IS 410/610 03: Introduction to Database Design
Department of Information Systems
UMBC
Course Syllabus for Spring 2017 Semester

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Textbook:
Modern Database Management, Twelfth Edition, J. Hoffer, V. Ramesh, and H. Topi, Pearson, 2015, ISBN-13:978-0133544619, ISBN-10:0133544613.

Course Description:
The course introduces students to the process of database development, including data modeling, database design, and database implementation. Students learn basic SQL for both data definition and queries. Students practice design skills by developing a small group database project. This course is a core part of the IS BS program and serves as a prerequisite for IS 420. This course is also a fundamental core of the IS MS program and serves as a prerequisite for IS 620.

By the end of this course, students will be able to:

1. Appreciate the role of database management and the value of information within organizations.
2. Be competent in developing Entity Relationship (ER) and Enhanced Entity Relationship (EER) diagrams to represent database requirements.
3. Be able to design a database to meet the business requirements for an organization, and evaluate the design quality of a database using the rules of "database normalization".
4. Use the structured query language (SQL) to define and manipulate data in a relational database.
5. Have an understanding of the concepts associated with database administration.

The lecture sessions will be interactive and aided by slide presentations.

Prerequisite for IS410: Completion of the IS BS gateway

Grading:

Class Participation	5%
Assignments	8%
Quizzes	12%
Exams	48%
Project	27%
	100%

Class participation
Both assigned readings and attention to lectures are necessary for comprehending the material and good class performance. Students are expected to attend all classes, participate in class discussions, be punctual, and follow the class policy. You are responsible for all material presented in class. Students are expected to attend and stay through the entire class each week unless there is some valid reason not to, such as illness or family emergency. In the event of emergency, it is the student's responsibility to confer with the instructor about the absence.

Assignments
Assignments will consist primarily of written and design problems. Assignments will be due before class starts on the due date. The assignments will be graded based on completeness and/or correctness. Their weights may vary. The questions will be discussed in a subsequent class. You are encouraged to use Word or any other text editor to write your answers and use Microsoft Visio to draw ER diagrams. Handwritten answers will not be accepted unless otherwise instructed. Late assignments will NOT be accepted unless prior permission is granted by the instructor.

Quizzes
There will be 2 unannounced quizzes given during the semester. Quizzes may be given at the beginning or end of a class. There will be no make-up quizzes except in the case of extreme emergency. Students who miss a quiz will get a zero. Graded quizzes will be reviewed in class and quiz questions may be used in exams.

Exams
Three exams will be given, which are tentatively scheduled on Mar. 2, Mar. 30, and May 16. All of them will be in-class, closed book, and closed notes, and equally weighted. Each will cover primarily the material in its respective third of the course (some overlap is unavoidable).

Any missed exam will result in a grade of 0. Makeup exams will NOT be administered except in the case of extreme emergency. If you miss an exam because of an extreme emergency, notify me as soon as possible. If I agree that your emergency was indeed, extreme, and it can be documented, a make-up exam will be given.

Project
Your assignment is to develop a database design to solve a real-life data management problem. It can be any problem in your work environment or another organization. You will develop a database to solve this problem. You will be working in a team of three people. You will use Oracle DBMS throughout the project. There will be five deliverables.

Part 1 (5%), due on Feb. 9, will include team composition, team name, tentative topic and meeting schedule.
Part 2 (30%), due on Mar. 7, will include description of business situation, EER diagram converted from the selected business situation, and definitions of entities and relationships in the diagram.
Part 3 (25%), due on Apr. 6, will include the translation of the EER diagram into relational tables in 3NF.
Part 4 (25%), due on May 2, will include the implementation of SQL commands specific to the application.

Part 5 (15%), due on May 9 and 11, will include a presentation and a peer evaluation. IS610 students will also submit a final project report. The submission requirements will be provided separately.

Each of the deliverables will be due before the class starts on the due date. Detailed requirements for each deliverable for Part 2-5 will be posted later at the course website. The instructor will provide feedback on and a grade for each of the deliverables within one week of its submission. You are required to revise your previous deliverable based on the feedback in preparation for the subsequent deliverable. Peer evaluation results collected toward the end of the semester will be used to *adjust the overall project grade* for individual members of a project team.

Class Policies on Academic Integrity

By enrolling in this course, each student assumes the responsibilities of an active participant in UMBC's scholarly community in which everyone's academic work and behavior are held to the highest standards of honesty and integrity. Cheating in any form is not tolerated under any circumstance in accordance with the UMBC Academic Regulations.

Statement on Academic Conduct:

Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty and they are wrong. Academic misconduct will result in disciplinary action that may include failure of the course, suspension or dismissal. Acts of Academic Misconduct are defined as the following:

- **Cheating:** Knowingly using or attempting to use unauthorized material, information, or study aids in any academic exercise.
- **Fabrication:** Intentional and unauthorized falsification or invention of any information or citation in an academic exercise.
- **Facilitating Academic Dishonesty:** Intentionally or knowingly helping or attempting to help another commit an act of academic dishonesty.
- **Plagiarism:** Knowingly representing the words or ideas of another as one's own in any academic exercise, including works of art and computer-generated information/images.

To read the full policy on academic integrity, consult the UMBC Student Handbook, Faculty Handbook, or the UMBC Policies section of the UMBC Directory.

UMBC is committed to eliminating discriminatory obstacles that disadvantage students based on disability. Student Support Services <http://www.umbc.edu/sss/html/sss_disab.htm>(SSS) is the UMBC department designated to receive and maintain confidential files of disability-related documentation, certify eligibility for services, determine reasonable accommodations, develop with each student plans for the provision of such accommodations, and serve as a liaison between faculty members and students regarding disability-related issues. If you have a disability and want to request accommodations, contact SSS in the Math/Psych Bldg., room 213 or at 410-455-2459. SSS will require you to provide appropriate documentation of disability. If you require accommodations for this class, make an appointment to meet with me to discuss your SSS-approved accommodations.

Diminished mental health can interfere with optimal academic performance. The source of symptoms might be related to your course work; if so, please speak with me. However, problems with other parts of your life can also contribute to decreased

academic performance. UMBC provides cost-free and confidential mental health services through the Counseling Center to help you manage personal challenges that threaten your personal or academic well-being. For more resources get the Just in Case mental health resources Mobile and Web App <http://counseling.umbc.edu/justincase>. The UMBC Counseling Center is in the Student Development & Success Center, or at 410-455-2472.

Inclement Weather*:* Any work or test due on a class date that has been cancelled due to inclement weather will be due the next class meeting.

Tentative Course Schedule*

CHAPTER	LECTURE TOPIC	DATE	DELIVERABLES
	COURSE INTRODUCTION INTRODUCTION TO DATABASE	Jan. 31	
CH. 1	THE DATABASE ENVIRONMENT AND DEVLOPMENT PROCESS	Feb.2, 7	
CH. 2	MODELING DATA IN THE ORG.	Feb. 9,14,16, 21	PROJ#1-Feb. 9
CH. 3	THE ENHANCED E-R MODEL	Feb. 23, 28	HW#1- Feb. 23
	EXAM #1	Mar. 2	
CH. 4	LOGICAL D.B. DESIGN AND THE RELATIONAL MODEL (1)	Mar. 7, 9,14, 16	PROJ#2-Mar. 7
	SPRING BREAK	Mar. 21, 23	
CH. 4	LOGICAL D.B. DESIGN AND THE RELATIONAL MODEL (2)	Mar. 28	HW#2
	EXAM #2	Mar. 30	
CH. 6	INTRODUCTION TO SQL	Apr. 4, 6, 11, 13, 18	PROJ#3-Apr. 6
CH. 7	ADVANCED SQL	Apr. 20, 25, 27	HW#3-Apr. 27

CH. 11 (pp. 478-481)	DATA AND DATABASE ADMINISTRATION	May 2	PROJ#4
CH. 5	PHYSICAL DATABSE DESIGN AND PERFORMANCE	May 4	
	PROJECT PRESENTATIONS	May 9,11	PROJ#5
	EXAM #3	May 16	

Change may be necessary as the course progresses.