

GG5 553: Geographic Information Systems

Course Syllabus, Spring 2015, 3 Credits

INSTRUCTOR

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COURSE BASICS

Meeting times: Monday, 7:20-10pm
Location: 2310 Exploratory Hall
Web location: Blackboard
Office hours: Tues 4-6pm, Wed 12-2pm, or by appt

REGISTRATION DATES

Drop without tuition penalty: February 9, 2015
Drop with tuition penalties: February 10-20, 2015

REQUIRED TEXT

Bolstad, P. 2012. GIS Fundamentals: A First Text on Geographic Information Systems (Fourth Edition). Eider Press, White Bear Lake, MN. ISBN: 978-0-9717647-3-6
Available at the GMU Bookstore or order online at www.atlasbooks.com

OTHER REQUIREMENTS

USB thumb drive or some other form of portable (or easily accessible) storage device/service (1 Gb minimum)

OVERVIEW & OBJECTIVES

GG5 553 provides an introduction to Geographic Information Systems (GIS), a set of hardware, software, and methods that can be used to collect, store, display, model, and analyze geographic information and spatial data. The goal of this course is to provide students with a firm understanding of the conceptual, technical, and practical issues affecting the use of geographic information within a variety of applications. Weekly class meetings include both lecture and discussion of basic concepts, as well as in-class demonstrations and exercises. Weekly labs will be application-driven, focusing on the material covered in the lectures and readings.

ASSIGNMENTS & EXPECTATIONS

Lab exercises will be based on the lecture material previously delivered and available on Blackboard. Each lab exercise will be assigned during class and will be due one week after it is assigned *at the start of the lecture*. Late submissions will be penalized 20% per day. The only exceptions will be for the usual *documented* medical reasons or by *previous agreement* with the instructor.

GRADING SCHEMA

Assessment	Points	% (of final grade)
Lab Exercises (11)	500	50%
Midterm Exam	200	20%
Lab Final Exam	100	10%
Final Exam	200	20%

Grades will be based on the following cutoff values, although I reserve the right to alter the exact values at the end of the semester: A (93%), A- (90%), B+ (87%), B (83%), B- (80%), C+ (77%), C (73%), C- (70%), D (60%)

The midterm exam will cover the first 7 weeks of the course. The final exam will be semi-comprehensive, focusing on the final 6 weeks of the course, but also covering key topics from throughout the entire semester.

There will be 3-4 *ungraded* pop quizzes throughout the semester. These quizzes will be used to evaluate how well the course information is being presented and retained; they will also provide an opportunity to preview potential exam questions.

OUTLINE & SCHEDULE (subject to change)

note: the Lab dates below refer to the date they will be assigned!

Date	Lecture Topics	Readings / Assignments
1/26	M Introduction to GGS 553 GIS History and Components Spatial Cognition	Chp 1, Chp 4 (p 131-140) Lab #1: Introduction to ArcGIS
2/2	M Projections and Coordinate Systems Map Design	Chp 3, Chp 4 (p 164-170), Chp 9 (p 359-366) Lab #2: Projections and Maps
2/9	M Spatial and Attribute Data Structures	Chp 2, Chp 8 (p 307-320) Lab #3: Vector and Raster Data
2/16	M Data Collection and Creation	Chp 4 (p 140-164), Chp 5 (p 183-194), Chp 7 Lab #4: Creating Data
2/23	M Metadata and Data Quality Query, Describe, and Summarize	Chp 4 (p 171-175), Chp 14, Chp 9 (p 347-358, 368-369), Chp 10 (p 407-418) Lab #5: Data Query and Summarization
3/2	M Distance and Buffer Vector Overlay	Chp 9 (p 370-389), Chp 10 (p 434-437) Lab #6: Vector GIS Analysis
3/9	M No Class, Spring Break	
3/16	M Raster Overlay and Map Algebra Review for Midterm Exam	Chp 10 (p 407-423), <i>TBD</i> Lab #7: Raster GIS Analysis
3/23	M MIDTERM EXAM	
3/30	M Cartographic Modeling Decision Support	Chp 13 Lab #8: Cartographic Modeling
4/6	M Neighborhood Operations Introduction to Spatial Statistics	Chp 10 (p 424-433), Chp 12 (p 499-502), <i>TBD</i> Lab #9: Neighborhood Operations
4/13	M Network Analysis	Chp 9 (p 390-396), <i>TBD</i> Lab #10: Network Analysis
4/20	M Terrain Analysis	Chp 11 Lab #11: Terrain Analysis
4/27	M Spatial Interpolation	Chp 12 (p 473-498) LAB FINAL EXAM
5/4	M Pattern Analysis Review for Final Exam	<i>TBD</i>
5/11	M FINAL EXAM	

ACADEMIC INTEGRITY

GMU has an Honor Code with clear guidelines regarding academic integrity. Three fundamental and rather simple principles to follow at all times are that: (1) all work submitted be your own; (2) when using the work or ideas of others, including fellow students, give full credit through accurate citations; and (3) if you are uncertain about the ground rules on a particular assignment, ask for clarification. No grade is important enough to justify academic misconduct. Another aspect of academic integrity is the free play of ideas. Vigorous discussion and debate are encouraged in this course, with the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives, and traditions.

GMU EMAIL ACCOUNTS

Students must use their MasonLive email account to receive important University information, including messages related to this class. See <http://masonlive.gmu.edu> for more information.

OFFICE OF DISABILITY SERVICES

If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Services (ODS) at 993-2474, <http://ods.gmu.edu>. All academic accommodations must be arranged through the ODS.

RESOURCES

The Writing Center: <http://writingcenter.gmu.edu>

University Libraries, Ask a Librarian: <http://library.gmu.edu/ask>

Counseling and Psychological Services: <http://caps.gmu.edu>

University Catalog: <http://catalog.gmu.edu>

University Policies: <http://universitypolicy.gmu.edu>