



# STEPHEN F. AUSTIN STATE UNIVERSITY

## **Arthur Temple College of Forestry and Agriculture**

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## **Syllabus** **GIS Database Management** **(GISC4301, GISC4001, GISC 5301, GISC 5001)** **(Fall 2022)**

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**Instructor:** Dr. Yanli Zhang

**Office:** Forestry 121

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**Phone:** (936) 468-2157

**Lecture:** Tuesday and Thursday 8:00 am – 8:50am at Forestry 102

**Lab:** Thursday 6:00pm-8:50pm at Forestry 102

**Office hours:** Tuesday 1:00pm – 4:00pm, Wednesday 9am – 11am, appointment preferred

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**Class News/Notices, Lecture Handouts, Labs, and Grades:** All lecture handouts, lab instructions and assignments are available at D2L (<https://d2l.sfasu.edu/>). It is students' responsibility to check D2L for detailed course requirements. Grades for quizzes, labs, and exams are all available at D2L as well. Please check D2L for course related news and announcements.

**Course Description:** 3 semester hours. Database management systems play an important role in domains that involve large and complex data with spatial references. This course introduces the concepts and principles of GIS database planning, design, implementation, and administration.

**Program Learning Outcomes:**

- A. Demonstrate understanding and competency of Relational Database Management System(RDBMS);
- B. Demonstrate understanding and competency of SQL(Structured Query Language);
- C. Demonstrate understanding and competency of spatial database systems;
- D. Demonstrate understanding and competency of spatial database models, query, database architectures, database technology;

**Student Learning Outcomes**

Upon successful completion of the course, the student will:

- A. Gain basic knowledge of Relational Database Management System(RDBMS);
- B. Develop a fundamental knowledge of spatial database systems;
- C. Be familiar with spatial database models, query, database architectures, database technology;

**Textbook (optional references):**

- A. Michael Alexander, Dick Kusleika, 2016, Access 2016 Bible, Wiley, ISBN978-119-08654-3
- B. Matthew MacDonald, Access 2013 the Missing Manual, 2013, O'Reilly, ISBN 978-1449357412
- C. Ben Forta, Sams Teach yourself SQL in 10 Minutes, 5<sup>th</sup> edition, 2019. Pearson. ISBN 978-0135182796.
- D. Michael Zeiler. 2010. Modeling Our World: The ESRI Guide to Geodatabase Concepts. 2<sup>nd</sup> edition, ESRI Press, ISBN: 978-1-58948-278-4

- E. David K. Arctur and Michael Zeiler. 2004. Designing Geodatabases: Case Studies in GIS Data Modeling. ESRI Press, ISBN: 1-58948-021-X
- F. Worboys, M. and Duckham, M. 2004 GIS: A Computing Perspective, CRC Press, ISBN: 0-415-28375-2

### **Tentative Course Calendar**

As a 3 credit hour class, there are 2 lectures (2 hours) and 1 lab (3 hours) per week, home work will take about 4 hours per week.

<b>Week</b>	<b>Date</b>	<b>Topic</b>	<b>Lab</b>
1	8.23.2022	Syllabus and course overview	1. Data organization
	8.25.2022	Term project discussion	
2	8.30.2022	Term paper discussion	2. MS Access lab 1
	9.1.2022	Database types	
3	9.6.2022	MS Access 1: intro	3. Normalization lab
	9.8.2022	MS Access 2: logical design 1	
4	9.13.2022	MS Access 3: logical design 2	Continue lab 3
	9.15.2022	MS Access 4: table and query	
5	9.20.2022	MS Access 5: query 2	4. MS Access lab 2
	9.22.2022	MS Access 6: form	
6	9.27.2022	MS Access 7: report	5. MS Access lab 3/SQL lab
	9.29.2022	MS Access 8: navigation	
7	10.4.2022	MS Access 9: project requirements	Continue lab 5
	10.6.2022	MS Access 10: SQL 1 basic	
8	10.11.2022	MS Access 11: SQL 2 select	6. GIS data collection lab
	10.13.2022	MS Access 12: SQL 3 order alias	
9	10.18.2022	MS Access 13: SQL 4, join and create table	Continue lab 6
	10.20.2022	MS Access 14: SQL 5 function 1	
10	10.25.2022	MS Access 15: SQL 6 function 2	Work on Access project
	10.27.2022	MS Access 16: SQL 7 practice 1	
11	11.1.2022	MS Access 17: SQL 8 practice 2	Work on Access project
	11.3.2022	Geodatabase	
12	11.8.2022	SQL Server and more about SQL	Work on Access project
	11.10.2022	<b>Mid-term exam</b>	
13	11.15.2022	<b>Database project poster presentation</b>	Work on term paper
	11.17.2022	Data index, Spatial networks	
14	11.22.2022	<i>Thanksgiving holiday</i>	
	11.24.2022	<i>Thanksgiving holiday</i>	
15	11.29.2022	Data standards, big data (zoom)	
	12.1.2022	<b>Database research poster presentation</b>	

### **Course Requirements:**

Students should possess basic computer skills.

There will be 6 homework, 1 term project, mid-term exam, and 1 term paper required for this course.

Asynchronous instruction: students need to spend 150 minutes to read peer-reviewed research articles in the area of database (for example: Google Scholar search for database) throughout the semester.

### **Term Project and Term Paper:**

The term paper is intended to provide a deeper understanding of database related topics such as **database design, implementation, management, data and application integration, security, privacy, geodatabase, query, data quality, etc.** Students will work individually on papers. The paper should investigate a particular topic of spatial databases and read at least 5 related research papers (use Google Scholar to search). The paper must be an original piece of work developed for this course. Students are encouraged to freely discuss their paper ideas with the instructor.

1. **Title:** i.e., main idea.
2. **Topic:** a brief description of the topic, current research status, problem, new achievements from referenced papers.
3. **Summary:** Summary of your findings in reading these papers.
4. **Referenced papers**

Term paper and term project should be presented as **posters** (template is provided on D2L) and **Powerpoint (NOT PDF) file** should be submitted through D2L before the due day.

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### **Grading Policy**

Quizzes	(20 x 5)	100
Homework	(40 x 7)	280
Term project	(260)	260
Database research	(60)	60
Mid term exam		300
TOTAL		1000

### **Grading Scale:**

A	900 – 1000	D	600 – 699
B	800 – 899	F	599 or less
C	700 – 799		

Questions regarding lab/homework/quiz/exam grading must be asked within one week after the grade is published on D2L.

A class average will be computed and if warranted, a curve will be applied if the curve will result in a higher grade.

### **Class Policy**

1. Attendance and class participation are required throughout the semester and it is taken randomly. Negative 20 points will be given for every missing lecture/lab without university acceptable reason.
2. Complete all homework assignments on specified dates. Late assignment will lose 20% of the credit each day late.
3. All students submitting identical assignments (in whole or in part) will receive a grade of zero for that homework.
4. **All digitally submitted files should be named with your full name, take the instructor as the example, file names should be like “HW1\_YanliZhang” and “project\_YanliZhang”. If it is team work for the project, only one copy is needed and put both names in the file name.**

5. Complete term project on or before the due day. No credit for late work as it is the end of the semester.
6. Quizzes are to be taken on D2L. No make-up quizzes unless there is a valid university excuse (consult student handbook for guidelines).
7. Exams are to be taken during scheduled times. Make-up exams will be given to students with a valid university excuse (consult student handbook for guidelines).
8. There is no exception for the grading policy and the grading scale.

### **Academic Integrity (4.1)**

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

#### **Definition of Academic Dishonesty**

Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at <http://www.sfasu.edu/policies/4.1-student-academic-dishonesty.pdf>.

#### **Withheld Grades Semester Grades Policy (5.5)**

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

For additional information, go to <http://www.sfasu.edu/policies/course-grades-5.5.pdf>.

#### **Students with Disabilities**

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations.

For additional information, go to <http://www.sfasu.edu/disabilityservices/>.

#### **Responsible Use of Technology**

It is expected that all students will only use cell phones, PDAs, laptop computers, MP3 players and other technology outside of class time or when appropriate in class. Answering a cell phone, texting, listening to music or using a laptop computer for matters unrelated to the course may be grounds for dismissal from class or other penalties.

## **Acceptable Student Behavior**

Classroom behavior should not interfere with the instructor's ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy 10.4). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed. Please read the complete policy at [http://www.sfasu.edu/policies/student-code-of-conduct\\_10.4.pdf](http://www.sfasu.edu/policies/student-code-of-conduct_10.4.pdf)

## **D2L**

For D2L technical support, contact student support in the Office of Instructional Technology (OIT) at [d2l@sfasu.edu](mailto:d2l@sfasu.edu) or 936-468-1919. If you call after regular business hours or on a weekend, please leave a voicemail.

For general computer support (not related to D2L), contact the Technical Support Center (TSC) at 936-468-HELP (4357) or at [helpdesk@sfasu.edu](mailto:helpdesk@sfasu.edu).

To learn more about using D2L, visit SFA ONLINE at <http://sfaonline.sfasu.edu>, where you'll find written instructions and video tutorials.

## **Mental Health**

SFASU values students' mental health and the role it plays in academic and overall student success. SFA provides a variety of resources to support student's mental health and wellness. Many of these resources are free, and all of them are confidential.

### **On-campus Resources:**

SFASU Counseling Services  
[www.sfasu.edu/counselingservices](http://www.sfasu.edu/counselingservices)  
3rd Floor Rusk Building  
936-468-2401

SFASU Human Services Counseling Clinic  
[www.sfasu.edu/humanservices/139.asp](http://www.sfasu.edu/humanservices/139.asp)  
Human Services Room 202  
936-468-1041

### **Crisis Resources:**

Burke 24-hour crisis line 1(800) 392-8343  
Suicide Prevention Lifeline 1(800) 273-TALK (8255)  
Crisis Text Line: Text HELLO to 741-741

## **Syllabus Changes:**

The instructor reserves the right to make changes to this syllabus in any way that serves the educational needs of the students enrolled in this course.