CS 3743
Database Systems
Syllabus

Instructor: Ali Şaman Tosun
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Class Time: Monday, Wednesday, Friday 10:00 am - 10:50 am
Class Location: BB 3.04.08
Class Webpage: http://www.cs.utsa.edu/~tosun/TEACHING/CS3743SP19/index.html
Office Hours: Monday, Wednesday, Friday 11:00 am - 12:00 pm
Recommended: Oracle 10g Programming: A Primer, by R. Sunderraman

Objectives: In this course you will learn
1. Data models including relational, object-oriented and entity-relationship.
2. Relational database languages such as SQL.
3. Relational database design and database programming.
4. Implementation issues including storage, indexing, query evaluation, transaction processing, crash recovery and concurrency control.

Topics: Fundamentals of Database Systems
Chapter 1: Databases and Database Users
Chapter 2: Database System Concepts and Architecture
Chapter 3: Data Modeling Using the Entity-relationship model
Chapter 4: The enhanced Entity-relationship mode
Chapter 5: The Relational Data Model and Relational Database Constraints
Chapter 6: Basic SQL
Chapter 7: More SQL: Complex Queries, Triggers, Views, and Schema Modification
Chapter 9: The Relational Algebra and Relational Calculus
Chapter 9: Relational Database Design by ER and EER-to-Relational Mapping
Chapter 10: Introduction to SQL Programming Techniques
Chapter 11: Web Database Programming Using PHP
Chapter 14: Basics of Functional Dependencies and Normalization for Relational Databases
Chapter 15: Relational Database Design Algorithms and Further Dependencies
Chapter 16: Disk Storage, Basic File Structures and Hashing
Chapter 17: Indexing Structures for Files
Chapter 18: Strategies for Query Processing
Chapter 19: Query Optimization
Chapter 21: Introduction to Transaction Processing Concepts and Theory
Chapter 22: Concurrency Control Techniques
Chapter 23: Database Recovery Techniques
Topics: Oracle9i Programming
Chapter 2: Oracle SQL
Chapter 3: PL/SQL
Chapter 4: Web programming with PL/SQL
Chapter 5: Oracle JDBC
Chapter 6: SQLJ: Embedded SQL in Java
Chapter 7: Oracle Web Programming with Java Servlets

Prerequisites: A grade of C or better in CS 2413 and CS 3233. Working knowledge of C/C++ or Java. Knowledge of Unix operating system.

Grading: Based on Curve
Assignments 15% (4 assignments, lowest one dropped)
Project 20%
Midterm 1 20% Friday, February 22
Midterm 2 20% Friday, March 29
Final 20% Wednesday, May 8 7:00am-9:30am
Attendance 5%

Exam Policy: Exams are in-class, closed-book and closed notes. Make-up exams are given only under certain extenuating circumstances. Make-up exams are generally more difficult than the regular exams.

Homework Policy: Assignments and Projects must be handed in by the due time. No late assignments and Projects will be accepted. Late assignments will not be graded.

Attendance Policy: Attendance is required.

This Syllabus is provided for informational purposes regarding the anticipated course content and schedule of this course. It is based upon the most recent information available on the date of its issuance and is as accurate and complete as possible. I reserve the right to make any changes I deem necessary and/or appropriate. I will make my best efforts to communicate any changes in the syllabus in a timely manner. Students are responsible for being aware of these changes.