University of Texas at El Paso Department of Computer Science
CS 4342 Database Management - Fall 2019

Logistics

Instructors:

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Class time: Tuesdays and Thursdays, 1:30- 2:50pm

Location: CCSB 1.0704

Office hours: Tuesdays and Thursdays, 8:30-10:30am and 3:00-4:00pm (Natalia Villanueva Rosales) and by appointment outside this time. Please use email to contact instructor.

Teaching Assistant: Daniel Ornelas, e-mail: dornelas4@miners.utep.edu

TA Office hours: Mondays and Wednesdays, 1-2pm and by email.

Instructional Assistant: Adrián Gómez Rodríguez, e-mail: agomezrodr@miners.utep.edu

IA Office hours: TBA.

NOTE: When contacting the instructor or TA by email, please use in the subject the prefix [CS4342**].**

Learning Outcomes

Course Catalog Description

Introduction to database fundamentals, modeling, the use of database management systems for applications, and current trends for data management including: relational algebra, entity-relationship models, relational data models, semi-structured data models, schema design, query processing, data integrity, privacy, security and data analytics.

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 and compare data models (e.g., Entity-Relationship model, relational model, semistructured model), how they have been used in the past, and how they are currently used for data management.

1b. Describe the components of a database system, the most common designs for core database system components including the query optimizer query executor, storage manager, access methods, and transaction processor their most common design, and give examples of their use.

1c. Cite the basic goals, functions, and models of database systems.

1d. Identify database languages and interfaces for data management.

1e. Critique an information application with regard to satisfying user information needs.

1f. Explain uses of declarative queries.

1g. Identify database architectures (e.g., centralized, distributed, web-based).

1h. Identify current trends of data management paradigms.

1i. Describe technical solutions to the challenges in information privacy, integrity, security, and preservation.

1j. Identify major database management systems functions and describe their role in a database system.

1k. Identify the careers/roles associated with information management

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. Demonstrate uses of explicitly stored metadata/schema associated with data.

2b. Use relational algebra and set theory that are supported in the relational model.

2c. Use a relational query language (e.g. SQL) to elicit information from a database.

2d. Normalize a database using the 1st, 2nd, and 3rd normal forms.

2e. Justify the use of relational or non-relational data management systems based on the requirements of an applications.

2f. Demonstrate the ability to work in teams

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 database system from a problem statement to a conceptual, high-level data model (e.g., Entity-Relationship) using standard notation and modeling principles.

3b. Design a relational data model from a conceptual data model.

3c. Design and implement a relational data model in a relational database schema using a database management system.

3d. Design and implement an interface for a database system applying best practices for usability, privacy and security.

Grading

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

Expectations

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

Scholastic Dishonesty: Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but not limited to cheating, plagiarism, collusion, submission for credit of any work or materials that are attributable to another person.

Cheating is copying from the test paper of another student. Communicating with another student during a test to be taken individually. Giving or seeking aid from another student during a test to be taken individually. Possession and/or use of unauthorized materials during tests (i.e. crib notes,   class notes, books, etc.). Substituting for another person to take a test. Falsifying research data, reports, academic work offered for credit.

Plagiarism is using someone's work in your assignments without the proper citations. Submitting the same paper or assignment from a different course, without direct   permission of instructors. To avoid plagiarism, see: http://sa.utep.edu/osccr/wp-content/uploads/sites/8/2012/09/AvoidingPlagiarism.pdf.

Collusion is unauthorized collaboration with another person in preparing academic assignments.

NOTE: When in doubt on any of the above, please contact your instructor to check if you are following authorized procedure

Special accommodations
If you have a disability and need classroom accommodations, please contact the Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass.