


CSC-310 Introduction to Geographic Information Systems

Semester:	Fall 2011
Section:	001
Meeting Time(s):	Monday 5:30 pm – 8:00 pm
Location:	Anderson Lab B-14
Instructor:	Mr. Alan M. Ford
Office Location:	Scan 109
Office Hours:	Monday, Wednesday 3:00 PM – 5:00 PM and by appointment
Telephone:	885-2283
email:	amford@american.edu

Course Description:

CSC-310: Introduction to Geographic Information Systems is a course in the fundamentals of the use of geographic information systems (GIS). GIS is becoming widespread in: local, state, and federal governments; in non-governmental organizations; in the private sector; and more recently with individuals. Authorities define a GIS to be “a system of hardware, software, data, people, organizations, and institutional arrangements for collecting, storing, analyzing, and disseminating information about areas of the earth.” This course will provide an introduction to GIS, GIS software, and review and analyze some applications of GIS.

Textbook(s)/Reading:

	<p>Mastering ArcGIS, 5th ed., Maribeth Price, McGraw-Hill, 2012, ISBN: 978-0-07-336932-7</p>
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Other Resources:

University Blackboard Site <http://www.american.edu/blackboard>
 University GIS Website <http://gis.american.edu>

Course Objectives:

Students successfully completing this course should be able to:

1. Understand the purposes of GIS and the kinds of problems to which GIS is applied.
2. Understand the fundamental types of GIS data, including raster and vector data.
3. Be proficient with a commercially available GIS software package.
4. Be able to explain and perform spatial data retrieval tasks.
5. Use GIS operators to perform a number of kinds of analyses.
6. Be prepared to use GIS to support personal and professional decision making.
7. Be aware of geographic information that is available on the World Wide Web.
8. Understand the limitations of geographic information systems and of geographic data in general.

Methods of Instruction:

The format of the course will be lecture, class discussion, projects/assignments, on-line activities, and workshop sessions in the Anderson Computing Complex where students will gain hands-on experience. Students will work extensively with the ESRI ArcGIS software, one of the most widely used commercial packages.

Class Preparation:

Each student is responsible for carefully and thoroughly reading all assigned material before the next class in preparation for thoughtful participation in each class. The majority of the readings will be from the assigned textbook. Additional readings may be assigned and class handouts may be distributed to supplement textbook assignments. Readings are noted in the schedule. Students are encouraged to answer the review questions at the end of each chapter as preparation for discussion and for examination.

Attendance and Class Participation:

Attendance in a class such as this is requisite for success. Students should have assignments and readings completed prior to class. If classes must be missed, students should inform the instructor, arrange with classmates for notes, and take responsibility for assignments missed. It is the responsibility of the student to download any missed handouts or assignments from the Blackboard site.

Active involvement in discussion is an integral part of this course. The time in class is available for interaction with the instructor, guest speakers, and other students to explore the fundamental concepts and issues raised by the readings and the student's knowledge and experience.

Student Work:

- The student is expected to complete all of the exercises (tasks) in the textbook. Each chapter contains a number of tasks which should elucidate the textual material. The instructor will assign some number of these each for review and grading. All assignments are to be submitted via Blackboard dropbox. All of the source material, available on CD with the textbook has also been posted on the course Blackboard site to ensure access.
- The student will complete a more complex assignment using the software available in the Lab. This assignment will be posted and available through blackboard and include instruction and base data. Each assignment will be due prior to class the week following the assignment.
- The student will sit for two midterm examinations intended to validate the progress to date with the fundamental concepts of the discipline. The examination will be closed note, closed book, timed, and be administered online in the classroom.
- The student will sit for a final examination during the last class meeting session. This examination will be comprehensive, closed note, closed book, timed, and be administered online in the classroom.

Submitting Work:

All written submissions and all written communications (especially email) must contain: **Your Name** and **this Course Number** in a prominent location/email subject line.

Unlabeled submissions will not be graded. Unlabeled email will not be read or acknowledged

All work must be submitted by beginning of class on the day it is due. All work must be submitted electronically using the **digital drop box** of Blackboard and not by email.

Single file attachments should be named *uid-assignment*. Where the word *uid* is replaced with the last four (4) digits of your 7 digit student id number and the word *assignment* is replaced with the above referenced assignment name.

If you are sending multiple file attachments you should use the ZIP utility (e.g., Winzip) to archive and compress them into a **single file**. Winzip is available in the computer labs but can also be downloaded from the *Technology/Download Software* section of my.american.edu.

Note: Major written work should be prepared with a word processor and run through a spell-checker (the AU laboratories have word processing software available). Students are advised to use one of the many grammar checkers that are available (the AU computing laboratories have several).

Late Assignments:

Assignments are due at the beginning of class on the due date. Late assignments will be marked down 5% per day they are late, including submission after the start of class.

Grading Criteria/Course Requirements:

Grades for this course will be based on the following elements and deliverables;

Assignments and Lab Exercises	45%
Midterm Examinations	30%
Final Examination	25%

Grades will be assigned according to the following standards:

A	93-100
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D	60-69
F	0-59

“A” indicates achievement of distinction. It involves conspicuous excellence and an outstanding performance in all or nearly all aspects of the course. The “B” grade indicates performance that exceeds expectations. These grades are achieved by excellence in some part of the course requirements. A grade of “C” indicates that the basic requirements of the course have been met. A grade of “D” is given for work that falls below acceptable standards. Please note that there is no rounding when grades are calculated.

Incomplete ('I') Policy:

The policy of the College of Arts and Sciences and the University is that the grade of Incomplete (I) is rarely given. Department approval for a grade of I is only granted in unusual, documented circumstances. In such rare instances, the student must make arrangements with the instructor before the final exam. A grade of I is not approved in instances where students were unable to complete the course work.

Academic Integrity:

The *Academic Integrity Code* for the American University describes standards for academic conduct, rights and responsibilities of members of the academic community, and procedures for handling allegations of academic dishonesty. Academic dishonesty as defined by the *Code* includes, but is not limited to: plagiarism, inappropriate collaboration, dishonesty in examinations (in-class or take-home), dishonesty in papers, work done for one course and submitted to another, deliberate falsification of data, interference with other students' work, and copyright violations (including both document and software copyrights). Copies of the *Academic Integrity Code* are available from the Office of the University Registrar.

Plagiarism is defined as taking the language, ideas, or thoughts of another, and representing them as your own. If you use someone's ideas, cite them; if you use someone's words; clearly mark them as a quotation. Plagiarism includes using another's computer programs or pieces of a program. Consult one of the many "writer's guides" that are available in the library and bookstores for citation practices. All instances of plagiarism will be reported to the Dean of the College of Arts and Sciences for appropriate action.

Blackboard:

The Blackboard site for this course will provide copies of course documents (such as the syllabus, schedule, and assignments), selected course content (such as slides and project descriptions), and any announcements relating to the class. The site will be used to post student grades. The site will also be used for class wide and group email, and may be used to support one or more discussion/participation topics. Periodically visiting the site for updates and new material is strongly suggested.

It is the responsibility of the student to:

- (1) validate the student is enrolled on the Blackboard site, and
- (2) check their performance as posted on the site and to immediately report any concerns.

Student Services:

If you experience difficulty in this course for any reason please don't hesitate to contact me. If you have a disability and might require accommodations for this course please notify me with a letter from DSS or LS as early as is convenient, so that we may make appropriate arrangements to address your needs.

In addition to the resources of the department there exists a wide range of services available to support you in your efforts to successfully complete this course.

- [Academic Support Center](#) (x3360, MGC 243) offers study skills workshops, individual instruction, tutor referrals, and services for students with learning disabilities.
- [Psychological Services](#) (x3500, MGC 214) offers counseling and consultations regarding personal concerns, self-help information, and connections to off-campus mental health services.
- [Disability Support Services](#) (x3315, MGC 206) offers technical and practical support and assistance with accommodations for students with physical or psychological disabilities.
- [Writing Center](#) (x2991, Battelle-Tompkins 228) offers assistance for students who wish to improve their writing skills.

Emergency Preparedness:

In the event of a declared pandemic (influenza or other communicable disease), American University will implement a plan for meeting the needs of all members of the university community. Should the university be required to close for a period of time, we are committed to ensuring that all aspects of our educational programs will be delivered to our students. These may include altering and extending the duration of the traditional term schedule to complete essential instruction in the traditional format and/or use of distance instructional methods. Specific strategies will vary from class to class, depending on the format of the course and the timing of the emergency. I will communicate class-specific information to students via AU e-mail and Blackboard, while students must inform me immediately of any absence due to illness. Students are responsible for checking their AU e-mail regularly and keeping themselves informed of emergencies. In the event of a declared pandemic or other emergency, students should refer to the AU Web site (www.prepared.american.edu) and the AU information line at (202) 885-1100 for general university-wide information, as well as contact their faculty and/or respective dean's office for course and school/ college-specific information.

Green Teaching

This is a Certified Green Course. I will not hand out any printed materials. I will use Blackboard extensively to post handouts, collect assignments, and provide you with feedback on assignments. Blackboard will also be used for all examinations.

All assignments are required to be submitted electronically via Blackboard, unless otherwise necessary. Any additional reading material will be posted via Blackboard when possible.

To help make our class as green as possible, I encourage you to buy used books whenever available, minimize paper use by submitting assignments electronically as instructed, and read course readings online rather than printing copies. If you choose to print, please print double-sided, and recycle the paper after the end of the semester.

Course Schedule

Date	Class	Topic	Laboratory
8/29	1	Welcome and Introduction Course Overview; GIS: Definitions; History	Anderson B-14
9/05		Memorial Day NO CLASS	
9/12	2	Introduction to Spatial Analysis and Geographic Information Systems Readings: Price Chapters 1 & 2	Mastering Skills 1 & 2
9/19	3	Presenting GIS Data Readings: Price Chapter 3	Mastering Skills 3
9/26	4	Attribute Data Readings: Price Chapter 4	Mastering Skills 4
10/03	5	ONLINE EXAMINATION 1 – 1 hour Queries Readings: Price Chapter 5	Mastering Skills 5
10/10	6	Spatial Joins Readings: Price Chapter 6	Mastering Skills 6
10/17	7	Map Overlay Readings: Price Chapter 7	Mastering Skills 7
10/24	8	Raster Analysis Readings: Price Chapter 8	Mastering Skills 8
10/31	9	Geocoding Readings: Price Chapters 10	Mastering Skills 10
11/07	10	ONLINE EXAMINATION 2 – 1 hour Coordinate Systems Readings: Price Chapter 11	Mastering Skills 11
11/14	11	Editing and Topology Readings: Price Chapter 12 & 13	Mastering Skills 12 & 13
11/21	12	Geodatabases Readings: Price Chapter 14	Mastering Skills 14
		THANKSGIVING BREAK	
11/28	13	Metadata Readings: Price Chapter 15	Mastering Skills 15
12/05	14	Review	
12/12		ONLINE FINAL EXAMINATION	

Although substantially complete, this schedule is tentative and will be modified as necessary through the course of the semester.