ANT4852/ANG5852: GIS Methods in Anthropology

Department of Anthropology

College of Sciences, University of Central Florida

COURSE SYLLABUS

Instructor:	*Scott Branting*	*Term:*	*Fall 2018*
Office:	*Phillips Hall 309-E*	*Credit Hours*	*3*
Phone:	*(407) 823-4962*	*Class Meeting Days:*	*M*
E-Mail:	*scott.branting@ucf.edu*	*Class Meeting Hours:*	*9:30am – 12:20pm*
Website:	*Canvas*	*Class Location:*	*HPA1 – 111*
Office Hours:	*Dr. Branting M 1:00-3:00 or by appointment* *Thomas Tu 2:00-3:30, F 10:30-12:00, or by appointment*	*TA:* *TA email:*	*Thomas Lee* *tomlee@knights.ucf.edu*

University Course Catalog Description

This course provides an introduction to Geographic Information Systems (GIS) methods from an anthropological perspective. This course is part of a two course sequence with Advanced GIS Methods in Anthropology and fulfills the two-course core requirement for the GIS Graduate Certificate or the GIS Undergraduate Certificate.

Course Overview

This course will expose you to both numerous spatial theories underlying GIS analysis as well as to the geospatial methodologies, tools, and theories used to collect and analyze spatial data. It is relevant to anyone who may need to conduct anthropological research or research in other disciplines that includes consideration of data within a spatial context. This course is comprised of both a classroom and a laboratory component. The classroom component will consist of lectures and activities, while the laboratory component will allow you to get hands-on experience applying the concepts discussed in class. This course is part of a two course sequence with Advanced GIS Methods in Anthropology and fulfills the two-course core requirement for the GIS Graduate Certificate or the GIS Undergraduate Certificate.

Course Objectives

In this course, students will gain skills in:

- Project design: including generating and analyzing geospatial data
- Writing: including designing research and writing grants related to geospatial analysis
- Public speaking through the presentation of their research designs and their data analyses
- Interdisciplinarity: including evaluating and correlating data derived from a variety of sources, as well as assessing research in several disciplines.

Course Prerequisites
None

Required Text and Articles
Some readings in this course take the form of journal articles, which are available through the UCF Library web site. In cases where a reading is not available for electronic download, a copy of the reading will be made available through the course website on Webcourses@UCF. The following texts are also required for the course:

- Bolstad, P. (2016): GIS Fundamentals: A First Text on Geographic Information Systems (5th Edition). Acton, MA: XanEdu

- Wheatley, D. G., & Gillings, M. M. (2002): Spatial technology and archaeology. The archaeological applications of GIS. New York: Taylor and Francis.

Basis for Final Grade
Your grade will be based upon your laboratory exercises (40%), participation in classroom activities with a greater role expected from graduate students (4%), the syllabus quiz (1%), a written grant application based on the provided undergraduate or graduate grant sheet (45%), a short presentation of that application to the entire class (10%). Laboratory exercises will usually be due via webcourses at the start of class the week after they were handed out, see the course schedule below for actual dates. Failure to hand it in assignments on the due date, in the absence of a pre-accepted excuse, will result in a score of (0) for that assignment. Presentation times during the final weeks of class will be scheduled later in the class. Failure to present at that time, in the absence of a pre-accepted excuse, will result in a score of (0) for the presentation.

Assignments	*Due Date*	*Percent of Grade*	*Max. Points*
Syllabus Quiz	By Friday of Week 1, August 24th, at 3pm	1% and federal verification requirement	1
Laboratory Exercises	Monday at 9:30am on the following week via webcourses	40%	40
Participation in Classroom Activities - Graduate students are expected to take a larger participatory role	Usually in class each Monday	4%	2
Undergraduate Grant Application or Graduate Grant Application	Monday November 26th at 9:30am	45%	45
Oral Presentation of Project	Assigned Classroom Period in Week 15 and Finals Week	10%	10

The syllabus quiz also completes the verification requirement for students who receive federal financial aid. Verification of student engagement is required to support UCF's compliance with federal financial aid regulations. The regulations state that without verification of student engagement at the start of each course in which a student is enrolled, students will not receive their student aid. UCF is required to verify that every student enrolled in every course meets this regulation. All students, whether or not you receive federal student aid, are required to complete the syllabus quiz by 3pm on the Friday of first week.

Letter Grade	*Points*
A	93 – 100 points
A-	90 – 92 points
B+	87 – 89 points
B	83 – 86 points
B-	80 – 82 points
C+	77 – 79 points
C	73 – 76 points
C-	70 – 72 points
D+	67 – 69 points
D	63 – 66 points
D-	60 – 62 points
F	59 and below

Course Policies

Student Conduct

All student conduct must conform to the purpose of this class, which is to provide a welcoming and inclusive environment for the learning and sharing knowledge. This will require civility and respect for each other during lectures and discussions, as well as trust and cooperation between you and me. Cheating, plagiarism, and disruptive behavior will, therefore, not be tolerated in class. If your behavior in class is being disruptive (e.g. talking, violating the electronic device policy, arriving late, distracting other students), I may use my right as instructor to ask you to leave the class. If a student habitually disturbs the class I also reserve the right to reduce their final course grade by up to 10%. Plagiarism and cheating are particularly serious offenses. Penalties for plagiarism or cheating can include a failing grade on an assignment or in the course, suspension or expulsion from the university, and/or a "Z Designation" on a student's official transcript indicating academic dishonesty, where the final grade for this course will be preceded by the letter Z. For more information about the Z Designation, see http://goldenrule.sdes.ucf.edu/zgrade. All students are required to follow the Rules of Conduct found within the Golden Rule, the University of Central Florida's Student Handbook (www.goldenrule.sdes.ucf.edu). Violations of these rules may result in a record of the infraction being placed in your file. Confirmation of such incidents may result in expulsion from the University.

Disability Accessibility

Both I and the University of Central Florida are committed to providing reasonable accommodations for people with disabilities. Students who need accommodations in this course must first register with Student Accessibility Services (sas.sdes.ucf.edu) and should also speak with me at the start of the semester to

discuss needed accommodations. The Student Accessibility Services office is available to also provide you with a wide range of assistance beyond this course setting.

University Writing Center: The University Writing Center (uwc.cah.ucf.edu) is a free resource for UCF students. If you require assistance with any part of the writing process, they have trained consultants who can help you if you plan ahead. Since written assignments comprise a large percentage of your grade for this course, I would encourage you to seek out their assistance if you require it.

Electronic Device Policy

Students learn in different ways and are comfortable with different technologies. You are welcome to use a computer, tablet, smartphone or similar device in class meetings for note taking or for completing the laboratory exercises. You may not, however, use these devices for non-course-related purposes including: phone calls, texting, checking emails, and making use of the internet. If you wish to use them to record a lecture you need to ask about this in advance. You may also not use the device in any way that is distracting to other students in the classroom. If you are found to be doing so, you will be asked to put away the device or stop using the device. The use of a device to send or receive a call or message is not permitted in class at any point unless there is an emergency. Please be sure these devices are silenced, in accordance with University policy, and in your pocket or bag for the duration of the class.

Campus Safety Statement

Emergencies on campus are rare, but if one should arise during class, everyone needs to work together. Please be aware of your surroundings and familiar with basic safety and security concepts. For more information see: http://emergency.ucf.edu/emergency_guide.html.

Accommodations for Active Duty Military Students

Students who are deployed active duty military and/or National Guard personnel and require accommodation should contact me as soon as possible after the semester begins and/or after they receive notification of deployment to make related arrangements.

Attendance

Attendance at class meetings is important for an understanding of course materials and for success in this class. I will not take formal class attendance, although I may keep a record of attendance of individual students at my discretion if it is warranted based on class performance. I expect that students attend class regularly and I will not provide class notes or lecture slides to students for class periods that students miss. In addition, if you are not in attendance on days when you may be presenting, without a pre-accepted excuse, you will receive a score of (0) for that assignment.

Updates and Notifications

The course website on Webcourses will be used for any general notifications or updates to this course, including changes to this syllabus.

Obtaining Notes for Missed Lectures

If you miss a lecture it is your responsibility to obtain notes from a fellow classmate. I will not provide notes or a copy of any lecture or activity.

Grades of “Incomplete”

Incomplete grades are only given when an unexpected and documented emergency situation prevented a student from completing the remaining work at the time when the emergency occurred. I have the right to make the final decision on whether or not to issue an incomplete, rather than submitting a final grade based upon your completed work. Incomplete work must be finished by the end of the next semester or the "I" will automatically become an "F" on your transcript.

Course Schedule

This syllabus is tentative and I may make reasonable schedule modifications to meet the goals of the class. Articles will be posted on the course website or provided in class.

Week	Day	Date	Topic Assignments Due	Reading Assignments
1	M	Aug. 20	What is GIS Course Introduction, What is GIS, Assignment of GIS Examples, Syllabus Quiz ASSIGNMENT: Syllabus Quiz due Fri. Aug. 24th, 3pm	Bolstad pp. 1-24 Wheatley and Gillings pp. 1-21
2	M	Aug. 27	GIS Projects - Data and basic manipulation Classroom session with GIS Examples from Class and Introduction to GIS Lab ASSIGNMENT: GIS Examples for Class (One in your discipline, one outside it, and a project idea)	Wheatley and Gillings pp. 23-58; Bolstad pp. 170-193; 373-419; 617-636 For additional explanation on topics in Wheatley and GIllings see: Bolstad pp. 29-169.
3	M	Sept 3	Labor Day – No Classroom Session	
4	M	Sept 10	Data Collection, Surveys, Surveying Classroom session and GIS Data Lab ASSIGNMENT: Introduction to GIS Lab Due, Monday Sept 10 at start of class	Wheatley and Gillings pp. 59-87 Bolstad pp. 331-364; 297-327 For additional information on GPS and surveying see: Bolstad pp. 203-239.

5	M	Sept 17	Remote Sensing Classroom session and Remote Sensing Lab ASSIGNMENT: GIS Data Lab Due, Monday Sept 17 at start of class	Bolstad pp. 247-291 For additional types of raster based analysis see: Bolstad pp. 443-473. Masini and Lasaponara (2017): Sensing the Past from Space: Approaches to Site Detection; Liu and Mason (2016): Appendix A: Imaging sensor systems and remote sensing satellites
6	M	Sept 24	Quantitative and Qualitative Data Classroom session and Integration Lab ASSIGNMENT: Remote Sensing Lab Due, Monday Sept 24 at start of class	Sui (2015): "Emerging GIS themes and the six senses of the new mind: is GIS becoming a liberation technology?" Boschmann and Cubbon (2014): "Sketch Maps and Qualitative GIS Using Cartographies of Individual Spatial Narratives in Geographic Research"
7	M	Oct 1	Perception – Viewsheds, Soundsheds, Smellsheds Classroom session and Perception Lab ASSIGNMENT: Integration Lab Due, Monday Oct 1 at start of class	Wheatley and Gillings pp. 201-216; Nutsford et al. (2015): "Personalizing the Viewshed: Visibility Analysis from the Human Perspective"; Brabyn (2015): "Modelling landscape experience using 'experions'"
8	M	Oct 8	Transportation and Movement Classroom session and Transportation Lab ASSIGNMENT: Perception Lab Due, Monday Oct 8 at start of class	Bolstad pp. 420-428 Hall and Smith (2014): "Knowing the City: maps, mobility, and urban outreach work"; Branting (2012): "Seven Solutions for Seven Problems with Least Cost Pathways"

9	M	Oct 15	Location – Boundaries, Borderlands, Central places, Spatial Hierarchies Classroom session and Location Theory Lab ASSIGNMENT: Transportation Lab Due, Monday Oct 15 at start of class	Wheatley and Gillings pp. 147-164; Wright (1986): "The Evolution of Civilizations"; Mu and Wang (2006): "Population landscape: a geometric approach to studying spatial patterns of the US urban hierarchy"
10	M	Oct 22	Demography – Population, Densities, Interactions Classroom session and Demography Theory Lab ASSIGNMENT: Location Theory Lab Due, Monday Oct 22 at start of class	Naroll (1962): "Floor Area and Settlement Population"; Reibel (2007): "Geographic Information Systems and Spatial Data Processing in Demography: a Review"; Khormi and Kumar (2011): "Modeling dengue fever risk based on socioeconomic parameters, nationality and age groups: GIS and remote sensing based case study"
11	M	Oct 29	Spatial Analysis, Spatial Statistics, and Modeling Classroom session Spatial Analysis Lab and Proposal Preparation ASSIGNMENT: Demography Theory Lab Due, Monday Oct 29 at start of class	Wheatley and Gillings pp. 89-106, 125-146, 183-200; Bolstad pp. 519-560, 571-606 Austin et al. (2005): "Clustering of fast-food restaurants around schools: a novel application of spatial statistics to the study of food environments"; Vogel et al. (2016): "The Ancient Rural Settlement Structure in the Hinterland of Pompeii Inferred from Spatial Analysis and Predictive Modeling of *Villae Rusticae*"

12	M	Nov 5	Visualization and Virtual Reality Classroom session Visualization Lab and Proposal Preparation ASSIGNMENT: Spatial Analysis Lab Due, Monday Nov 5 at start of class	Wilhelmson and Dell'Unto (2015): "Virtual Taphonomy: A New Method Integrating Excavation and Postprocessing in an Archaeological Context"; Verykokou et al. (2016): "Multi-scale 3D Modelling of Damaged Cultural Sites Use Cases and Image-Based Workflows"
13	M	Nov 12	Veterans Day – No Classroom Session	
14	M	Nov 19	Visualization Project Showcase Visualization Projects Showcase and Proposal Preparation Class ASSIGNMENT: Visualization Lab Due, Monday Nov 19 at start of class	
15	M	Nov 26	STUDENT PRESENTATIONS ASSIGNMENT DUE AT START OF CLASS Monday Nov 26 Undergraduate Grant Application (8-10 pages) Graduate Grant Application (10 pages)	
Finals	M	Dec 3	STUDENT PRESENTATIONS *Note Different Time: 10:00-12:50pm	

Article Bibliography

Austin, S. Byrn, Steven J. Melly, Brisa N. Sanchez, Aarti Patel, Stephen Buka, and Steven Gortmaker
2005 Clustering of fast-food restaurants around schools: a novel application of spatial statistics to the study of food environments. *American Journal of Public Health* 95(9):1575-1581.

Boschmann, E. Eric and Emily Cubbon
2014 Sketch Maps and Qualitative GIS Using Cartographies of Individual Spatial Narratives in Geographic Research. *The Professional Geographer* 66(2):236-248.

Brabyn, Lars
2015 Modelling landscape experience using "experions". *Applied Geography* 62:210-216.

Branting, Scott
2012 Seven Solutions for Seven Problems with Least Cost Pathways. In *Least Cost Analysis of Social Landscapes: Archaeological Case Studies*. Devin A. White and Sarah L. Surface-Evans, eds. Pp. 209-224. Salt Lake City: University of Utah Press.

Hall, Tom and Robin J. Smith
2014 Knowing the City: maps, mobility, and urban outreach work. *Qualitative Research* 14(3):294-310.

Johnson, Gregory A.
1977 Aspects of Regional Analysis in Archaeology. *Annual Review of Anthropology 6*:479-508.

Khormi, Hassan M. and Lalit Kumar
2011 Modeling dengue fever risk based on socioeconomic parameters, nationality and age groups: GIS and remote sensing based case study. *Science of the Total Environment* 409:4713-4719.

Liu, Jian Guo and Philippa J. Mason
2016 Appendix A: Imaging sensor systems and remote sensing satellites. In *Image Processing and GIS for Remote Sensing: Techniques and Applications (Second Edition)*. Jian Guo Liu and Philippa J. Mason, eds. Pp. 427-439. Chichester, UK: John Wiley & Sons.

Masini, Nicola and Rosa Lasaponara
2017 Sensing the Past from Space: Approaches to Site Detection. In *Sensing the Past: From artifact to historical site*. Nicola Masini and Francesco Soldovieri, eds. Pp. 23-60. Cham, Switzerland: Springer.

Mu, Lan and Xiao Wang
2006 Population landscape: a geometric approach to studying spatial patterns of the US urban hierarchy. *International Journal of Geographic Information Science* 20(6):649-667.

Naroll, Raoul
1962 Floor Area and Settlement Population. *American Antiquity* 27(4):587-589.

Nutsford, Daniel, Femke Reitsma, Amber L. Pearson, Simon Kingham
2015 Personalizing the Viewshed: Visibility Analysis from the Human Perspective. *Applied Geography* 62:1-7.

Reibel, Michael
2007 Geographic Information Systems and Spatial Data Processing in Demography: a Review. *Population Research Policy Review* 26:601-618.

Sui, Daniel
2015 Emerging GIS themes and the six senses of the new mind: is GIS becoming a liberation technology? *Annals of GIS* 21(1):1-13.

Verykokou, Styliani, Anastasios Doulamis, George Athanasiou, Charalabos Ioannidis, and Angelos Amditis
2016 Multi-scale 3D Modelling of Damaged Cultural Sites Use Cases and Image-Based Workflows. In *Digital Heritage: Progress in Cultural Heritage: Documentation, Preservation, and Protection*. Marinos Ioannides, Eleanor Fink, Antonia Moropoulou, Monika Hagedorn-Saupe, Antonella Fresa, Funnar Liestøl, Vlatka Rajcic, and Pierre Grussenmeyer, eds. Pp. 50-62. Cham, Switzerland: Springer.

Vogel, Sebastian, Michael Märker, Dominique Esposito, and Florian Seiler
2016 The Ancient Rural Settlement Structure in the Hinterland of Pompeii Inferred from Spatial Analysis and Predictive Modeling of Villae Rusticae. *Geoarchaeology* 31:121-139.

Wilhelmson, Helene and Nicholó Dell'Unto
2015 Virtual Taphonomy: A New Method Integrating Excavation and Postprocessing in an Archaeological Context. *American Journal of Physical Anthropology* 157:305-321.

Wright, Henry T.
1986 The Evolution of Civilizations. In *American Archaeology Past and Future: A Celebration of the Society for American Archaeology 1935-1985*. David J. Meltzer et al., eds. Pp. 323-365. Washington, DC: Smithsonian Institution Press.