

Advanced Databases and Database Applications
Syllabus
2021-2022 Spring

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Course Description

In this course, key foundations and fundamentals of advanced database applications will be introduced. An overview of data mining and machine learning topics will be given.

Recommended Readings

BIG DATA PRINCIPLES AND PARADIGMS, RAJKUMAR BUYYA, MORGAN KAUFFMAN

Lecture Contents

Week 1	Introduction to Databases
Week 2	Database Environment Database Architectures and the Web
Week 3	The Relational Model Relational Algebra and Relational Calculus
Week 4	Data Manipulation SQL: Data Definition
Week 5	Advanced SQL Object-Relational DBMSs
Week 6	Database System Development Lifecycle
Week 7	Entity-Relationship Modeling
Week 8	Midterm exam
Week 9	Midterm exam
Week 10	Enhanced Entity-Relationship Modeling
Week 11	Normalization
Week 12	Advanced Normalization
Week 13	Methodology—Conceptual Database Design
Week 14	Methodology—Logical Database Design for the Relational Model Methodology—Physical Database Design for Relational Databases

	Methodology—Monitoring and Tuning the Operational System
Week 15	Security and Administration Professional, Legal, and Ethical Issues in Data Management Transaction Management Query Processing
Week 16	Distributed DBMSs—Concepts and Design Distributed DBMSs—Advanced Concepts Replication and Mobile Databases Object-Oriented DBMSs—Concepts and Design Object-Oriented DBMSs—Standards and Systems Web Technology and DBMSs Semistructured Data and XML Data Warehousing Concepts Data Warehousing Design OLAP Data Mining
Week 17	Final exam
Week 18	Final exam

Grading Policy

Midterm:	%40
Final:	% 60

Wish all of you a successful, happy and healthy academic year.

Please send your questions and suggestions to my e-mail.