

CVEN 5370
GEOGRAPHIC INFORMATION SYSTEM (GIS) APPLICATIONS IN
ENGINEERING

FALL 2017

Learning Objectives:	<ol style="list-style-type: none">1. Understand the theory of relational database;2. Understand and operate a database through the structured query language (SQL);3. Understand the basic theory of geographic information systems (GIS);4. Learn how to use ArcGIS.
Learning Outcomes:	<ol style="list-style-type: none">1. An ability to conduct requests from a real database through SQL;2. An ability to understand the GIS data;3. An ability to conduct requests using SQL integrated with the GIS commands in a GIS-enabled database4. An ability to use ArcGIS.
ABET Education Objectives (a)-(k):	(a) Ability to apply knowledge of mathematics, science, and engineering. (b) Ability to design and conduct experiments and interpret data (k) Ability to use techniques, skills and modern engineering tools necessary for engineering practice.
Textbook and course materials:	Getting to know ArcGIS Desktop, authored by Ormsby, Napoleon, Burke, Groessl, Bowden, published by ESRI Press, ISBN 978-1-58948-260-9. Course notes will also be provided.
Reference book:	An Introduction to Database Systems (8th Edition), authored by C.J. Date, ISBN-10: 0321197844, published by Addison-Wesley.
Software:	ArcGIS, PostgreSQL
Meeting Time:	Tuesday and Thursday 12:45 pm - 2:05 pm
Office Hours:	Tuesday and Thursday 2:30 –4:00 pm or appointed by email.
Instructor:	Xing Wu, Ph.D., Assistant Professor, Department of Civil Engineering. Office: Cherry #C 2032. Tel: (409) 880-8757. Email: xing.wu@lamar.edu .

Exam Policy

- Two midterms, and no final exam.
- Each midterm is in 100-grade scale.
- All tests are open-book, open-notes.
- Share of textbooks/notes in exams is strictly forbidden and regarded as cheating
- In the exam, only one student is allowed in one desk
- No make-up exam

Homework Policy

- 4-5 homework assignments.
- Each homework assignment is in 100-grade scale.
- The deadline is **5pm** of the due date.
- The base grade of late homework will be depreciated 10% for every 24-hour delay
- All homework should be done in an organized and neat manner.
- Please staple all sheets.

Course Project

- The topics of course project and the report due time will be given in the following week after the second midterm exam.
- The project is in 100-grade scale.
- The grade depends on the report (60%) and the presentation (including answering questions) (40%).
- The base grade of late report will be depreciated 20% for every 24-hour delay.
- The report will NOT be accepted if submitted 72 hours later than the due time.

In-class and Online Quiz

- 10 in-class/online quizzes will be given.
- In-class quizzes are given **randomly** (at the beginning or near the end of a class).
- The time of online quizzes will be announced in the last class before the quiz.
- If you miss one quiz, your grade of this quiz is 0.
- No make-up quiz.
- Each quiz is has 10 points maximum, so you may receive 100 points from 10 quizzes if all of your answers are correct
- If attending all quizzes, a student will receive additional 5 points.

Grading Policy

- Homework: 10%;
- Two Midterms: 20% for each;
- Course Project: 25%;
- In-class and online quizzes: 25%

Final grading policy: Your final grade is calculated in this way:

10% X (Average of all homework grades) + 20% X Midterm I Grade + 20% X Midterm II Grade + 25% X Project grades + 25% X Quiz Points

- ≥ 90 : A
- ≥ 80 and < 90 : B
- ≥ 70 and < 80 : C
- < 70 and ≥ 60 : D
- < 60 : F

Attendance Policy

- Students are required to attend ALL lectures. Failing to attend any lectures will result in significant deficiency in understanding subsequent classes.
- Students who miss **20%** or more lectures will not pass.
- If you leave early during the class, you will be marked as absent.
- Students should be sure to sign the sign-in sheet. This is evidence of your attendance. Please only sign-in for yourself. It is your responsibility to sign in. Students not signed in will be counted as absent.

Disruptive Behavior Policy

- Please turn off your cell phone!!
- Students should pay respect to the lecturer and fellow students. Behavior that is disruptive to a positive learning environment reported by the professor will result in a warning on the first instance; the second instance may result in dismissal from the class; and the three dismissals from the class may result in the failure of the course.

* “*Disruptive Behavior*” generally means conduct that materially and substantially interferes with or obstructs the teaching or learning process in the context of the classroom. Besides the above, disruptive behavior also includes conduct that distracts others in a manner that interferes with instructional activities or fails to adhere to an instructor’s classroom rules, such as: excessive tardies, cell phones ringing in class, and talking during lectures.

Schedule (subject to change)

Week	Lecture	Contents
1	1	Introduction to the relational database I
	2	Introduction to the relational database II
2	3	Labor Day
	4	Introduction to the relational database III
3	5	Introduction to structured query language (SQL) I
	6	Introduction to structured query language (SQL) II
4	7	Introduction to structured query language (SQL) III
	8	Introduction to structured query language (SQL) IV
5	9	Introduction to structured query language (SQL) V
	10	Review Session

6	11	First Midterm
	12	Introduction to Geographic Information Systems (GIS) I
7	13	Introduction to Geographic Information Systems (GIS) II
	14	Introduction to Geographic Information Systems (GIS) III
8	15	Introduction to Geographic Information Systems (GIS) IV
	16	Use of ArcGIS I
9	17	Use of ArcGIS II
	18	Use of ArcGIS III
10	19	Use of ArcGIS IV
	20	Use of ArcGIS V
11	21	Review Session
	22	Second Midterm
12	23	Complex SQL request from a GIS-enabled database: I
	24	Complex SQL request from a GIS-enabled database: II
13	25	Complex SQL request from a GIS-enabled database: III
	26	Complex SQL request from a GIS-enabled database: IV
14	27	GIS-based Programming: I
	28	GIS-based Programming: II
15	29	Course Project Presentation
	30	Course Project Presentation

Grade Disputes

All grades are considered final and unamendable on the date in which the final grades are posted on the Lamar University system. A student can file an appeal within 10 working days of this date if the instructor has failed to implement a previously announced grade policy, awarded a grade in what has been determined to be an arbitrary or capricious manner, or violated a University or Texas State University System rule or policy.

The student should first meet with the instructor to resolve the issue prior to beginning the appeal process. Please reference the student handbook for further instruction.

Academic Dishonesty Policy

Students are specifically warned against all forms of cheating and plagiarism. The Lamar University Student Handbook states: Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. Punishable offenses include, but are not limited to, cheating on an examination or academic work which is to be submitted, plagiarism, collusion, and the abuse of resource materials. One aspect of the Handbook's definition of cheating is, "purchasing, or otherwise acquiring and submitting as one's own any research paper or other assignment." Students seeking guidance to avoid plagiarism should consult the course instructor, recent handbooks, or the University Writing Center. Punishments for academic dishonesty range from F in the

course, to an F on the assignment, to re-submission of the work. Punishments are at the discretion of the faculty member, and may be appealed to the department chair, dean, and Associate Vice President for Academic Affairs. Flagrant or repeat violations may warrant further discipline by the university including probation and suspension.

Students with Disability Policy

Lamar University is committed to providing equitable access to learning opportunities for all students. The Disability Resource Center (DRC) is located in the Communications building room 105. Office staff collaborate with students who have disabilities to provide and/or arrange reasonable accommodations.

- If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please contact the DRC at **409-880-8347** or **drc@lamar.edu** to arrange a confidential appointment with the Director of the DRC to explore possible options regarding equitable access and reasonable accommodations.
- If you are registered with DRC and have a current letter requesting reasonable accommodations, we encourage you to contact your instructor early in the semester to review how the accommodations will be applied in the course.

Sexual harassment

University policy prohibits sexual harassment as defined in Student Handbook: Responsibilities of the Students. Complaints about sexual harassment should be reported to Human Resources, 880-8375.

Academic Continuation Policy

- In the event of an announced campus closure in excess of four days due to a hurricane or other disaster, students are expected to login to Lamar University's website's homepage (www.Lamar.edu) for instructions about continuing courses remotely.
- This course will be conducted via Blackboard.
- Students must begin checking their Lamar email address for where instructions and course materials and required student work will be sent and received by the instructor.

Emergency Procedures

Many types of emergencies can occur on campus; instructions for severe weather or violence/active shooter, fire, or chemical release can be found at:

<http://www.lamar.edu/about-lu/administration/risk-management/index.html>

Following procedures for the first two:

Severe Weather:

Follow the directions of the instructor or emergency personnel.

Seek shelter in an interior room or hallway on the lowest floor, putting as many walls as possible between you and the outside.

If you are in a multi-story building, and cannot get to the lowest floor, pick a hallway in the center of the building.

Stay in the center of the room, away from exterior walls, windows, and doors.

Violence/Active Shooter (CADD):

CALL ⇒ 8-3-1-1 from a campus phone (409-880-8311 from a cell phone).

Note: Calling 9-1-1 from either a campus phone or cell phone will contact Beaumont City Police Dispatch rather than University Police.

AVOID ⇒ If possible, self-evacuate to an area outside the building. Follow directions of police officers.

DENY ⇒ Barricade the door with desks, chairs, bookcases, or any other items. Move to a place inside the room where you are not visible. Turn off the lights and remain quiet. Remain there until told by police it is safe.

DEFEND ⇒ Use chairs, desks, cell phones or whatever is immediately available to distract and/or defend yourself and others from attack.