CS 550-005 Database Systems
Spring 2025

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 308

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
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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. Students who rely on Generative AI models to complete their assignments risk the following:

- Missing out on the opportunity to develop the knowledge, skills, and critical thinking that are integral to the course.
- Struggling to meet academic expectations in situations where Generative AI is not available, such as during exams.
- Undermining their future employability by failing to demonstrate the ability to produce original work without reliance on Generative AI.

Therefore, no AI tools can be used for any graded work unless stated otherwise. Any attempts at cheating will not be tolerated and will be reported to the Honor Committee. **The usual sanction applied is Level 2 (F in the course)**.

Counseling and Psychological Services

As a student, you may face various challenges that can affect your learning, such as increased anxiety, global pandemics, or lack of motivation. We all benefit from support during difficult times. To learn more about Counseling and Psychological Services on campus, visit: https://caps.gmu.edu/.

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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. If a student is likely to miss a deadline, the late days policy will apply first. Further requests for extensions or exceptions are unlikely to be granted unless accommodations are formally established through the Office of Disability Services (ODS).
- If a one-time extension or exception is granted after you have exhausted all your late days, you will be placed on a no-exception list.

This decision will be made based on individual circumstances. Once placed on this list, no further exceptions will be granted for the remainder of the semester.

- 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 Notes

Welcome to CS 550-005! This class is designed to be highly interactive and optimized for in-person learning to enhance your overall experience. We will cover a wide range of topics and introduce many new concepts. Time management is key to success in this class. It's important to attend regularly, actively participate in group exercises and discussions, review the lecture slides after class, and begin working on assignments as soon as they are posted on Canvas. We are here to support your learning and reaching out to us sooner rather than later is almost always helpful. Good luck!