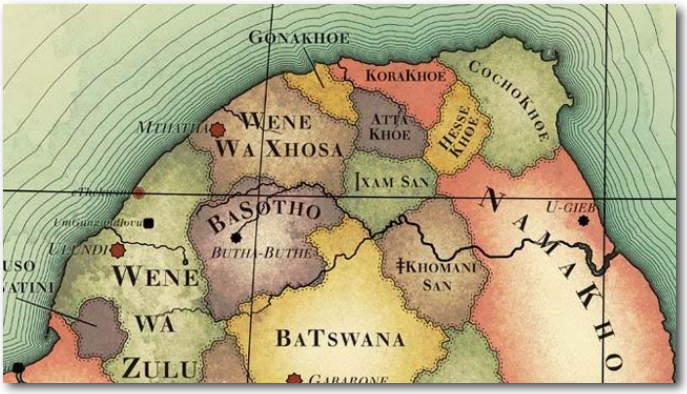
GIS Applications in Anthropology



Anthropology 6181C-0001
Spring 2018
Tuesdays, 3:00-5:50 PM
HPA 1, Room 0111

Dr. John H. Walker
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409o Howard Phillips Hall

Office Hours: Tuesdays and Thursdays 10:30-12:30 PM, or by appointment (contact me by email and I will try to reply in 24 hours)

Course Description

In this class we will work together and learn how to use Geographic Information Systems (GIS) to frame and answer questions in anthropology and archaeology. I expect that you will develop a basic understanding of the principles behind Geographic Information Science and how GIS can be applied to many kinds of problems. We will study how anthropologists and archaeologists have always been interested in spatial questions, using examples to illustrate concepts in spatial analysis. We will learn the skills to use particular software (ArcGIS 10) to integrate, display and analyze various kinds of spatial data. This class takes the form of a seminar, and students are expected to be active members of a working and learning community, giving constructive feedback to one another.

Attendance policy

If you will not be able to attend class, you should choose a different course. Attendance at **all** class sessions is expected because it is the **only** way that this course can succeed, and provide the best opportunity for us to pool our experience and learn together. Should you be forced to miss a class, please notify me ahead of time.

Course Goals

To learn to think spatially.

To understand the concepts behind Geographic Information Systems, and apply those concepts by learning a specific software package (ArcGIS 10).

To prepare a professional presentation on an independent research question that uses GIS to address a theoretical question.

To share knowledge and thoughtful, critical feedback with the other members of the class.

Required Textbooks

[G] Ormsby, T, Napoleon, E., Burke, R., Groessl, C., and Bowden. 2010. *Getting to know ArcGIS Desktop* (for ArcGIS 10). Redlands: ESRI Press.

[B] Bolstad, P. 2012. *GIS Fundamentals—A First Text on Geographic Information Systems*. 4th edition. White Bear Lake, MN: Eider Press.

Required Software

Google Earth [http://earth.google.com/download-earth.html] or ArcGIS Earth [http://www.esri.com/software/arcgis-earth] Note that you only need to download free software.

ArcGIS (version 10) Note that this program is available through the Ormsby et al book, and also at various labs around campus. I will also be able to get a license for each of us (as needed). You can also use the my apps link through UCF, and use the software remotely.

The first two textbooks are available at the bookstore, and at many other locations. If you purchase your books somewhere else, make sure that you get the correct edition. The Bolstad textbook is available from online sellers and from www.atlasbooks.com

We will also be using readings distributed electronically. We will use the first three weeks of the semester to search online for published articles in which GIS is used to investigate research questions. Students will have input into our selection of readings for the remainder of the semester. Other class materials will include websites, online manuals, maps and other documents. A fairly high degree of familiarity and ease with computers and managing information is expected. Pending approval by the university, we will be using a Webcourses website to communicate with each other and distribute documents. We will also use a wiki, or collaborative website, (or possibly the new Canvas/Webcourses2 system) to communicate with one another.

Grading

The requirements for this course are weighted as follows:

Class participation	20%
Lab assignments	30%
Final project	50%

Class participation: This class combines elements of a seminar and a laboratory, and the engagement of everyone in the class is necessary for each of us to get the most out of the experience. Accordingly, class participation makes up 20% of your grade. Be prepared every week to discuss the readings for that week, and to work with each other on the lab assignments. If you understand the material well, you have an obligation to communicate that and to **help your classmates**. If you are still figuring some of it out, you have an obligation to ask questions and **work with your classmates**. No matter how you use GIS in the future, you will spend a lot of your time explaining it to people and helping them to understand it better.

The format of part of each class meeting will be a combination of lecture and discussion. Each week, we will discuss the concepts outlined in the Bolstad textbook, and in some cases illustrate those concepts by talking about anthropological, archaeological and geographical approaches to space.

Labs: Most weeks there will be a lab assignment, working directly with ArcGIS. We will work on the problems defined in the lab during class, and then you will be expected to continue to work on the problem throughout the week. The assignments are due one week later, via email, at 9 am on the day of class. For most labs, you are expected to take a screenshot or send a file that shows that you have completed the exercises in the ArcGIS textbook. No late assignments will be accepted. The lab assignments will be graded on a simple check/check-plus/check-minus system. The goal of these assignments is to encourage you to learn the complexities of the ArcGIS software. They are your opportunity to show a good-faith effort to work with the program.

Final Projects: Each student will prepare a project that consists of three related parts: a GIS database, a seminar paper that presents a problem based on that database, and a presentation of the database and the analysis to the class. Here is an important point: you can work collaboratively on the database, even though you will each be turning in a separate paper. We will talk in class about working together on a database. Groups of no more than 5 people can work together in this way. Another important point is that you will be required to provide written feedback to one another on the final projects. This peer review will be part of the final project grade.

Seminar papers:

Each participant in the class will be required to write a research paper on a topic of their choice relating to GIS and Anthropology. I will approve each student's topic. Please select your topic immediately and begin work right away. Dates for intermediate steps in the research process are listed in the syllabus. These dates are important because if they are not followed, the schedule for the entire class will be disrupted.

Topic, title and abstract: Clear your topic with me before handing in the abstract.

Annotated Map: Students will prepare and post a map with an accompanying essay that explains the central point of their research project. This map and essay should connect a theoretical concept or problem with a spatial representation.

Detailed outline: Students will prepare a detailed outline of their research and paper.

Formal presentation: A complete draft of the paper is due in the final two weeks of the semester. Each student is responsible for distributing copies to all participants one week before the paper is to be presented. Each paper will be assigned a discussant. The discussant, in consultation with the author, will present a concise summary of the paper and a critical review of it (about 5-10 minutes). Following this presentation, the author will be allowed to address issues and questions that have been raised, and then discussion will be open to all participants.

Final version: Each student must give the authors prompt feedback on their drafts, including comments on everything from theoretical arguments to data presentation to punctuation. Based on these comments, a final version is prepared and a hard copy is turned in during Final exam week. Students will also make copies of their papers

available to all seminar participants. Papers and comments will be made available on the class wiki.

Access to ArcGIS

The University of Central Florida has a site license for ArcGIS, which is a very valuable resource. We will use the program here during class time, and it is also available on campus. The program has been installed at the following locations:

Main computer lab, Classroom 1
Business Administration148A
Computer Science II 113B and 104

Course Websites

The web is a very important tool for learning more about GIS, acquiring data, finding help from other people, online training, and downloading the results of GIS research. Here is a very brief selection of relevant websites to help you get started.

Society for American Archaeology (www.saa.org)
American Anthropological Association (www.aaanet.org)
Shovelbums (www.shovelbums.org)
UCF Library (library.ucf.edu)
Google Scholar (scholar.google.com)
Google Earth (earth.google.com)
Maryland Global Land Cover Facility (http://glcf.umiacs.umd.edu/index.shtml)
USGS data gateway (http://edcimswww.cr.usgs.gov/pub/imswelcome/)
ESRI (www.esri.com)
NASA's World Wind (http://worldwind.arc.nasa.gov/)
Strange Maps (http://bigthink.com/blogs/strange-maps)

Writing Center

UCF has an excellent service to help all writers improve their work by conferencing with other writers. Find out more about it at (www.uwc.ucf.edu). Take advantage of these resources, because they will certainly improve your writing, and they are available to you at no charge.

I urge you to take every opportunity to work with your graduate student peers to edit and critique each others' written work. **The people you learn the most from in graduate school are your fellow students**.

Classroom decorum

In order for more than 20 humans to coexist in a computer lab, cooperate and learn something, some basic ground rules are necessary.

Small electronics—turn off all things that beep, whistle or sing before you come to class.

Tape recorders—it is okay to tape lecture, but please inform me before doing so. We will discuss as a class whether we think it is okay to tape our discussions.

Disruptions—Talking during class, reading newspapers and other disruptive behavior will not be tolerated.

Cheating and Plagiarism—I have a zero-tolerance policy towards cheating and plagiarism. Students who cheat or plagiarize will fail the course, and most likely be expelled from the University. Please refer to the Golden Knights handbook for UCF rules regarding cheating.

Revisions

This syllabus is **subject to revision** as we work on topics throughout the semester. Updated syllabi will be distributed via email or the web, and you will hear about them in class. Additional readings will be distributed in the same fashion.

W	*Mo*	*D*	Topic	Lab	Reading	Project assignment
1	*Jan*	*9*	Introductions			
2		*16*	Data Models	G 1-4, [look at 14]	B 1-2 Find an article I Dunnell 1992	Make your first entry on the class website
3		*23*	Projections and Sources	G 13, 15	B 3,4 Find an article II Hodder 1977	
4		*30*	GPS, Aerial and Satellite Images	G 5, 16	B 5,6 Find an article III/Class Library 0	
5	*Feb*	*6*	Digital Data	G 6-7	B 7 Class Library I	Topic, Title and 200 word abstract DUE
6		*13*	Attribute Data and Tables	G 8[look at 9]	B 8 Class Library II	
7		*20*	Basic Spatial Analysis	G 10	B 9 Class Library III	Map and essay (500-750 words) DUE
8		*27*	Raster Analysis	G 11	B 10 Class Library IV	
9	*Mar*	*6*	Terrain Analysis	G 12	B 11 Class Library V	Detailed outline of your project DUE
		13	*Spring Break*			
10		*20*	Spatial Estimation	G 18-19	B 12 Class Library VI	
11		*27*	Spatial Modeling	G 20	B 13 Class Library VII	
12	*Apr*	*3*	Data Standards		B 14 [15] Class Library VIII	
13		*10*	Map and Paper Workshop			Draft versions of papers DUE
14		*17*	Student presentations			Seminar class, feedback to authors
		24	*Final Exam period*			Final version of paper DUE at 5 pm