

CS 7700 Advanced Database Systems

Spring, 2026

Description: Introduction of DB design concepts and operating principles of database systems.

Prerequisite: CS 4700/6700 Introduction to DBMS, or equivalent.

Instructor: Dr. Soon M. Chung
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Class: M.W.F. 1:25–2:20 pm, 150 Russ Center.

Office hour: M.W.F. 12:00 pm –1:00 pm. For short questions, please use emails.

Text Book: R. Elmasri and S. B. Navathe, Fundamentals of Database Systems,
7th edition, Addison-Wesley, 2016

Topics:

Index structures for files (Ch. 17)
Normalization and Relational DB Design (Ch. 14, 15)
Query Processing and Optimization (Ch. 18, 19)
Transaction Processing, Concurrency Control, and Recovery (Ch. 20, 21, 22)
Enhanced ER Modeling (Ch. 4)
Conversion from Enhanced ER Model to Relational Model (Section 9.2)
Object-Oriented Databases (Ch. 12)

Grading: A:[85%,100%], B:[75%,85%), C:[65%,75%), D:[55%,65%), F:[0,55%)

1. There is no homework, but solutions of some exercise questions will be provided.
 2. Class attendance 5%
 3. Midterm exam: 30% (3/13, Friday, 1:25–2:20 pm). Open books, notes, and a computer.
 3. Final exam: 35% (4/27, Monday, 12:30–2:30 pm). Open books, notes, and a computer.
 4. Project: DB Transactions programming 30%
{project plan 5%, specification of transactions 5%, design of transactions 7%,
correctness of programs 7%, discussion 6%}
- **Project plan is due on 2/25, Wednesday.**
 - **Final report is due on 4/20, Monday.**
 - **Refer to Project Description for more details.**