

CSC 436 Syllabus

CSC 436 - Database Management Systems

Spring 2015

	Instructor:		TA:
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Course Textbook:

Fundamentals of Database Systems, El Masri & Navathe, Addison-Wesley, 6th Edition, 2011. (Available in hardcover and eBook).

Course Description:

This course gives students an introduction to database management systems. The material in the course covers the underlying structures necessary for building databases, several database models and languages, database design strategy, and management of queries and transactions.

Students are expected to participate in class and attend required meetings. Please inform me if you will be unable to attend a required class meeting so that you can find out what will be covered.

Course Goals:

- To introduce students to database management concepts.
- To provide students with practice in the development of database applications.
- To allow students a forum for discussion of various database-related issues.

Learning Outcomes:

After completing this course, a successful student will be able to:

- Define key terms and concepts of database management systems.
- Design a model of a database.
- Implement a database using commercially available database software.
- Query a database using the standard SQL query language.
- Implement a web-based access to a back-end database using current web tools and languages.
- Develop secure database applications.
- Apply various transaction management techniques for a multi-user database.

Course Web Site:

This is delivered partially online (blended). All material will be available on the Sakai web site. The material for each week will be released on the site in a clear and consistent manner so that students can anticipate when and where to find information and content.

Weekly Assignments and Course Organization:

Each assignment week begins on a Sunday and ends on the following Sunday. In general, assignments are due each Sunday (at midnight).

Reading Assignments:

Reading assignments should be completed as early in the week as possible. Reading the assigned chapters gives you an idea of the concepts that are the focus for the week. Other assignments during the week help to explain the concepts in greater depth and give you experience applying them to actual problems. Therefore, since the readings are fundamental to activities for the week, they should be completed first.

Video Lectures:

The video lectures for this course present the material in a form different from the readings so that you can better understand the concepts in each section. Each week, there will be approximately 60 minutes of video lectures to view. These emphasize important concepts and give examples similar to what you would see in a classroom lecture.

Homework Exercises:

Homework exercises are meant to allow students to practice some of the skills that are discussed in the readings and video lectures.

Independent Project:

Each student in class will turn in a substantial independent project, either a research paper, or an implementation project. A research paper can be on

any topic involving databases in approximately 8 to 10 pages. An implementation project can be any implementation involving databases. You can use whatever system resources are available to students in the Computer Science Department, and any other resources you may have available.

Semester Project:

The Semester Project is made up of three parts: an Entity-Relationship Model, an SQL implementation, and a Web Database implementation. The project will involve designing and implementing a database that stores information about television shows, episodes of the shows and customers who download and watch the shows.

Online Discussions:

There are two main discussion forums for this class.

- *General Course Discussion Forum* - used for students to post questions about the material or about the assignments. The instructor, TA or other students will post responses to help answer the questions that are posted. Students are not required to use this forum, but it is recommended that they use it for any questions that arise.
- *Weekly Topic Discussion Forum* – used for weekly discussions that are related to the topics of the week. Each week the instructor will post one or more questions or comments about the topics of the week. Students are expected to respond to the question at least once by Sunday night. Responses in this discussion forum are graded based on two criteria:
 1. Each student must respond at least once each week.
 2. The content of the response should be relevant to the weekly topic and should not repeat a response that another student has already posted. While there is no hard length requirement, a response between three and five sentences is typically appropriate.

Exams:

There will be a midterm and a final exam, each covering half of the material in the course. These will be take-home exams. Students are expected to complete the work on their own. If you need help or clarification on a problem, you may post a question on the *General Course Discussion Forum* or contact the TA or instructor. You are not permitted to discuss the exam with other students. If you use source outside the course materials, you must cite those sources appropriately.

Grading Policy:

All assignments are to be handed in on time. No late submissions will be accepted unless permission is granted in advance.

Calculation of Grades:

Homework	15%
Semester Project	25%
Independent Project	15%
Discussions	15%
Midterm	15%
Final	15%

Grading Scale:

A 94-100	C+ 77-79
A- 90-93	C 73-76
B+ 87-89	C- 70-72
B 83-86	D+ 67-69
B- 80-82	D 60-66
	F <60

Course Topics and Tentative Schedule:

Week of	Topic	Chapters
1/26	Introduction to Database Systems	1, 2
2/2	Data Modeling	7, 8
2/9 2/16	Relational Data Model	3 6, 9
2/23	SQL	4, 5
3/2	Database Design Theory	15
3/9	Midterm	1-9, 15
3/16	<i>Spring Break</i>	
3/23	Web-based Databases	12, 14
3/30	Database Security	24
4/6	Disk Storage / Indexing Structures	17, 18
4/13	Query Optimization	19
4/20	Transaction Management	21, 22
4/27	FINAL EXAM	12, 14, 17-19, 21-22, 24

Other University Policies: