

# GEOGRAPHY & GEOINFORMATION SCIENCE 311

## INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS

### Table of Contents:

**Instructor & TA**

**Textbooks & Materials**

**Course Objectives & Outcomes**

**Activities**

**Special Needs**

**Student Services & University Resources**

**Student Expectations**

**Technology Expectations**

**Diversity**

**Religious Holidays**

**Course Schedule**

### 1. Instructor & TA

**Instructor:** Dr. Matt Rice

**Term:** Summer 2013, Session A

**Faculty Office:** GMU Exploratory Hall, Room 2202

**Faculty Office Hours:** Collaborate (by announcement), skype by appointment

**Instructor Email:** [rice@gmu.edu](mailto:rice@gmu.edu)

**TA:** Shawn Dias

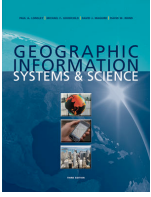
**TA Email:** [sdias@masonlive.gmu.edu](mailto:sdias@masonlive.gmu.edu)

I can be reached via email to arrange office hours via phone or skype ([m.t.rice](mailto:m.t.rice)), and I'll be available via Blackboard Collaborate Sessions on a regular basis. I may not be able to read and answer your email immediately, particularly on evenings or weekends, but I will do my best to be available, provide help, and answer questions quickly.

Students must activate and use their GMU campus email to facilitate contact. Please use a subject line prefix tag: [GGS 311] and send general GIS and troubleshooting questions to the TA first. If the question or concern is administrative, contact me first.

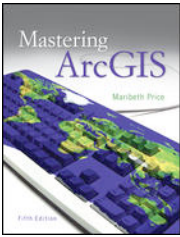
## 2. TEXTS & MATERIALS (required)

**Textbooks must be purchased and available prior to May 20th**



Text: Longley, P.A., M.F. Goodchild, D.J. Maguire, and D.W. Rhind, Geographic Information Systems and Science, **Third Edition**, ©2011. New York: Wiley. ISBN: 978-470-72144-5

<http://www.wiley.com/WileyCDA/WileyTitle/productCd-EHEP001475.html>



Text: Price, Maribeth, ©2012. Mastering ArcGIS. **Fifth Edition**. New York: McGraw Hill.

[https://www.mhprofessional.com/mhhe\\_product.php?isbn=0077462955](https://www.mhprofessional.com/mhhe_product.php?isbn=0077462955)

Both textbooks are available from the GMU bookstore (<http://gmu.bncollege.com>). Mastering ArcGIS (Price) comes with a DVD-ROM that includes data, videos, and instructional material.

Each student must have a USB flash drive or disk space to store around 1 Gb of data files that we will use for some of the computer exercises.

## 3. COURSE OBJECTIVES and OUTCOMES

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

- a. Define key concepts related to geographic data, geographic information systems and software, georeferencing, basic map production and display, structure queries of spatial data, and spatial data representation.
- b. Demonstrate basic elements of 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.

## 4. ACTIVITIES

You will achieve these goals through viewing the course lectures, reading the textbook, preparing and writing reading summaries and reading reflections, participating in online class discussions, working through GIS tutorials, completing lab exercises, and taking 5 assessment exams at the end of each week.

**a. Reading Reflections:** Each student will prepare a weekly 1-page (250 word) reading reflection based on the textbook material from Longley et al. (2011) and from the week's lectures. The 5 assigned reading reflections will be graded on both content and form, and collectively will be worth 30% of the final grade.

**b. Class Discussions:** Each student will participate in an instructor and TA-led discussion, using the Blackboard discussion tools. The weekly discussions will be based on current events from popular news sources, case studies and extra material from the textbook readings, or subjects chosen by the class. Each student is required to participate at least one time each week by making a substantive comment, reply, or contribution. Opinions are not being graded; rather, participation is the only determinant for whether or not a student gets full credit. Weekly participation in class discussions is worth 10% of the final grade, and will be assessed weekly.

**c. GIS Exercises:** There will be 5 separate sets of GIS tutorials and exercises, assigned weekly and due the following Saturday. The GIS tutorials and exercises come primarily from the Maribeth Price, "Mastering ArcGIS" book, as well as exercises written and designed by the Instructor and TA. Completion of the assigned weekly tutorial and the assigned GIS exercises are required, with submissions taking the form of a tutorial checklist and comments, and answers to the assigned exercises. Late GIS exercise submissions (those submitted after the deadline) will be penalized 10% for each day they are late, and will not be graded after the 10<sup>th</sup> day. The 5 assigned GIS Exercises are worth 30% of the final grade.

**d. Assessments:** There will be 5 weekly assessment exams, which must be completed in the prescribed time period. These assessment exams will cover the Longley et al. textbook readings as well as the lectures. The exams will include multiple choice questions, definitions, and short answer questions. The weekly assessments will be worth 30% of the final grade.

## 5. SPECIAL NEEDS

If you have a documented learning disability or other condition that may affect academic performance you should: **1)** make sure this documentation is on file with the Office of Disability Services (SUB I, Rm. 2500; 993-2474; <http://ods.gmu.edu/>) so that they can make a determination about the accommodations you need; and **2)** communicate with me to discuss your accommodation needs or have the Office of Disability Services do so. I can provide proper accommodations with documentation and professional advice from the Office of Disability Services.

## 6. STUDENT SERVICES AND UNIVERSITY RESOURCES

### University Libraries

University Libraries provides resources for distance students. [See <http://library.gmu.edu/distance> and [http://infoguides.gmu.edu/distance\\_students](http://infoguides.gmu.edu/distance_students)].

### Writing Center

The George Mason University Writing Center staff provides a variety of resources and services (e.g., tutoring, workshops, writing guides, handbooks) intended to support students as they work to construct and share knowledge through writing. [See <http://writingcenter.gmu.edu>]. You can now sign up for an Online Writing Lab (OWL) session just like you sign up for a face-to-face session in the Writing Center, which means YOU set the date and time of the appointment! Learn more about the [Online Writing Lab \(OWL\)](#).

### Counseling and Psychological Services

The George Mason University Counseling and Psychological Services (CAPS) staff consists of professional counseling and clinical psychologists, social workers, and counselors who offer a wide range of services (e.g., individual and group counseling, workshops and outreach programs) to enhance students' personal experience and academic performance [See <http://caps.gmu.edu>].

### Family Educational Rights and Privacy Act (FERPA)

The Family Educational Rights and Privacy Act of 1974 (FERPA), also known as the "Buckley Amendment," is a federal law that gives protection to student educational records and provides students with certain rights. [See <http://registrar.gmu.edu/privacy>].

## 7. STUDENT EXPECTATIONS

### Academic Integrity

Students must be responsible for their own work, and students and faculty must take on the responsibility of dealing explicitly with violations. The tenet must be a foundation of our university culture. [See <http://academicintegrity.gmu.edu/distance>].

### Honor Code

Students must adhere to the guidelines of the George Mason University Honor Code [See <http://academicintegrity.gmu.edu/honorcode>]. Discussion of work among students is encouraged. Collaboration and active participation in group discussions is important, but final work should reflect your own thinking and all submitted assignments **must be in your own words and reflect your individual work**. I reserve the right to use GMU-sanctioned tools for detecting and documenting plagiarism. If you have questions about what constitutes plagiarism, please ask me.

### MasonLive/Email (GMU Email)

Students are responsible for the content of university communications sent to their George Mason University email account and are required to activate their account and check it regularly. All communication from the university, college, school, and program will be sent to students solely through their Mason email account. [See <https://thanatos.gmu.edu/masonlive/login>].

## **Patriot Pass**

Once you sign up for your Patriot Pass, your passwords will be synchronized, and you will use your Patriot Pass username and password to log in to the following systems: Blackboard, University Libraries, MasonLive, myMason, Patriot Web, Virtual Computing Lab, and WEMS. [See <https://thanatos.gmu.edu/passwordchange/index.jsp>].

## **University Policies**

Students must follow the university policies. [See <http://universitypolicy.gmu.edu>].

## **Responsible Use of Computing**

Students must follow the university policy for Responsible Use of Computing. [See <http://universitypolicy.gmu.edu/policies/responsible-use-of-computing>].

# 8. TECHNOLOGY REQUIREMENTS & EXPECTATIONS

## **Hardware:**

You will need access to a Windows or Macintosh computer with at least 2 GB of RAM and to a fast and reliable broadband internet connection (e.g., cable, DSL). A larger screen is recommended for better visibility of course material. You will need speakers or headphones to hear recorded content and a headset with a microphone is recommended for the best experience. For the amount of Hard Disk Space required to take a distance education course consider and allow for: **1.** the storage amount needed to install any additional software and **2.** space to store work that you will do for the course. If you are considering the purchase of a new computer, please go to <http://compstore.gmu.edu/Specials/BTS2012/2012TechGuide.pdf> to see recommendations.

## **Software:**

Many courses use Blackboard as the learning management system. You will need a browser and operating system that are listed compatible or certified with the Blackboard version available on the myMason Portal. See [supported browsers and operating systems](#). Log in to [myMason](#) to access your registered courses. Some courses may use other learning management systems. Check the syllabus or contact the instructor for details. Online courses typically use [Acrobat Reader](#), [Flash](#), [Java](#) (Windows), and [Windows Media Player](#), [QuickTime](#) and/or [Real Media Player](#). Your computer should be capable of running current versions of those applications. Also, make sure your computer is protected from viruses by downloading the latest version of Symantec Endpoint Protection/Anti-Virus software for free at <http://antivirus.gmu.edu>.

Students owning Macs or owning computer running Linux should be aware that some courses may use software that only runs on Windows. You can set up a Mac computer with Boot Camp or virtualization software so Windows will also run on it. Watch [http://support.apple.com/kb/VI54?viewlocale=en\\_US](http://support.apple.com/kb/VI54?viewlocale=en_US) about using Windows on a Mac. Computers running Linux can also be configured with virtualization software or configured to dual boot with Windows.

Note: If you are using an employer-provided computer or corporate office for class attendance, please verify with your systems administrators that you will be able to install the necessary applications and that system or corporate firewalls do not block access to any sites or media types.

## Course-specific Hardware/Software:

Check the syllabus for your course or contact the instructor prior to the start of the course to find out about specific technical requirements for your class. Hardware or software required for your course or program may be available for purchase at [Patriot Computers](#) (the University's computer store that offers educational discounts and special deals).

## GGIS 311: Geographic Information Systems Software

This class is not a GIS software course. You will learn a combination of science, theory, and fundamental concepts from geography and geospatial science, and how these concepts are used to collect, store, analyze, and display information in a computer. You will need to be able to use a computer to participate in the course and complete the required work. You will not be required to purchase GIS software, but will have a student GIS evaluation version provided for you.

**You must install and use this student GIS software to complete the course. This will require administrator-level access and control of a Windows PC computer that you must use to complete the GIS exercises. If you have convenient, frequent access to a computer with ESRI's ArcGIS 10.0 installed and running, you may be able to this computer for the GIS exercises. *Successfully installing the student evaluation version of this software or otherwise gaining access to a computer with ESRI's ArcGIS 10.0 is a requirement of this distance education course.***

The course will be taught with Blackboard, accessed through <https://mymasonportal.gmu.edu>. Submission of assignments, participation in discussions, and all assessment testing will be done with Blackboard.

Lectures will be delivered using narrated, pdf slides, created using MS PowerPoint and Adobe Presenter. Each lecture can be viewed by opening the pdf document in Adobe Acrobat. Each lecture will have a transcript with verbatim or near-verbatim text of the lecture for each slide.

## 9. DIVERSITY

<http://ctfe.gmu.edu/professional-development/mason-diversity-statement/>

"George Mason University promotes a living and learning environment for outstanding growth and productivity among its students, faculty and staff. Through its curriculum, programs, policies, procedures, services and resources, Mason strives to maintain a quality environment for work, study and personal growth.

An emphasis upon diversity and inclusion throughout the campus community is essential to achieve these goals. Diversity is broadly defined to include such characteristics as, but not limited to, race, ethnicity, gender, religion, age, disability, and sexual orientation. Diversity also entails different viewpoints, philosophies, and perspectives. Attention to these aspects of diversity will help promote a culture of inclusion and belonging, and an environment where diverse opinions, backgrounds and practices have the opportunity to be voiced, heard and respected."

## 10. RELIGIOUS HOLIDAYS

[http://ulife.gmu.edu/religious\\_calendar.php](http://ulife.gmu.edu/religious_calendar.php)

I am generally aware of some religious holidays and observations, and will help minimize difficulties for students of different faiths in terms of scheduling course assignments. It is the student's responsibility to speak to me in advance should their religious observances impact their participation in class activities and assignments.

## 11. TENTATIVE COURSE SCHEDULE (subject to change)

You are responsible for keeping up with the textbook readings, lectures, reading reflections, discussions, GIS tutorials/exercises, and assessments. No makeup exams will be available. Readings assigned for the week & session should be completed before the scheduled date. Any changes to this schedule will be announced in class and posted to the course Blackboard page.

Week & Date		Topic	Lecture & Readings (Longley et al)	Reading Reflection	Discussion	GIS Tutorials & Exercises	Assessment
				(due Wednesdays)	(due Sundays)	(due Saturdays)	(due Sundays)
Week 0	< May 20	Review Syllabus				Install ArcGIS Student Evaluation Version	
Week 1.1	20 May	GIS: History & Concepts	1.1-1.4 (p. - )	#1	#1: GIS in the News	ArcGIS Explorer Online, Google Earth, and GMU's VLC	
Week 1.2	22 May		1.5-1.8 (p. - )				
Week 1.3	24 May						Assessment 1
Week 2.1	27 May	GIS Software	7.1-7.3	#2	#2: Influence of GIS and Geoprivacy	Price Chapter 1: GIS Data, pp.25-40, #1,2,4,5 on p.40	
Week 2.2	29 May		7.4-7.7				
Week 2.3	31 May						Assessment 2
Week 3.1	3 June	Georeferencing	5.1-5.6	#3	#3: Geocoding, GPS, & Navigation	Price Chapter 2: Mapping GIS Data, pp.55-70, #1-4 on p.70	
Week 3.2	5 June		5.7-5.13				
Week 3.3	7 June						Assessment 3
Week 4.1	10 June	Cartography and Geovisualization	12.1-12.6	#4	#4: Cartograms and Sports Maps	Price Chapter 3: Presenting GIS Data, pp.85-98 , Map of Median Age by County	
Week 4.2	12 June		13.1-				
Week 4.3	14 June						Assessment 4
Week 5.1	17 June	Data Collection & Data Capture	9.1-9.3	#5	#5: Geo-crowdsourcing and Geo-intelligence	Price Chapter 4: Attribute Data, pp.114-127, #1-3 on page 127	
Week 5.2	19 June		9.4-9.6				
Week 5.3	21 June						Assessment 5

**\*\* NOTE:** Any changes to this syllabus will be announced via email and posted on blackboard.