Department of Geography & GeoInformation Science

GGS 311-003 Introduction to GIS | Fall Session 2015

Instructor information:		Maction Komwa, Ph.D.
	:	Exploratory Hall – Room 2210
		Tel: 703-993-5646; email: mkomwa@gmu.edu
Office hours	:	Tuesdays [1:00 pm – 2:30 pm] or by appointment
Class Meetings	:	W | 4:30 PM – 7:10 PM
Location	:	Exploratory Hall 2310

To Contact Teaching Assistant
Teaching Assistant: Zachary Toll | email: ztoll@masonlive.gmu.edu
Office: Exploratory Hall GTA Office Space # 1102 G
Office hours: M, 1:30 – 3PM

Course Format: Lecture, Once a week

Required Textbook:
Paul Bolstad. 2012. GIS Fundamentals: A First on Geographic Information Systems. 4th Edition, Eider Press, Minnesota.

Course Resources & additional Lab Instructions use the site provided below:
http://paulbolstad.cfans.umn.edu/Courses/FnRm3131/FNRM3131.html

Course description
Fundamental concepts and theories for appropriate use of geographic information systems (GIS). Discusses basic GIS functionality and applications in various fields. This course also serves as the foundation course for other advanced courses in GIS.

Course objectives
This course will focus on the following themes: modern spatial data processing, development, implementation, and functions of geographic information systems; relations between GIS and remote sensing; and applications of geographic information systems to a variety of environmental issues among many other things. By the end of this course you should be able to:

a. Define key concepts related to spatial data, basic analysis, and spatial data representation, , including GPS data collection, vector and raster data entry and editing.
b. Comfortably demonstrate these key concepts using GIS software applications.
c. Use the foundation you acquire in this course to prepare you for the other courses at GMU, for internships, and for basic work-related GIS projects.

ACTIVITIES

You will achieve these goals through attending the course lectures, reading the textbook, participating in class discussion, successfully completing lab exercises, 1 midterm (first exam), and 1 final exam (second exam).

a) Exams:
There will be three exams (First, Mid-Term and Final) together worth 40% of the grade (Exam 1 & Mid-Term Exam each will be 10%; Final Exam will be 20%). The final exam will be comprehensive, but will

focus on the second half of the class. Exams will include multiple choice, definitions, and short answer. Both exams are mandatory and make up exams will not be available.

b) Labs:

There will be a total of 11 labs. Each lab will gain 5% (20 Points) worth a total of 40% of the grade. (*Based on this calculation, your lowest lab grade will be dropped*). Each lab is due as indicated on the syllabus. Late labs, including those submitted after 4:30 pm on the due date, will be penalized 5 points of each day for the first 3 days. Labs submitted later than 3 days from the due date will not be accepted. Incomplete grades and time extension will not be accepted unless otherwise stated. All students are requested to keep up with the work and meet deadlines for assignments.

Labs are only accepted through the Blackboard course site - NOT Email! Labs are to be submitted as *.jpg, MS Word, typed text, or *.pdf. Please do not send, submit, or attach *.mdx or shapefiles.

Final Course Project:
Students will be paired to complete a final GIS course project during the last 4 -6 weeks of the course, consisting of data collection, analysis, summary, and presentation. The course project will build on the underlying scientific knowledge gained in the course and the GIS skills acquired through the lab exercises. The project will include a powerpoint/video presentation that will be prepared by the team and uploaded to blackboard along with relevant text, charts, graphics, and maps. The final project will be worth 10% of the final grade.

Students with Special Needs
If you have a documented learning disability or other condition that may affect academic performance you should make sure this documentation is on file with the Office of Disability Services (SUB I, Room 211; 993-2474; [http://ods.gmu.edu/]) so that they can make a determination about the accommodations you need.

Focus of instruction:
This course is divided into two important main parts: lectures, which will introduce the theory of geographic information systems (GIS), and lab assignments, which will help you to familiarize yourself with many aspects of the software. We will discuss the GIS concepts, data, tools, and GIS applications through case studies during our lecturers. The laboratory sessions will introduce the geospatial data and software tools that you will require in order to finish your lab exercises. You don't need to be a computer "guru" to complete your lab assignments but all lab exercises will require a very basic level of computers and Windows operating system. GMU is resourceful enough for students to get these computer skills. We (Instructor & TA) will require your motivation energy in order to have a successful semester.

Grading

A+ = 100-98	B+=89-86	C+=79-76	
A= 97-93	B=85-83	C=75-70	F=below 60
A-=92-90	B-=82-80	D=69-60	

Summary

- Lab x 11 [40%]. Each Lab will be worth 20 points (equiv. 4% each Lab) – Lowest lab grade will be dropped
- Exam 1 & 2 20% (each exam =10%)
- Final Exam 20%
- Final Project 10%
- Quizzes x 4 5%
- Participation 5%

Posting of Grades:
All grades will be posted through the Blackboard. It is your responsibility to check the blackboard for any class announcements or grades. In the event of grade mistakes posted through the Blackboard please don't hesitate to contact your Instructor.

Student Requirements: To successfully complete this course, students must complete all assigned readings as well as attend class; neither the text book nor lecture notes alone will suffice. Please take note that this course will challenge you intellectually and that missing 60% or more of the classes will result in a grade of *S/A.* A sign in-sheet will be circulated at every class. It is your responsibility to sign it. **Student responsibilities:** For this class the Instructor and the TA will both provide direction and an environment that is conducive to learning. However, as required by the University and the department students are expected at least to spend nearly 2 hours in preparation for each class.

Additionally, we (Instructor & TA) expect all students to:

- Attend lectures as required by the syllabus
- Read material as may be assigned by the Lecturer/TA
- Ask questions, answer questions and take part in group discussions and other class activities
- Complete and submit any assigned work on time.
- Ask questions! Participate in discussions
- Take good notes! Cell phones/pagers must be turned off at door.

Note:
If you miss any of the above assignments for any reason, you are responsible for catching up. No makeup exams will be available. All communications should be done through GMU email account. It is your responsibility to attend all lectures, do the readings, and do assigned labs. Materials covered from these assignments and readings will likely appear on the examinations.

Academic Honesty: George Mason University operates under an honor system, which is published in the University Catalog and deals specifically with cheating, attempted cheating, plagiarism, lying, and stealing. Please familiarize yourself with the honor code, especially the statement on plagiarism (http://www.gmu.edu/org/honorcouncil/guidelines.htm).

I will respond to acts of academic misconduct according to university policy concerning plagiarism. In such cases Plagiarism will result in a failing grade of the assignment in question and/or for the course. Make sure you check the instructions through the Blackboard on how to write your term papers. If you have questions about when the contributions of others to your work must be acknowledged and appropriate ways to cite those contributions, please talk with the professor.

Electronic Communications & Blackboard

If you are enrolled in this course you will have access to the Blackboard site - available at: [https://mymasonportal.gmu.edu]. You will need to log on using your GMU user name and password. Blackboard will be used to submit your assignments and to check for announcements/critical updates to the syllabus or clarifications of assignments, and supplemental materials. It is the responsibility of the student to check the GMU Blackboard on a daily basis. Additionally, GMU policy requires all students to use their GMU account. Emails sent through gmail or yahoo accounts etc. will not be acknowledged.

University Services

George Mason University has a number of academic support and other resources to facilitate your success. Some of these resources are presented below:

i. Counseling and Psychological Services [http://caps.gmu.edu/],
ii. Learning Services, University Career Services [http://careers.gmu.edu/]
iii. the Writing Center [http://writingcenter.gmu.edu/] and other Learning Services within GMU.
iv. University Catalog: http://catalog.gmu.edu/ |
v. University Policies: http://universitypolicy.gmu.edu/

Absences & Accommodations

Students are expected to attend all classes and to complete all assignments on time. Absences may have an adverse effect on grades in a course including failure.

Excused absences: In certain circumstances, absences may be excused. These include:

- **Absence for religious observances:** Students must notify their professors in writing at the beginning of the semester of religious observances that conflict with classes. Students who cannot be accommodated should discuss the matter with a dean.
- **Absence for athletic travel:** Student-athletes must provide their professors with a travel letter at the beginning of the semester which highlights potential absences. Students who cannot be accommodated for some or all absences should discuss the matter with the relevant Academic Coordinator for Student-Athletes.
- **Absence for documented illness[i]:** Students who miss multiple classes due to prolonged illness should seek medical care and provide documentation of such to the Dean's Office, which will communicate with the student's professors. A prolonged absence may necessitate the student's withdrawal from the course or from the University for the semester.
- **At the discretion of the professor:** There may be cases where an absence is undocumented but is, nevertheless, excused by the professor (e.g., absence due to a death in the family). Students should initiate a conversation with their professors about the nature and duration of the absence, in advance of the absence whenever possible.

When absences are excused, students remain responsible for all assigned work, and shall be provided with the opportunity to make up, without penalty, any work that they have missed.

Tentative Outline of Topics, Labs, Reading Assignments and due dates

Week	Topic	Lab Assigned	Lab due date
8/31	Syllabus Overview and Course Introduction	--	Read the chapters before class meetings
9/7	**Labor Day, No class**		
9/14	Chapter 1: GIS Overview, History & Components	Lab 1	--
9/21	Chapter 3: Georeferencing & Coordinate Systems	Lab 2	Lab 1: Intro to ArcGIS
9/28	Chapter 4: Maps, Data Capture	Lab 3	Lab 2: Projections
10/5	Chapter 4: Maps, Data Capture	Lab 4	Lab 3: Digitizing
10/12	**Columbus Day, No class**		
10/13	**Exam 1 [Monday class meets Tuesday]**	Lab 5	Lab 4: Geocoding
10/19	Chapter 7 & 8 : Digital Data & Attribute Data and Tables	Lab 6	Lab 5: Digital Data and Tables
10/26	Cartography & Geovisualization	Lab 7	Lab 6: Digital Data and Tables
11/2	Chapter 9: Basic Spatial Analysis & Spatial Joins	Lab 8	Lab 7: Tables 1
11/9	Chapter 10: Topics in Raster Analysis	Lab 9	Lab 8: Spatial Selection, etc.
11/16	Chapter 2: Geographic Data Models	Lab 10	Lab 9: Buffering and Overlay
11/8	**GIS Day (attend for extra credit)**		
11/23	**Exam 2**		Lab 10: Raster Analyses
11/25-29	**Thanksgiving Recess, No class**		
11/30	Chapter 11: Intro Terrain Analysis Chapter 15: New Development in GIS	Lab 11	
12/7	Projects & Exam Review		Lab 11: Interpolation
12/14	**Final Exam [4:30 – 7:10PM]**		

Online practice quizzes will be announced & assigned in class

Syllabus Changes

The course instructor reserves the right to make changes as necessary to the course content and office hours during the course of the term. If these changes are made they will be immediately notified to students through individual emails or the blackboard explaining the nature of the change(s).