming Labs.

2-50% of final grade, 6 Labs: Labs are substantial applications of skills learned in the course and require some original thinking. Labs require "synthesis" -using skills to solve problems without being given cookbook style instructions. This is where you show off what you have learned. I will assist you only to a point. The labs are like exams and you must complete them on your own. Labs will be graded based

on the correctness of the solution and how well the solution is communicated in a map and lab write-up. If your submission contains broken links there will be a 10% deduction depending on the cause. 3-20% of final grade each, 10% each, 2 Exams: Exams are closed book and internet. If you navigate away from the test or open another window you will receive a 0 for the exam. I will allow a 3 by 5 note card that you may write anything you want on both sides to take in with you. You may not print anything on a printer—has to be all hand-written. This will be collected.

Students with disabilities: In compliance with university policy, students with disabilities who require academic and/or auxiliary accommodations for this course must contact the Office for Student Disability Services in Downing University Center, A-200. The phone number is 270 745 5004. Please DO NOT request accommodations directly from the professor or instructor without a letter of accommodation from the Office for Student Disability Services.

Academic Honesty: Each student should be aware of the student code of conduct found in WKU's student handbook. Examples of academic dishonesty include cheating on an exam, allowing another student to copy your work, either inside or outside of class; using work from previous semesters; and plagiarism. Caught cheating in this course will result in failing the course and possible removal from the University.

Schedule Change Policy: The Department of Geography and Geology strictly adheres to University policies, procedures and deadlines regarding student schedule changes. It is the sole responsibility of the students to meet all deadlines in regard to adding, dropping, or changing the status of a course. Only in exceptional cases will a deadline be waived. The student schedule exception appeal form shall be used to initiate all waivers. This form requires a written attachment of appropriate documentation. Poor academic performance, general malaise, or undocumented general stress factors are not considered as legitimate circumstances.

