GEOL 4330/ 5320 Understanding Geographic Information Systems

Fall 2013/ Lee

Monday, 6:00-8:40 p.m., University Hall, Room 004

Instructor	**Dr. Junhak Lee**
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Office hours	Thursday 1pm-3pm & by appointment

Course Description

A practical introduction to GIS and methods of creating, maintaining and displaying spatial data using the ArcGIS software

This class will cover the basic concept of spatial data models, attribute data management, map projections and coordinate systems, data discovery, creating thematic maps, basic spatial data analysis and modeling tools. Students who successfully complete the course are able to establish a foundation for spatial problem solving and GIS analysis for their academic research and professional careers.

Textbooks

[Required]

- GIS Tutorial 1: Basic Workbook for ArcGIS 10 by Gorr & Kurland (ISBN: 978-1589482593)
- GIS Fundamentals: A First Text on Geographic Information Systems by Paul Bolstad (ISBN: 978-0971764736)

Requirements & Grading

Grades will reflect class participation (attendance), ten assignments, mid-term and final exam. Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels.

1. Class participation (10%)
2. Lab assignments (40%)
3. Map of interest (10%)
4. Midterm Exam (20%)
5. Final Exam (20%)

*Important note: **Incomplete grading "I" or extensions are not available in this class** unless severe illness or documented extenuating circumstances justify it.

- **In-class Participation:** Students are expected to attend class, ask questions, and complete reading requirements (which are listed in schedule table). Each week, there will be lab exercises and the students are expected to complete all exercises in class.
- **Lab assignment:** There will be 10 lab assignments. Students can work together but assignment should be submitted separately (and note the name of student working with) to Blackboard. Please keep the due date (listed in schedule table) and there will be penalties for the late submission (10% per day). No assignment will be graded after 12/9/2013
- **Map of interest:** Each student will select a topic of personal interests. A draft for the topic is required to be submitted by 10/28. The due for the final map is 5:00 pm on 12/2/2013 (in a computer file, no hardcopy). There will be map contest at the class and each student will make an oral presentation for the map (3~5 minutes) and the bonus points will be given to the top 3 students (based on students voting)
- **Exams:** There will be a mid-term and a final exam. The exams will include topics covered in lectures, readings, and lab exercises.

Librarian to contact

Joshua Been is the GIS librarian in the Central Library. He can be reached by email at been@uta.edu

Schedule

Date	Lecture Topic	Reading/ Lab due (5:30 PM)
8/26	Class Overview	
9/2	Labor Day	
9/9	Intro to GIS Lab: Maps (Tutorial 1-1~1-8)	Bolstad, GIS Fundamentals,Ch.1
9/16	Projection Lab: Map design (Tutorial 2-1~2-8)	Bolstad, GIS Fundamentals,Ch.3 Lab Assignment 1-1 (pp 43-44)
9/23	Spatial Data Models Lab: Spatial data (Tutorial 5-1~5-6)	Bolstad, GIS Fundamentals,Ch.2 Lab Assignment 2-1 (pp 82-83)
9/30	Attribute Data Management Lab: File geodatabases (Tutorial 4-1~4-6)	Bolstad, GIS Fundamentals,Ch.8 Lab Assignment 5-1 (pp 188-189)
10/7	Projection Revisited Lab: Mid-term review	Lab Assignment 4-1 (pp 146-148)
10/14	Mid-Term	
10/21	Data Discovery Lab: own map preparation	Bolstad, GIS Fundamentals,Ch.7
10/28	Creating and Editing data/ GPS Lab: Digitizing (Tutorial 6-1~6-6)	Bolstad, GIS Fundamentals,Ch.4 Turn in: List of GIS data sources
11/4	Presenting Data Lab: GIS outputs (Tutorial 3-1~3-8)	Lab Assignment 6-1 (pp 226-227)
11/11	Basic Spatial Analysis I Lab: Geocoding (Tutorial 7-1~7-5)	Bolstad, GIS Fundamentals,Ch.9 Lab Assignment 3-1 (pp 119)
11/18	Basic Spatial Analysis II Lab: Geoprocessing (Tutorial 8-1~8-7)	Bolstad, GIS Fundamentals,Ch.9 Lab Assignment 7-1 (pp 253-254)
11/25	Spatial Modeling Lab: Spatial analysis (Tutorial 9-1~9-3)	Bolstad, GIS Fundamentals,Ch.10 Lab Assignment 8-1 (pp 287-288)
12/2	Map contest	
12/9	Final	Lab Assignment 9-1 (pp 317-319), Optional

***** *As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.*

Other General Notes

Attendance Policy: Students have the responsibility to fully participate. This participation includes, but is not exclusive to, attendance, class discussions, the individual evaluating and sharing of research that is relevant to their own future career interest as it relates to green cities and transportation, and preparing for and participating in team presentations. As a rule, graduate students should expect to spend three to four hours preparing for each hour spent in class (i.e. for a three hour class each week, 9 to 12 hours of preparation). If a student does miss a class, they need to contact the instructor ASAP to determine what, if any impact there is to his/her final grade.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/ses/fao).

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Academic Integrity: All students enrolled in this course are expected to adhere to the UT Arlington Honor Code:
I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

Instructors may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory shall be directed to complete a Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals.