

# GEOSPATIAL TECHNOLOGIES – GEOG 3333

FALL 2019

9:25-10:40 TR – SCLB 160

## **INSTRUCTOR INFO**

Dr. Jess C. Porter

Chair of History, Associate Professor of Geography

[Department of History](#)

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## **DR. PORTER'S OFFICE HOURS**

I'm in the office everyday unless traveling. You are always welcome to stop-in, but it's a good idea to call or email first before making a special trip to see me.

## **REQUIRED TEXT**

Introduction to Geospatial Technologies, Fourth Edition. Bradley Shellito. 2018. Freeman. ISBN: 978-1-3190-6045-9

## **SOFTWARE AND COMPUTER REQUIREMENTS**

Some class time will be dedicated to working on your assignments. Additionally, there are GIS-equipped computers in the History Department that can be utilized on a first-come, first-served basis.

## **ONLINE COURSE RESOURCE**

Blackboard: [bb.ualr.edu](http://bb.ualr.edu)

## **PREREQUISITES**

There are no prerequisites, but preexisting, basic, computer literacy is necessary to succeed in this course.

## **COURSE DESCRIPTION AND OBJECTIVES**

This course is designed to introduce you to the exciting realm of geospatial technologies. In this class you will learn about a variety of geospatial technologies and gain hands-on experience using them. Geospatial technologies include the global positioning system (GPS), satellite imagery, and geographic information systems (GIS). Theory and application of the respective geospatial technologies will be addressed. We will cover a lot of ground! This course provides a foundation for more specialized geospatial technology courses offered by UA Little Rock's Geography and Earth Sciences programs. These include Introduction to Geographic Information Systems (GIS), Applied GIS, Cartography, Remote Sensing, and special topics in courses like drone mapping and Python programming.

Our course objectives include the following:

- Gain a basic, practical understanding of GIS, GPS, and remote sensing concepts, techniques, and real world applications
- Learn how geospatial technologies are applied to social and environmental decision-making
- Understand basic GPS and GIS data concepts
- Understand basic GPS and GIS analysis concepts
- Learn and use the technical language of geospatial technologies
- Gain applied experience using the tools of geospatial technology
- Become aware of geospatial technology career options
- Contribute to the geospatial infrastructure of the University of Arkansas at Little Rock via collaborative work with Facilities Management

## **GRADING**

Course grades will be based on the following:

- 9 Shellito Lab Applications @ 50 points each – 450 points
- 20 In-class participation activities\* @ 10 points each – 200 points
- Collaborative service learning project – 100 points
- 3 Exams @ 50 points – 150 points

## **TOTAL POINTS – 1000 Points**

Extra Credit opportunity – Up to 3 additional Shellito Lab Applications @ 50 points each – 150 points

Extra credit opportunities require preceding lab applications to be completed as noted on schedule

**Grades will be assigned based on the following percentages: A > 895, B >795, C > 695, D > 595, F < 595**

## **EXAM DATES**

Exam 1 – September 12

Exam 2 – October 17

Exam 3 – December 3

## **SCHEDULE AND ASSIGNMENTS**

You will have 9 required lab application assignments and the opportunity to complete three additional lab application assignments for extra credit. In-class lecture will provide background on these topics. You will submit digital copies of your completed work via Blackboard. I will accept late assignments. However, if you miss the assignment due date/time (as posted on Blackboard), there will be a 10 percent deduction (one letter grade) in your grade for that assignment. The same deduction applies for assignments that are submitted one minute late and those that are submitted several weeks late. FYI: **All assignments will be due by 11:59 pm on the deadline date.** I will accept late assignments until **December 6, 11:59 am.**

### **Week of August 20, 22**

- Course Introduction
- Have you ever? – Lecture/Discussion
- Industries using Geospatial Technologies\*
- Introduction to geography – Lecture/Discussion
- Jobs in the Geospatial Fields\*
- Reading: Chapter 1, Shellito

### **Week of August 27, 29**

- Exploring Google Earth
- Assignment: Lab 1.1, Introduction to Geospatial Concepts and Google Earth Pro – Due 9/3
- Indiemapper\*
- Where in the geospatial world are you? – Lecture/Discussion
- Reading: Chapter 2, Shellito
- Assignment: Lab 2.1, Coordinates and Position Measurements – Due 9/10

### **Week of September 3, 5**

- Getting your data to match the map – Lecture/Discussion
- Spyglass Story Map\*
- Reading: Chapters 3&4, Shellito
- *Extra credit opportunity:* Lab 3.1 Georeferencing an Image – Due 9/12
  - Lab 1.1 and 2.1 must be completed to be eligible for extra credit opportunity
- Finding your location with the Global Positioning System
- Assignment: Lab 4.1, GNSS Applications – Due 9/17

**Week of September 10, 12**

- Service learning work
- Exam 1 – September 12
- Reading: Chapter 5, Shellito

**Week of September 17, 19**

- Working with digital geospatial data and GIS – Lecture/Discussion
- Using GIS online\*
- NO CLASS – September 19, utilize lab time to catch-up/work ahead
- Assignment: Lab 5.1 or Lab 5.2, GIS Introduction – Due 9/26
- Reading: Chapter 6, Shellito

**Week of September 24, 26**

- GIS Current Events Maps\*
- National Map Advanced Viewer\*
- Using GIS for spatial analysis – Lecture/Discussion
- Assignment: Lab 6.1 or 6.2, GIS Spatial Analysis – Due 10/3
- Reading: Chapter 7, Shellito

**Week of October 1, 3**

- Building SQL Queries in GIS\*
- Working with Buffers in GIS\*
- Using GIS to Make a Map – Lecture/Discussion
- Assignment: Lab 7.1 or 7.2, GIS Layouts – Due 10/10
- Reading: Chapter 8, Shellito

**Week of October 8, 10**

- Powers of 10 – A Demonstration of Scale\*
- Presidential Election Thematic Maps\*
- Getting there quicker with geospatial technology – Lecture/Discussion
- Online Mapping and Routing Applications and Shortest Paths\*
- *Extra credit opportunity*: Lab 8.1, Geocoding and Shortest-Path Analysis – Due 10/17
  - Lab 6.1/6.2 and Lab 7.1/7.2 must be completed to be eligible for extra credit opportunity

**Week of October 22, 24**

- Service Learning Work
- Exam 2 – October 17
- Reading: Chapter 9, Shellito

**Week of October 29, 31**

- Remotely sensed images from above – Lecture/Discussion
- No-Fly Zones for UAS\*
- Viewing Aerial Photography Online\*
- Examining CIR Photos\*
- Assignment: Lab 9.1, Visual Imagery Interpretation – Due 11/5
- Reading: Chapter 10, Shellito

### **Week of November 5, 7**

- How remote sensing works – Lecture/Discussion
- Viewing Remotely Sensed Imagery Online\*
- Wavelengths and the Scale of the Universe\*
- Comparing True Color and False Color Composites\*
- Lab 10.1, Remotely Sensed Imagery and Color Composites – Due 11/12

### **Week of November 12, 14**

- Images from space – Lecture/Discussion
- Examining Satellite Orbits in Real Time\*
- Viewing Landsat Imagery with LandsatLook\*
- Google Earth Engine and Applications of Landsat Imagery\*
- Viewing High-Resolution Satellite Imagery\*
- Lab 11.1, Landsat 8 Imagery – Due 11/19

### **Week of November 19, 21**

- Studying Earth's Climate and Environment from Space – Lecture/Discussion
- NASA's Earth Observatory
- Service Learning
- Extra credit opportunity: Lab 12.1, Earth-Observing Missions Imagery

### **Week of November 26, 28**

- **NO CLASSES – Fall Break**

### **Week of December 3**

- Exam 3 – Tuesday, 12/3, **8-10 am**
- Lab time as necessary following exam completion, 12/3
- All late materials due by December 6, 11:59 pm

### **PARTICIPATION AND ATTENDANCE**

It is exceptionally important for you to be in class and interact with your peers. The participation grade is based upon your completion of in-class activities.

### **EXAM PROCEDURES AND FORMAT**

1. All in-class exams are weighted equally and are non-comprehensive. Exam questions will be a combination of multiple-choice, true-false, visual recognition, short-answer, and essay formats and will be based on the lectures, class discussion, readings (textbook and web-posted articles), and videos. All exams must be taken at the scheduled time and will be given neither earlier nor later except as noted below.
2. If you are going to miss an exam for an acceptable reason (see 3. below), YOU MUST CONTACT ME BY EMAIL, PHONE, OR IN PERSON BEFORE THE ABSENCE. If you have not contacted me and are absent from the exam YOUR EXAM SCORE WILL BE 0, even if your excuse was an acceptable one.
3. The four acceptable excuses for missing exams are:
  - (a) University sponsored activities: These are usually related to varsity sports teams, cheerleaders, band members, or class/major-related field trips or conferences. You must provide an official document from the sponsoring group AND take the exam BEFORE the absence.
  - (b) Jury duty and court appearances: You must provide an official document from the court/judge AND take the exam BEFORE the absence.

- (c) Family emergency/death in the family: You may take the exam before or after the absence depending on the circumstances, and, upon your return to class, must provide a letter from a parent or spouse corroborating the situation AND their willingness to be called by me to confirm the absence. An obituary or funeral program IS NOT sufficient unless you are specifically named as a participant or surviving family member. Make-up exams must be completed within one week after the work was missed at the latest.
- (d) Severe personal illness or injury: You may take the exam after the absence, and, upon your return to class, must provide documentation from a doctor or hospital clearly indicating a health problem and treatment before being given a make-up exam. If you are sick enough to miss an exam, you are sick enough to seek medical attention. Also, unless the illness or injury strikes on the morning of the exam, or you can document that you were incoherent or incapacitated prior to the exam, YOU MUST STILL CONTACT ME before the absence. Make-up exams must be completed within one week after the work was missed at the latest.
4. While the above list of acceptable excuses for missing exams is exhaustive, for clarification purposes the following excuses ARE NOT valid and WILL NOT be accepted: vacation travel, personal/social/family functions (including weddings, reunions), job conflicts, fraternity/sorority functions, homecoming, oversleeping (even due to power outages or inconsiderate roommates), routine medical/dental/legal appointments, being arrested/in jail, and anything else that does not fall under 3. above.
5. Advance and make-up exams will be a different format than the exam given to the rest of the class. Make-up exams may be all essay. Furthermore, students arriving at an exam late must still complete the exam within the remaining class period.

#### **ADDITIONAL INFORMATION**

- The grade cut-offs listed earlier are firm; for example, a point total of 894 will be a B. No individual extra credit or "redo" work is possible for this class. Don't ask. There is no possibility of a grade being changed except for a genuine computational error on my part.
- No course scores or grade information will be divulged over the phone or e-mail. Blackboard will be used to report course scores and will be the only place exam scores can be obtained besides my office.
- Incomplete grades (I) will be given only in the case of extended, verifiable illness that occurs after the automatic W period; you should withdraw if it occurs before then. Even if you have notified me during the semester of your situation, you must also contact me at the end of the semester to confirm your cause of absence and to discuss arrangements for finishing the incomplete work.
- Your success in this class is important to me, and it is the policy and practice of the University of Arkansas at Little Rock to create inclusive learning environments consistent with federal and state law. If you have a documented disability (or need to have a disability documented), and need an accommodation, please contact me privately as soon as possible, so that we can discuss with the [Disability Resource Center \(DRC\)](#) how to meet your specific needs and the requirements of the course. The DRC offers resources and coordinates reasonable accommodations for students with disabilities. Reasonable accommodations are established through an interactive process among you, your instructor(s) and the DRC. Thus, if you have a disability, please contact me and/or the DRC, at 501-569-3143 (V/TTY) or 501-683-7629 (VP). For more information, please visit the DRC website at [www.ualr.edu/disability](http://www.ualr.edu/disability).
- Don't wait until the last week of class to start worrying about your grade if your scores are not as high as you hoped. Contact the instructor for questions/concerns.
- All students are required to perform their own work. Students caught cheating or representing their work as someone else's or vice versa, will be charged as appropriate under the university's [Academic Integrity Policies](#).
- All students are expected to maintain a working e-mail address on file with the university and to log into Blackboard daily for ancillary information, updates, and submission of writing assignments.
- Above all, the instructor expects a civilized, respectful, professional, and open-minded attitude to prevail in the face-to-face and online classroom. Students are expected to conduct themselves accordingly.
- During inclement weather, UA Little Rock will make a decision whether or not to close based on all available

information. The chancellor will decide whether or not conditions warrant canceling classes and activities and closing the campus or whether classes and activities will be canceled but with specified campus offices open. Online or web-enhanced classes will continue as scheduled at the discretion of the faculty member. The UA Little Rock website, UA Little Rock email, the university's main telephone number (501.569.3000), and the Rave campus alert notification system are the official means of communicating information concerning weather-related closings. When necessary, the university will announce a separate decision about canceling night classes (those classes starting at 4:20 p.m. or later) by 2 p.m., if possible.

### **Helpful University Resources**

The [\*\*Communication Skill Center \(CSC\)\*\*](#) is a resource devoted to helping campus and online students in the various stages of preparing a presentation. Services include, but are not limited to, anxiety management, brainstorming, research, content organization, PowerPoint/Prezi design and integration, and providing presenters with balanced feedback. The CSC offers both onsite and online services. Appointments are available and walk-ins are welcome; please feel free to stop by 201 speech building, call us at 501-569-8208, or email: [communication.skill.center@gmail.com](mailto:communication.skill.center@gmail.com). Book an appointment: <http://ualrcommunicationskillcenter.setmore.com>

The [\*\*University Writing Center \(UWC\)\*\*](#) was developed to help clients with their writing at any stage of the writing process. They can provide quality feedback about your writing, problem-solving strategies for your writing, and assistance with academic technology. When you visit the University Writing Center for a conference, an intern will look over your text and reply with comments and suggestions as needed to improve its content, development, and organization. Interns can also help you identify patterns of error in your grammar, spelling, and punctuation so you can learn how to correct these errors on your own. Interns will not proofread your paper for you but will instead teach you techniques for how to do this for yourself. The UWC is located in the Student Union B (SUB) Room 116. For more information about us and the services we provide, please call our office at (501) 569-8343.

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# GEOGRAPHY

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Think about a Geography minor. It only requires Physical Geography, Cultural Geography, and 12 additional Geography hours. I hope to see you in another UA Little Rock Geography course soon!