

CS 450-005/550-007 Database Concepts/Systems Fall 2024

Course Description

This course covers fundamental knowledge of database management, emphasizing the design, implementation, and utilization of relational database systems. Students will experience the complete database creative process, including database design, construction, and programming. Formal theories of database design and normalization will be presented, along with an introduction of NoSQL databases.

Class Time & Location

T 10:30 AM - 1:10 PM **Arlington:** Van Metre Hall 113

Textbook

Required:

- Fundamentals of Database System (7th Edition) by Ramez Elmasri and Shamkant B. Navathe

Recommended:

- Oracle 10g Programming: A Primer by Sunderraman
- NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence by Sadalage and Fowler

Instructor

Dr. Ping Deng

E-mail: pideng@gmu.edu

Office hours: MW 12-1 PM @ ENGR 4608 or by appointment

Prerequisites

(CS 310 or INFS 519) and CS 330

Disability Accommodations

If you are a student with a disability and you need academic accommodations, please contact the Office of Disability Services (ODS) at 703-993-2474 or visit <http://ods.gmu.edu>. Additionally, please inform me at the beginning of the semester. All academic accommodations **must** be arranged through the ODS. Please ensure that you proactively request the use of your accommodations **well in advance** of exam/quiz dates and project deadlines.

Honor Code Statement

Please be familiar with the [GMU Honor Code](#). In addition, the CS department has its own [Honor Code policies](#). Any deviation from this is considered an Honor Code violation. All graded work must be your own effort. AI is viewed as a tool to aid in your learning process, rather than a means to complete assignments and thereby replace your opportunity for learning. No AI tools can be used for any graded work unless stated otherwise. Any attempts at cheating will not be tolerated, and will be turned in to the Honor Committee with significant penalty recommended. **The usual recommendation is grade F for the course.**

Grading Weights

Quizzes: 15%

Projects: 35%

Midterm: 25%

Final exam: 25%

Grading Policy

- All projects must be submitted on Canvas.
- You have a budget of 3 late days which you can use for projects. No late work accepted otherwise.
- The lowest quiz score for the semester will be dropped.
- Grades will be changed only when a grading error has been made. All grade change requests are due **within a week** of the grade becoming available on Canvas. After that week, the window to contest a grade has closed other than recording errors.
- No exam or quiz make-up will be permitted unless arrangements are made with the instructor at least **one day** in advance.
- **Unexcused absence** from the final exam will result in grade **F** for the course.
- If any extra credit is available, it might be available on specific quiz, exam or assignment, but not as an end-of-semester batch of extra work.

Grading Scale

A ⁺	>98
A	92-98
A ⁻	90-92
B ⁺	88-90

B	82-88
B-	78-82
C	68-78
F	<68

Tentative Course Outline

Introduction to database concepts

ER & EER model

Relational data model

ER & EER to relational mapping

Relational algebra

SQL

Midterm exam

Database programming

Functional dependency and normalization

NoSQL

Final exam

Helpful Comments

Welcome to CS 450-005/550-007! This class is designed to be highly interactive and optimized for **in-person** learning to enhance the overall learning experience. We will cover a diverse range of materials and introduce numerous new concepts. It's vital for your success to attend classes regularly, actively engage in group exercises and discussions, review the slides post-lecture, and initiate work on assignments promptly once they are accessible on Canvas. Best of luck!