

**Course Number and Title**

CP 4510 / Introduction to GIS

School of City and Regional Planning, College of Architecture

Georgia Institute of Technology

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Teaching Assistant: TBD

Summer 2012

3 Course Credits

Wednesdays, 5:30 – 9:00 PM

RM 359 College of Architecture

**Course Objectives/Student Learning Outcomes**

The goals of this course are:

1. To provide students with a firm understanding of the basic principles of GIS and spatial analysis
2. To give students a solid working knowledge of one GIS software package, ArcGIS 10.0

GIS software packages change continually. Therefore, it is extremely important for students to understand the basics principles of spatial analysis and how geography is represented and manipulated in a computer-based environment. The readings and lectures are designed to serve this purpose. The lab sessions will provide students with hands-on experience using ArcGIS 10.0, arguably the most widely available GIS desktop software in the world. The skills learned in this class can be applied by students while still in school (maps for papers, spatial analysis, etc) or in a professional setting. By the end of the course, students are expected to understand the basic components of a geographic information system and to be proficient using ArcGIS 10.0.

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**Relationship of Course to your own Research and Practice/Creative work**

Many of the course lectures and lab exercises are based on research projects or work related tasks performed by the instructors, both researchers at the Center for Geographic Information Systems. Some research examples addressed in class include mapping mountain gorilla observation data, greenspace analyses, demographics, campus/facilities mapping, and routing.

**Course Procedure and Organization**

Since this is a computer driven class, the course will be student – led, meaning minimal physical interaction with the instructor. All assignments and resources, excluding the course book, will be available via the course T-Square site. Software and data will be provided free to students. Students are responsible for purchasing the course text, which includes required lab exercises, video lectures and other necessary course items. Every class period, the instructor will be available for remote 'chat' while a Teaching Assistant will be physically present to troubleshoot any computer issues, etc. The instructor will visit class periodically to touch base, answer questions, and interact with students. Class time is reserved for students to work on lab exercises, homeworks, projects, etc.

Weekly Work: usually 1-2 chapters of required course readings, 30-90 minute lecture set delivered via powerpoint slides and DVD videos from the coursebook, 1-2 hands on tutorials, 1-2 lab exercises for grading

Additional Work: 2 month-long homework assignments, 1 final project, extra credit

Week 1: Introduction to GIS

Week 2: GIS Data and Coordinate Systems

Week 3: Mapping and Presenting Data

Week 4: Tables and Attribute Queries  
Week 5: Spatial Queries and Spatial Joins  
Week 6: Geoprocessing (Overlays, Generalization)  
Week 7: Geocoding  
Week 8: Network Analyst  
Week 9: Raster GIS  
Week 10: Guest Lecturers / Professional Demonstrations  
Week 11: Final Project Presentations, All Homework Due

**Required/Suggested Readings**

Mastering ArcGIS, 5<sup>th</sup> Edition. Chapters 1 – 12. Purchase of the book in hard copy is required. The book comes with an instructional DVD containing videos, lectures, and data, all of which are used in every class.

**Course Requirements**

Weekly Homework Assignments (50%): 1-2 chapter exercises required per week. Each exercise contains 10 questions. Students are responsible for completing 7 of 11 assignments.

Monthly Homework Assignments (25%): 2 larger homework assignments (map making, spatial analysis)

Project (25%) – one final GIS based project and presentation. Project should apply skills learned in class to answer or address a problem of the student's choosing, preferably from their major field of study.