

GEOG 6830: GEOGRAPHIC INFORMATION SYSTEMS

Department of Geosciences, Auburn University

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Spring 2019

Class times: **Tu 9:30-11:20, Th 9:30-12:20**

Classroom: **Haley 2174**

4 Credit hours

What is this course about?

A Geographic Information System (GIS) is a set of computer based programs used in the collection, analysis, management, and visualization of geographic data. This course introduces fundamental concepts in GIS and provides hands-on experience enabling the student to learn geographic techniques to aid in decision-making processes and solve spatial problems.

Why is this course important?

This course will allow you to gain a spatial perspective about how geographic phenomena relate to each other in space. By analyzing spatial patterns, you will better understand **WHAT** is happening **WHERE** and **WHY** - which is an essential question in academia, and more importantly, life. As GIS is interdisciplinary in nature, it is used in research, industry, and the private sector (think: marketing, real estate, civil engineering, natural resources management, etc.) – that means that knowing GIS should actually help you **get a job!** Maybe you'll thank me later, maybe you won't 😊.

What will you learn?

1. ...to use various GIS platforms, while grasping the essential and fundamental concepts of GIS
2. ...to produce readable, effective maps and communicate results
3. ...to be able to think critically about spatial problems, answering the question “**WHAT** is happening **WHERE**, and **WHY**?”
4. ...to apply the techniques and methods you have learned to case studies and real-world scenarios in the lab and to your own project topic
5. ...to work in a group setting to solve complex problems and to appreciate interdisciplinarity
6. ...to write scientifically

Course topics: HOW, WHERE, WHAT, WHY?

HOW: introduction to the inner workings and terminology of GIS

WHERE: locating ourselves and other objects using coordinate systems, projections, GPS, georeferencing

WHAT: the data! Finding it, creating it, making sense of it...mapping it

WHY: analyzing spatial distributions and patterns, answering spatial questions

Course schedule

The **dynamic** schedule for this course can be found at the following link: tinyurl.com/GEOG-GIS2019. This link will also be listed in Canvas. Bookmark it in your browser and **CHECK IT FREQUENTLY** (i.e. the day before coming to each class) for assignment information and due dates.

Textbook & readings

- **Textbook***: Chang, Kang-tsung. 2015. *Introduction to Geographic Information Systems*. McGraw-Hill Education. ISBN: 9780078095139 (older or newer versions are also acceptable) (*optional but if you aren't great at taking notes in class, you may want to strongly consider getting the book.)
- **Readings**: listed in the course schedule and available on Canvas

Summary of Assessments

Description	%	Due Dates
Exams	15	
<i>Mid-term</i>	(15)	March 5 th , 2019
<i>Final (can complete for extra credit if required)</i>	(-)	May 1 st , 2019 (8-10:30am)
Labs (10)	40	Every week
Project	30	
<i>Proposal</i>	(5)	February 14 th , 2019
<i>Presentation / teaching session</i>	(10)	February 28 th , 2019
<i>Final Manuscript</i>	(15)	April 26 th , 2019
Class participation	10	Ongoing
Professionalism	5	Ongoing
Total	100	

A 10 point grading scale will be used for the final grades: 90-100 A, 80-89.9 B, 70-79.9 C, 60-69.9 D, <60 F. Grades are automatically rounded to the nearest .1%.

Exams (2): 25%

- What are they? Exams will be made up of multiple choice, true or false, and short answer questions. They are non-cumulative (you will not be asked questions directly related to material in previous sections of the course but expected to know the material taught in those sections). The mid-term will be worth 15% as it covers more material while the final will be worth 10% of your final grade.
- What's their purpose? Exams are necessary for seeing who is learning the course material, able to apply what we learned in class to different scenarios, and a way to show your problem solving skills.

Labs (10): 30%

- What are they? Labs will be hands-on, computer-based, and independent or group activities, which are to be completed each week. They will integrate a variety of GIS techniques and topics to account for the varied backgrounds of students in the class. They will usually take place on Thursdays but this could change periodically throughout the semester. **You are required to submit every lab; failing to do so will lead you to fall behind in subsequent lab activities.** These are generally graded out of ten points each and weighted equally to make up your lab grade. They will be returned to you in a timely manner so that you may use them to study for the exams.
- What's the purpose of labs? Learn how to use GIS. Practice using GIS. Work on your problem solving skills. Practice GIS some more. Learn to work with others. Learn to ask for help when needed.

Project: 30%

- What is it? For the final project you will be required to carry out a research project based on your field of study. You will formulate a research question to answer the following: "WHAT is happening WHERE and WHY". You will be required to submit a project proposal (more details to follow), present your proposal idea along with a teaching component to the class (10-12 minutes), and submit a final report in the form of a scientific manuscript by the end of the semester.
- What's the purpose of this assignment? Conduct a research study in GIS from start to finish; present your arguments; apply what you have learned in class to your thesis topic; get practice writing scientifically.

Class participation: 10%

- What is it? There will be opportunities in class to gain participation points through peer-reviews, group work, and participation in the online discussion board where you may, if possible, assist other students with their technical questions and comment on required readings. **This term we will be using Piazza for class discussion.** The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. If you have any problems or feedback for the developers, email team@piazza.com.
- Find our class page at: <https://piazza.com/aurburn/spring2019/geog58306830spring2019/home>
- **NOTE:** this will be the only way the instructor or TA will answer technical questions!
- What's the purpose of this assessment? To promote knowledge sharing and discussion amongst your peers; to critique and comment on real-world GIS projects; to learn in an engaging environment.

Professionalism: 5%

- What is it? Professionalism is a measure of your conduct at school or work. A portion of your grade (5%) will be associated with the professionalism you demonstrate in and out of the classroom during the semester. See complete grading rubric on Canvas. Professionalism will be comprised of:
 - Time management (prompt class attendance, meeting deadlines, no requests of exceptions)
 - Respect (respectful to others, not distracting, does not use electronic devices during class unless required)
 - Preparedness (actively participates in class, knows the material, doesn't dominate discussion)
 - Quality of work (high quality work, works to improve, follows class policy)
 - Teamwork (makes significant contributions, works with others, takes leadership at times)
 - Overall impression (someone who is putting all the above together)
- What's the purpose? To deter students from coming late to class, to ensure a high level of mutual respect in the classroom, to encourage participation and learning; above all, to emphasize practicing skills that will truly help you in the future.

A typical class...and how to do well...

This course takes place in a computer lab – very convenient for the hands-on portion of the course, kind of awkward for the lecture part, but we manage! I expect students to attend every class – I put very few details on the slides and tend to convey information better by showing you what I mean and getting you to follow along on your computer.

On a typical day, you should ideally come a couple minutes early to get logged in and situated at your workstation. I tend to lecture for a small portion of the class, and the rest is filled with activities.

How will you do well??

TAKE NOTES as it is very easy to forget technical details. Be prepared to MAKE MISTAKES (undo is your new best friend), spend a bit of time struggling through problems before asking for help - (try to figure it out yourself first then- ...TALK TO OTHERS as they probably had the same issues you are having, actively PARTICIPATE IN GROUP DISCUSSIONS, spend time pressing buttons and EXPLORE THE SOFTWARE, and BE SPONTANEOUS as GIS often sends us in unexpected directions.

Also, come introduce yourself to me, either in class or during office hours. That way, I know you are interested in doing well and I am more interested in making sure that happens!

...more important information on the next page

...the fine print (Class Policies)

Attendance: *Class attendance is mandatory due to the nature of this course. Class attendance will be carefully monitored and recorded. After the second unexcused absence, 1% will be taken from your participation grade for each absence. Ten (10) or more unexcused absences will result in an FA for the course.* All announcements concerning assignments, possible changes in examination dates, etc., will be given in class. **If an absence is unavoidable, it is the student's responsibility to contact classmates to obtain notes and class announcements.**

Make-up Policy: No make-up exams are given without a University-approved excuse. If for a legitimate reason you cannot take an exam on a given date, it is your responsibility to contact me as soon as possible, preferably before you miss the exam. If you miss an exam and you have a University-approved excuse (see Student Policy eHandbook, www.auburn.edu/studentpolicies) with appropriate written documentation (e.g., from a doctor, lawyer, or coach, on official stationery) that is turned in within one week of the missed exam, then you will be allowed to take a make-up exam. All make-up exams will be given within 2 weeks of the original exam in my office and will consist of essay and fill-in-the-blank questions. A zero will be assigned two weeks from the date and time of the exam that you missed. No make ups are given for missed pop quizzes or in-class activities; **NO EXAMS WILL BE GIVEN EARLY WITHOUT A UNIVERSITY-APPROVED EXCUSE.**

Behavior: Civility and integrity is expected at all times. The use of cell phones (including texting), tablets, or laptops for purposes other than class related work is not allowed during class or lab. Flagrant violation of this policy will result in you being dismissed from class.

Academic Honesty Policy: All portions of the Auburn University student academic honesty code (Title XII) found in the Student Policy eHandbook will apply to this class. All academic honesty violations or alleged violations of the SGA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee.

In this class, violations of academic honesty include, but are not limited to

1. copying another person's work on any graded assignment or test,
2. allowing someone to copy your work,
3. collaborating on a graded assignment without the instructor's approval,
4. using unauthorized "cheat sheets" or technical devices such as calculators or cell phones for graded tests or assignments. Having an electronic device accessible during class on an exam day will be considered cheating, and you will earn a zero on the exam,
5. using quotes, summarizing ideas or borrowing facts, statistics, graphs, pictorial representations, or phrases without acknowledging the source, and
6. other infractions listed under the Auburn University Student Academic Honesty Code at <https://sites.auburn.edu/admin/universitypolicies/Policies/AcademicHonestyCode.pdf>

Disability Accommodations: Students who need accommodations are asked to electronically submit their approved accommodations through AU Access and to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternate time can be arranged. To set up this meeting, please contact me by e-mail. If you have not established accommodations through the Office of Accessibility, but need accommodations, make an appointment with the Office of Accessibility, 1228 Haley Center, 844-2096 (V/TT).
