PLG/LAR 622: Intro to GIS

*Monday: 8:00AM – 10:15AM*
*Thursday: 8:00AM– 9:15AM Architecture, Room 205*

Instructor: Dr. Philip Stoker
philipstoker@email.arizona.edu
TA: Alex Stoicof and Thomas Lampo

Office Hours: As needed by appointment
Office Location: Architecture 3303F

**Course Introduction**
This course is an introduction to Geographic Information Systems (GIS) for graduate students in planning, real estate, and landscape architecture. We will focus on three core usage domains of GIS: data management, communication/visualization, and analysis. My overall objectives for this course are for you to develop the following:

- Increased understanding of ways in which GIS and geospatial analysis can contribute uniquely to urban planning, landscape architecture, and real estate.
- Working knowledge of the fundamentals that underpin GIS; that is, the basics of Geographic Information Science (GISci) theory.
- Familiarity with the foundational tools, functions, and capability of ArcGIS.
- Basic ability to design and produce attractive and readable maps.
- Familiarity with publically available data sets, and an ability to gather data.
- Use GIS to answer questions.

We will use ArcGIS during the course. ArcGIS is a powerful and complicated software application, and its full capabilities build on a substantial base of applied mathematics, computer science, geography, and cartographic design. You will not become expert in these areas from taking any single course. Instead, we will focus on building a strong foundation in the essentials that will enable you to recognize potential applications of GIS, effectively perform basic tasks, and prepare you for more advanced GIS analysis.
In order to meet the needs of the different students from different fields in this class, assignments will be tailored to be suitable for landscape architects, planners, and real estate students.

Class Overview:

Class will consist of lectures and lab time. Lectures will focus on concepts and examples of GIS and applications. Labs will provide class time for students to get hands on experience using GIS through tutorials in the workbook. In addition to a mid-term exam and a final, there will be regularly quizzes to assess your progress. Three assignments and a group project will provide the necessary practice in GIS to develop fundamental skills.

Software (all freely available on lab computers):

- ArcGIS (you get a copy with your text book as well)
- Excel
- Google Earth

Required Materials:

Flash drive or Hard drive with about 10gb

Grading:
3 Assignments: 40%
Group Project: 10%
Midterm Exam: 10%
Final Exam: 10%
Quizzes: 20%
Class Participation: 10%

Late penalty on assignments and quizzes is 5% per day starting 1 minute after the deadline

Academic Integrity:

Students are governed by the University of Arizona’s Student Code of Conduct and the Code of Academic Integrity which are available in the office of the Dean of Students. Of particular importance is that they recognize that all forms of student academic dishonesty including cheating, fabrication, facilitating dishonesty, and plagiarism may lead to disciplinary action. Fabrication means the intentional falsification or invention of any information or citation and plagiarism means intentionally or knowingly representing the words or ideas of another as one’s own. Any individual caught plagiarizing, cheating, and fabricating will automatically be given an F in the course. The professor may pursue disciplinary actions and the Dean of Students may impose additional disciplinary actions, including suspension or expulsion from the University of Arizona.
**Special Needs Students**

Students with special needs who are registered with the S.A.L.T. Center (http://www.salt.arizona.edu/) or the Disability Resource Center (http://drc.arizona.edu/) must submit appropriate documentation if requesting special accommodations. These requests should be made at the beginning of the semester so that appropriate arrangements may be made.

**Attendance and Participation**

This is a graduate-level course and students are expected to attend every class and lab. I will conduct the class on the assumption that you are self-motivated to learn the material and possess the self-discipline required to do it. Your classroom participation grade is based strongly on attendance. My experience has convinced me that the only way to attain functional expertise with GIS is to *use the software as much as you can*. Working together with colleagues is also an invaluable way to boost your traverse of the learning curve and I encourage you to work together in groups; however, you will typically be required to produce your own output and submit your own work individually.

**Computer Use Policy**

It is virtually impossible to get work done without ready access and frequent reference to the internet. I expect that you will be similarly connected—to Google, Wikipedia, online data portals, and above all else, to the ArcGIS online documentation pages. Cell phones, Facebook, ESPN, and the like will all make it impossible for you to follow along attentively, as will be necessary to learn this material, but to be clear: I refuse to be your web nanny—you’ll have to take that job yourself. I will make no effort to exert control over what you do online during class time; the corollary is that I will assume you are paying attention to demonstrations, and I won’t repeat myself.
Weekly Schedule (subject to change)

Week 1: Introductions  
*Tutorials: 1-1 through 1-3*

Week 2: Vector data  
*Tutorials: 1-4 through 1-9*

Week 3: Vector data  
*Tutorials: Census Data Lab*

Week 4: Types of maps  
*Tutorials: 2-1 through 2-6*

Week 5: Principles of map design  
*Tutorials: 3-1 through 3-6*  
*Assignment 1 due*

Week 6: Data management and data building  
*Tutorials: 4-1 through 4-6*

Week 7: Projections and coordinate systems  
*Tutorials: 5-1 through 5-5*  
*Assignment 2 due*

Week 8: Mid-term exam

Week 9: Vector data analysis  
*Tutorials: 6-1 through 6-6*

Week 10: Vector data analysis  
*Group Project Due*

Week 11: Digitizing  
*Tutorials: 7-1 through 7-5*

Week 12: Raster data analysis  
*Tutorials: Tutorials 11-1 through 11-4*

Week 13: ET+  
*Tutorials: ET+ tutorial*

Week 14: Flex week  
*Tutorials: Flex week*  
*Assignment 3 due*

Week 15: Student presentations

Week 16: Final exam review

Final Exam 12/17 at 8:00 am.