

CMSI 686 DATABASE SYSTEMS
Spring 2007 -- 3.0 units
Thursday, 6:30-9:30 p.m. -- Doolan 222
Dr. Stephanie E. August -- saugust@lmu.edu

Course Description

Objectives

The primary objectives of this course are to study advanced topics in database management systems and to explore new directions in the field. The course begins with a review of the essential principles that guide the design, implementation, and management of systems capable of managing large amounts of data efficiently, including database system structure, semantic data modeling, relational databases, formal query languages, integrity and security, physical design of databases, indexing and hashing, query processing and optimization. Next the course tackles transaction processing and recovery. Lastly, the course explores new directions in the field selected from topics such as object-oriented databases, advanced query languages, XML, data warehousing, and data mining. The secondary objective of the course is to learn how to research and review advances in the field.

Prerequisites

CMSI 386 (Programming Languages); mastery of a high-level programming language such as C++ or another language that allows for user-defined data types or "structures"; some knowledge of computer systems and elementary logic; willingness to participate actively in class discussions. An undergraduate course in database management systems is helpful, but not required.

Expected Work

Readings prior to lectures, and participation in class discussions.

Written and oral homework assignments to reinforce lectures and readings.

Projects that include problem sets, database design, programming assignments, reports on commercial database capabilities, and technical paper reviews.

Term project demonstrating mastery of database design and implementation.

Major class presentation covering an advanced topic or a new direction in the field. This presentation will be completed on an individual or team basis.

Research paper based on class presentation. Short oral report on the paper.

Exams

One final.

Text

Elmasri, Ramez and Navathe, Shamkant B. *Fundamentals of Database Systems*. 5th ed. Addison-Wesley, Reading MA, 2006.

Additional References

Connolly, Thomas and Begg, Carolyn E. *Database Systems: A practical approach to design, implementation and management*. 4th ed. Addison-Wesley, Harlow, England, 2005. ISBN 0-321-29401-7.

Date, C. J. *An Introduction to Database Systems*. 8th edition. Addison-Wesley Publishing Company, Reading MA, 2004.

Date, C.J, with Hugh Darwen. *A Guide to the SQL Standard: A user's guide to the standard relational language SQL*. 4th ed. Addison-Wesley, Reading MA, 1997.

Shah, Nilesh. *Database Systems Using Oracle: A Simplified Guide to SQL and PL/SQL*.
Prentice Hall, 2004.

Silberschatz, Abraham, Korth, Henry F. and Sudarshan, S. *Database System Concepts*. 5th ed.
Mc Graw-Hill, 2006.

Grading

Your final grade will be weighted as follows:

Projects	75%
Final	25%

Homework will be assigned, but not collected. Assignments will be reviewed in class on the due date as needed, and students will be asked to present to the class their answers to selected problems. Students can enhance their participation grade by carefully preparing answers to the assigned problems.

Office Hours/Contact Points

Office Hours: Wednesday, 9:30 a.m. - noon, 1:00 - 2:30 p.m.

Thursday, 5:40 - 6:20 p.m.

and *by appointment*.

Office: Doolan 108

Phone: (310) 338-5973

Internet: saugust@lmu.edu Put *** **DB 686 Class** *** in the subject line!!!