

CMSC 424: Database Design

Spring 2001

<http://www.cs.umd.edu/class/spring2001/cmsc424/>

COURSE DESCRIPTION

I. Objectives. Students will learn how to design a database system and how to implement database systems. They will study the basic principles of relational databases including SQL, relational algebra and calculus, as well as indexing and storage mechanisms.

II. Lecture Topics

- Introduction to databases
- The Relational Model
- Storing Data on Disks
- File Organizations and Indexes
- Tree Structured Indexing
- Hash-based Indexing
- External Sorting
- Relational Algebra and Calculus
- SQL
- Query by Example
- Evaluating Relational Operators
- Relational Query Optimization
- Conceptual Design and the ER Model
- Schema Refinement and Normal Forms
- Physical Database Design
- Other selected topics

III. Course Evaluation. The course has a set of homeworks, a mid term exam, and a final exam. The homeworks will count for 35% of your final grade, the midterm will count for 30% and the final for 35%.

IV. Homeworks. Between 3 and 8 homeworks will be assigned this semester. Many (if not all) the homeworks will involve some programming and/or system use.

V. Textbooks.

1. *Database Management Systems*, by Raghu Ramakrishnan, Johannes Gehrke, McGraw-Hill Higher Education; ISBN: 0072322063 2000.
2. *Oracle 8 Programming: A Primer*, by R. Sunderraman. Addison Wesley, 2000. ISBN: 0 – 201 – 61258 – 5.

VI. Policy on Late Submissions. Late submissions will NOT be accepted unless you have an appropriate note from the doctor.

VII. Exams. There will be a mid-term exam (during regular class hours) on March 8, 2001. The final exam will be held on Wednesday, May 23 from 10:30 to 12:30 in the morning.

VIII. Teaching Assistant. Yu Deng (yuzi@cs.umd.edu, 301-405-2715). Office Hours: Monday 2-3, Wed. 1-2. Room 3252 AV Williams.

IX. Instructor. Prof. V.S. Subrahmanian (vs@cs.umd.edu, 301-405-2711). Office Hours: Tuesday, 9:30am-11:00am, Room 3373 AV Williams Building.