CS 4342 Database Management Systems
Fall 2015 - Syllabus

Instructors:
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Class time: Tuesdays and Thursdays, 10:30- 11:50 hrs.
Location: CCSB 1.0705
Office hours: Tuesdays and Thursdays, 12:30-1:30pm and 3:00-4:00pm (Natalia Villanueva) and by appointment outside this time.
Please use email to contact instructor.
Teaching Assistant: Sheikh Naim, e-mail: snaim@miners.utep.edu
TA Office hours: Mondays and Wednesday 4:00-5:30 in the TA Room and by appointment outside this time.
NOTE: When contacting the instructor or TA by email, please use in the subject the prefix [CS4342].

Course Catalog Description
Introduction to data base concepts, hierarchical, network and relational data models, data description and query languages, file and index organization, and file security and integrity.

Course Outcomes
Divided into the following three broad levels of Bloom's taxonomy:

Level 1: Knowledge and Comprehension.
Level 1 outcomes are those in which the student has been exposed to the terms and concepts at a basic level and can supply basic definitions. The material has been presented only at a superficial level. Upon successful completion of the course, students will be able to:
1a. Describe relational databases, how they have been used in the past, and how they are used currently to implement solutions in technology.
1b. Define a database management system.
1c. Describe the problems the second generation of databases solved

Level 2: Application and Analysis.
Level 2 outcomes are those in which the student can apply the material in familiar situations, e.g., can work a problem of familiar structure with minor changes in the details. Upon successful completion of the course, students will be able to:
2a. Differentiate between first generation and second generation database systems..
2b. Identify different architectures where database systems are used (e.g., n-tier).
2c. Apply relational algebra and set theory that are supported in the relational model.
2d. Use a relational query language (PL/SQL) and a RDBMS.
2e. Administer a database.

2f. Normalize a database using the 1st, 2nd, and 3rd normal forms.
2g. Apply techniques to optimize search/retrieval (indexes, and clusters).
2h. Justify why one method is more useful than another, or be able to choose a method based on specified characteristics.

Level 3: Synthesis and Evalluation.
Level 3 outcomes are those in which the student can apply the material in new situations. This is the highest level of mastery. Upon successful completion of the course, students will be able to:
3a. Design a relational database schema from a problem statement to conceptual/logical/physical database design.
3b. Design and code an interface that works with a normalized database, using the information read and discussed in class as well as the text.

Topics
The topics covered in this course include:
1. Introduction to Database Systems - Past and current.
2. Database System Concepts and Architecture.
3. Entity Relational Model.
4. Relational Model and Relational Algebra.
5. Database Design Theory and Normalization.
6. SQL.
7. Web Database Programming using PHP.
8. Beyond relational databases.

Grading
1. Exams 50%.
2. Project and Assignments including presentations 40%.
3. Class participation and activities 10%.

Textbook
Fundamentals of Database Systems (Seventh Edition preferred but also Sixth Edition). Ramez Elmasri and Shamkant Navathe. Ed. Addison-Wesley. ISBN10: 0136086209.

Standards of conduct
Students are expected to conduct themselves in a professional and courteous manner, as prescribed in the Student Conduct and Discipline section of UTEP's Standards of Conduct available here. Graded work should be of your own, plagiarism will not be tolearete. Professors are required to report academic dishonesty and any other violation of the Standards of Conduct to the Dean of Students.
Students may discuss requirements and background information. However, desgins, implementations and documentation must be prepared individually or by the members of the group assigned. The Dean of Students has published a website with complete details concerning the UTEP Academic Honesty policy available here.