CS305: DATABASE SYSTEMS

Fall 2025 | Prof. Anderson | 4 Credits

COURSE INFORMATION

Meeting Times: Monday/Wednesday 2:00-3:30 PM

Location: Engineering Building, Room 302

Office Hours: Wednesday 4:00-6:00 PM or by appointment

Email: anderson@university.edu

GRADING BREAKDOWN

Assignments (6): 40%

Midterm Exam: 20%

Final Project: 25%

Class Participation: 15%

ASSIGNMENTS

1. SQL Basics - Due October 15, 2025 (50 points)
   Introduction to SQL queries, SELECT, WHERE, JOIN

2. Database Design - Due October 29, 2025 (75 points)
   ER diagrams, schema design, create tables

3. Normalization - Due November 12, 2025 (75 points)
   1NF, 2NF, 3NF, BCNF exercises

4. Query Optimization - Due November 26, 2025 (100 points)
   Indexes, query plans, performance tuning

5. Transactions & Concurrency - Due December 3, 2025 (75 points)
   ACID properties, isolation levels, deadlocks

6. NoSQL Databases - Due December 10, 2025 (75 points)
   MongoDB, document stores, comparison with SQL

EXAMINATIONS

Midterm Exam: November 6, 2025 (100 points)
   Coverage: SQL, database design, normalization
   Format: Written exam + practical SQL queries

Final Project: Due December 15, 2025 (125 points)
   Design and implement a complete database system
   Must include: ER diagram, schema, sample queries, documentation