Course: CS 3540 Database Administration

Instructor: Jason R Brown
Class Locations/Times: M&W 7:30 - 9:20 PM (SLCC)
Phone: 801-349-0582

Course Prerequisites

- knowledge of relational theory, including normalization and referential integrity
- knowledge of basic SQL (both DML and DDL)
- knowledge of ER diagramming techniques and how to turn this into a database schema

If you've taken CS 2550 (Weber) or CIS 2600 (SLCC), these topics were covered - please come talk to me if you have not taken these courses, or if you have questions about the knowledge and skills listed above.

Course Description

This course covers advanced topics in the administration of databases and database management systems. As an advanced course, content is designed to extend students’ knowledge of fundamental database topics as well as introduce more advanced topics. The initial portion of the course focus on extending fundamental topics, such as conceptual modeling, the relational model, normalization and Structured Query Language. It is assumed that students have a basic understanding of these topics. Advanced topics include physical design topics such as record storage and index structures, as well as administration issues such as transaction management, security and recovery methods. The course includes both conceptual and hands-on components, with the hands-on portions designed to reinforce the conceptual material.

Course Delivery

Class will consist of a mix of lecture, student discussion, lab and homework related to the responsibilities and activities of the Database Administrator. Questions and comments during class time are encouraged (and participation will be graded). Database concepts will be illustrated in class using reading assignments and discussions. It is expected that students will have read the covered chapters prior to the class on the topic. The instructor will ask questions of the students to ensure that learning is taking place. Students will also learn how to install and administer databases through assigned exercises in the classroom.

Course Objectives

- Understand terms related to database design and administration
- Understand principles associated with conceptual data modeling
- Apply conceptual data modeling concepts to organizational data management problems
- Convert conceptual data models into normalized logical data models (schemas)
- Determine whether a schema meets the requirements for third-normal form
- Normalize schemas in order to satisfy the requirements of third-normal form
- Understand the concept of functional dependencies
- Understand the relational model
- Understand the rules for first, second and third-normal forms
- Understand broad issues related to data warehousing
- Understand the data warehouse development process
- Develop a dimensional data model to satisfy decision support and business intelligence requirements
Perform data manipulation using SQL
Perform complex data queries using SQL meeting stated requirements
Understand factors that influence database performance
Understand issues related to database concurrency
Describe various index structures including their advantages and disadvantages
Discuss issues related to database system architectures
Discuss issues related to database security and recovery
Discuss organizational issues related to information management

Course Policies

Accommodations

Students who have special needs or disabilities that may affect their ability to access information and/or material presented in this course are encouraged to contact Lee Ellen Stevens, Director of Disability Support Services (DSS), immediately, on campus at 957-4529 for additional disability-related educational accommodations. You are not required to disclose these disabilities to your instructor, but the instructor can only accommodate accommodation requests that officially come through the DSS.

Cell Phones

For obvious reasons, cell phones should be set to silent or vibrate during class. If you must take a phone call, please excuse yourself from the classroom.

Cheating / Plagiarism

I have a ZERO TOLERANCE policy on cheating/plagiarism, and violators will automatically fail my class. Weber State University requires that students be honest in their academic work. Academic dishonesty is viewed as an ethical issue and the violation of the principles expressed in the University's Statement of Educational Mission. It defrauds all those who depend upon the integrity of the University, its courses, and its degrees. The term "cheating" is the act of obtaining or attempting to obtain, or helping in obtaining, credit for academic work through any dishonest, deceptive, or fraudulent means. It includes, but is not limited to:

1. Copying, in part or in whole, from another student's test or other evaluation instrument; use of any unauthorized assistance in taking quizzes, tests, or examinations.

2. Submitting work previously presented in another course, unless specifically authorized by the course instructor.

3. Obtaining or giving aid, in writing or orally, on an examination, unless specifically authorized by the instructor.

4. Doing work for another student or having one's work done by another person.

The term "plagiarism" is intentional or negligent presentation of another person's idea or product as one's own. It includes, but is not limited to:

1. Copying verbatim all or part of another person's written work without proper citation or attribution.

2. Paraphrasing ideas, theories, cases, conclusions, or research without proper attribution.

3. Representing another person's scholarly works, computer programs, case studies or artistic works as one's own.
Class Notifications / Cancellations

For all official announcements regarding this class, or any cancellations of classes at WSU SLCC Campus, I will notify you via the class webpage. I strongly suggest that you check the announcements before class.

Complaining About Grades

If you feel the grade you received was not accurate, please meet with me after class or via email. All valid arguments will result in extra points. One of the most important things to realize with databases is it all depends on the specific situation.

Homework Due Dates

You are given plenty of notice to complete your homework and submit it by the posted deadline. Consequently, unless an extreme situation (death, sickness, etc) occurs, I will not accept any late assignments. All homework must be submitted via Web CT (http://online.weber.edu) by the deadline. If you encounter technical problems, you should e-mail your assignment to jason.brown@fmr.com with a read receipt requested.

Software/Hardware Requirements

SQL Server 2005 Express Edition and Oracle 11g for your home computer (See Resources Below). A fully licensed version of SQL Server is available through Weber State University's Academic Alliance, for FREE. The full version of SQL Server requires Windows Vista or XP Professional to run. Oracle can be downloaded from www.oracle.com. If you do not have a home computer, or cannot install these products (because of speed/memory) - let me know as soon as possible, as class lab time may not be enough to complete the assignments. ORACLE will also be required for the course. The course will focus on SQL Server and ORACLE. If time permits, and the class is interested, we will use MYSQL and DB2 also.

Grading and Policies

Grading, Evaluation Policies and Procedures

Your grade will be based on individual assessment. All Percentages are subject to change. 70% of your final grade comes from homework, 15% attendance, and 15% participation. All homework will be due on Wednesday (One week after it is assigned).
Grading Scale:

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Text

Textbooks and other supplies

This course has one recommended/optional text.

Database Administration, by Craig Mullins, Addison Wesley, 2002
(ISBN: 0-201-74129-6)
Retail Price: $49.99