BOB JONES UNIVERSITY
EST. 1927

College of Arts and Science

CpS 301: Intro to Database Management Systems

Centennial Edition: Fall Semester 2026-2027

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Office Hours: By appointment

Course Information

Introduction to database management systems and their use in business applications. Information modeling and database design techniques; commercial multiuser database management system. Emphasis on DBMS with a high-level programming language. *Prerequisite: CpS 110.*

Overview: This course presents foundational database concepts and design techniques. Students become familiar with an industry standard relational database management system while completing several assignments throughout the semester. Practical skills emphasized include designing databases, writing queries, and developing simple database applications.

Topics to be covered in depth include data models, SQL programming, and database design. Concurrency issues, information gathering and problem analysis, and database application programming will be given an introductory treatment. Basic knowledge of Python is expected from CpS 110.

You can expect a mix of written and hands-on exercises. A multi-phase project will give you the opportunity to apply the techniques and tools you learn to a real-world scenario.

Goals: The goals this semester are to

- Provide hands-on experience with industry standard DBMS's such as MySQL
- Develop familiarity with the database language SQL
- Learn how to design databases using the entity relationship modelling approach
- Increase your knowledge of computer science, specifically in the areas of database design/implementation and data representation
- Develop a Christian perspective of data collection, integrity, and security

Course Resources

Textbook: None. Some online readings will be assigned.

Announcements: Students are expected to participate in the Microsoft Teams Cps 301 team to receive course announcements and to engage in the online experiences of this course.

Website: See the course website for course assignments and schedule: https://cs.bju.edu/cps301/

Grading

The following is subject to change:

Grading:			
Qty	Item	Points	Total
8	Quizzes	10-20	100
5	Labs	10-20	100
5	Exercises	50	200
1	Project	250	200
3	Written Tests	100	300
1	Final Exam	100	100
Total Points:		1000	

Scale:	approximate
A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	<60%

Course Policies

Assignments can receive full credit only if submitted by the beginning of class on the day due. A 25% penalty will be applied if the assignment is not turned in on time. No credit is possible after one week. I waive one late penalty for students who are punctual in their class attendance. If you anticipate trouble on an assignment, see me as soon as possible for assistance.

There will be no makeup quizzes. Students who are not present for a quiz will receive a 0. The lowest quiz grade will be dropped at the end of the semester.

Electronic devices may be used during class only when explicitly permitted by the instructor.

Gum chewing in professional settings is inappropriate and therefore not permitted in class. Compliance with student handbook policies is expected during class.

You may not use **generative AI tools** (i.e. Chat GPT, Bing Chat, Claude, etc.) in this course for any assignment without the professor's express permission. Should an AI tool be used with permission, its use must be documented.

University Policies

Attendance Policy

You are expected to attend class and be on time per the standard University attendance policy: https://home.bju.edu/bju-policies/. If you come late or leave early, I will record a partial attendance mark if you missed at most 15 minutes of class. If you miss more than 15 minutes of class, you will be marked absent. If you exceed the 3 allowed absences for this class, you may be withdrawn from class.

For planned absences, notify me a week ahead of time by e-mail. Written assignments and scheduled tests should be completed before your planned absence; please contact me to make arrangements for doing so. It is your responsibility to check in advance of a planned absence to verify what is due.

For absences due to illness or emergency, contact me by the end of the day of your absence to indicate the reason for your absence and to arrange for making up any graded work without penalty. In these situations, you will be able to make arrangements for making up tests without penalty for the first occurrence. Each subsequent time a test is missed because of incapacitating illness or emergency, an additional 10 percent grade penalty for that test will be incurred.

Accommodations for Students with Disabilities

If you have a documented learning disability or if you are impaired in some way (auditory, visual, cognitive, neurological, or physical), please let me know this within the first week of the course so that any necessary adjustments can be made before you get behind.

Academic Honesty and Integrity Policy

See the Computer Science Department's Academic Integrity Policy:

https://cs.bju.edu/academics/policies/academic-integrity-policy/

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Schedule			
Date	Day	Class	Assignment
Aug. 27	Th	Relational Model	
Sept. 1	T	SQL Fundamentals	
Sept. 3	Th	SQL Joins	SQL Exercise 1
Sept. 8	T	Database Modeling	
Sept. 10	Th	Database Modeling	Discussion 2; SQL Exercise 2
Sept. 15	T	Database Modeling	
Sept. 17	Th	Database Modeling	Model Exercise 1
Sept. 22	T	More SQL	SQL Exercise 3
Sept. 24	Th	More SQL	Model Exercise 2
Sept. 29	T	**Test 1**	
Oct. 1	Th	MySQL	
Oct. 6	T	Microsoft Access	
Oct. 8	Th	Database Development	Lab 1
Oct. 13	T	Project Intro	Lab 2
Oct. 15	Th	Project Discussion; Normal Forms	
Oct. 20	M-T	Fall Break	
Oct. 22	Th	Normal Forms	Project: E-R Model
Oct. 27	T	Denormalization; Data Integrity	
Oct. 29	Th	Data Integrity; DB Programming	Project: DB Implementation
Nov. 3	T	Database Programming	
Nov. 5	Th	**Test 2**	
Nov. 10	T	Procedural SQL	Lab 3
Nov. 12	Th	Procedural SQL	
Nov. 17	T	Transactions	Project: App Dev 1
Nov. 19	Th	Transactions	Lab 4
Nov. 23-27	M-F	Thanksgiving Break	
Dec. 1	T	Disaster Recovery	
Dec. 3	Th	Disaster Recovery	
Dec. 8	T	Data Privacy and Security	Project: App Dev 2
Dec. 10	Th	Indexing	Lab 5
Dec. 14-17	Th	**Final Exam (9:30)**	

Curriculum Information

Context

This course supports the following objectives of the Computer Science and Information Technologies programs:

CS 1. Design and implement solutions to practical problems

CS 7. Demonstrate an understanding of social, professional and ethical considerations related to computing

CS 8. Demonstrate understanding of fundamental concepts in the student's discipline

Learning Objectives

Objective	Content	Assessment
Describe the modeling concepts and notation of the entity-relationship model (CS 8)	Ch. 5	Test 1
Analyze a domain description and prepare an entity-relationship diagram that models it (CS 1)	Ch. 5	Model Ex 1 Test 1
Prepare a relational schema from an entity-relationship model (CS 1)	Ch. 6	Model Ex 2 Test 1
Explain and demonstrate key database concepts, including primary and foreign keys, views, data integrity, and transactions (CS 8)	Ch. 1, 10, 15	Test 1, 2, Final
Retrieve and update information in a database using SQL (CS 1)	Ch. 3	SQL Ex 1, 2, 3 Test 1, 2
Describe normal forms and be able to normalize a schema (CS 8)	Ch. 7	Test 2
Describe legislation and ethical issues involving database management (CS 7)	Data Privacy lecture	Final exam