SOUTHERN ILLINOIS UNIVERSITY
EDWARDSVILLE
SCHOOL OF BUSINESS

AACSB ACCREDITED

CMIS 450 Database Design
Summary 2012

Instructor: Susan E. Yager, Ph.D.
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Office Hours: Monday and Wednesday: 5:00-5:45 p.m.
          By appointment

Required Text:
Database Concepts, 4th edition. Kroenke, D., and Auer, D. 2010. ISBN 0-13-608689-6
          (available from Textbook Rental) = K&A
Oracle SQL. Bordoloi, B. and Bock, D. 2004. ISBN 0-13-101138-3 (electronic version
          available through Blackboard) = B&B

Required Materials:
SIUe e-ID for access to Blackboard and e-mail

Course Description: Basic concepts/terminology of relational models with emphasis on current technology and business applications including SQL. Prerequisites: 270 and 142 with grade of C or better, CMIS major or specialization.

Course Overview: Database management systems are at the heart of modern business information systems. They facilitate the sharing of data across the organization and, therefore, support the notion that data is a corporate resource. Data management (i.e., data collection, storage, and retrieval) constitutes a core activity for any organization. This course covers the fundamental concepts of data management, database systems, and database applications in business. Students in this course will learn about the design, implementation, use, and management of database systems.

Course Overview (continued):

The goal of this course is to provide adequate technical detail while emphasizing the organizational and implementation issues relevant to the management of data in an organizational environment. Topics include conceptual data modeling (with an emphasis on Entity-Relationship and UML models), logical modeling (including relational model and normalization theory), physical database design issues, and creating and querying a relational database using industry standard Structured Query Language (SQL).
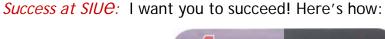
Course Objectives: The course material is primarily divided into three related components:

1. Conceptual data model, especially the entity-relationship (ER) and Uniform Modeling Language (UML) models. At the end of this part of the course, you will understand the advantages and disadvantages of the database approach to data management, the components of a database system, the constructs of the ER and UML models, and the use of the ER and UML diagramming techniques to define the requirements of a large-scale database application.
2. Logical database model, emphasizing the relational data model, the de-facto industry-standard for database applications. At the end of this component, you will be able to apply the principles of normalization to the logical design of a relational database.
3. Physical database model, specifically Structured Query Language (SQL). After completing this part of the course, you should be able to define a fairly complex database structure in SQL and write fairly advanced queries to retrieve data from a relational database. We will also address some additional database management topics, such as transaction management, concurrency control, distributed and client/server database systems, data warehousing, Web database processing, and object-relational database management.

Course Format: This class is designed to combine a variety of techniques to capture everyone's interests. The readings and (short) lectures will provide a base of knowledge that participants can use in other components of the course. In-class exercises provide an arena for applying the knowledge base. Class discussions provide an opportunity for discovery (or 'a-ha' experiences!). *This design can only work if everyone does the readings prior to class and everyone participates in the exercises and discussions.* Practice makes perfect!

Success at SIUe: I want you to succeed! Here's how:

Students with disabilities: Please notify me no later than the end of the first week of class concerning any academic accommodations you will need. You must have a documented disability and an ID CARD from Disability Support Services (http://www.siue.edu/dss/). If you need accommodations not indicated on the Disability Support Services ID CARD, please contact me or the Disability Support Services office as soon as possible so arrangements can be made for any additional equipment or accommodations.

Grading: Your performance in this course will be evaluated in five areas: professionalism, team project (report plus presentation), homework assignments (Access and Oracle SQL), research report, and tests:

Assessment	Possible Points	Details
Professionalism	25	APEP (Attend, Prepare, Engage, Participate)
Team Project	100	Report (75), presentation (25)
		Access Workbench Exercises (AWE):
Access Projects	50	AW.1.1, AW.2.1, AW.3.2, AW.3.3, AW.4.1
		(K&A = 5 @ 10 points each)
SQL Assignments	185	End-Of-Book SQL Coding Exercises (B&B)
Research Report	40	Advanced database topic you choose
Tests 1, 2, 3	300	
Total Possible Points	**700**	

Grading Scale: 630-700 points = A
                          560-629 points = B
                          490-559 points = C
                          420-489 points = D
                          < 420 points   = F

Course Activities:

Professionalism: You share with me the responsibility of your learning. In order for the design of this class to work, we all must be actively involved. Think *APEP*! You are expected to *A*ttend sessions regularly; *P*repare by reading and thinking about the assigned materials and working diligently toward the completion of assignments; *E*ngage in class activities and discussion; and *P*articipate constructively in all discussions, presentations, and activities. In addition, you are expected to show respect, collegiality, and good citizenship toward others is the class. You will be evaluated based on the quality and quantity of constructive participation on all aspects of the course. *Class participation is not the same as class attendance – if you merely attend class (even with perfect attendance), you will receive only 5 points for professionalism!*

Team Project: A semester-long team project represents a major element of this class. Details will be provided in a separate document and posted online. We can discuss how to work effectively in teams, but it is *your* responsibility to make your team work well.

You are strongly encouraged to think carefully about project member assignments, project management roles, and communication mechanisms. You may want to schedule regular team meetings (perhaps very short) at which you coordinate what you are each doing.

Team members will be asked to submit a peer evaluation of themselves and other team members at two different times during the project. You are expected to take the peer evaluation process seriously and to provide constructive feedback on each team member's professionalism and contribution to the project. The purpose is to help the team deal with any problems that might arise and to provide guidance to your colleagues for their improvement. The results of the final peer evaluation will be used to adjust each individual's points earned on the team project. Your final grade could be affected (up or down) based on peer evaluations. Coordinating the work for the team project may be the most difficult part of the class, and you are encouraged to consider that when you choose teammates.

Course Activities (continued):

Access Projects: **Access projects require you to use a computer with Microsoft Access 2010!** By the time you are a junior or senior in an MIS program, you should be willing and able to pick-up a "new" software application easily. This is your chance to demonstrate to me (and to yourself) that you can do just that! To make things just a bit more interesting, the instructions in your book are for Access 2007(not 2010) – so you need to work ahead and ask questions if you run into problems!

All submissions will be through Blackboard. These projects require significant work on your part to complete, so don't wait until the last minute! Projects are due by 11:55 p.m. on the dates listed on the course schedule.

If you do not have Microsoft Access 2010 on your computer, you can download the software (free) through our MSDNAA license. I will request that you are allowed access to the download site at the end of week one. Look for an e-mail from "ELMS" in your SIUE e-mail providing your password. You may also use a computer on campus. All computers in the open lab in Founders Hall, plus other locations on campus, have what you need. For a listing of computer labs and their hours, go to http://www.siue.edu/its/labsclassrooms/index.shtml.

SQL Assignments: The effective assimilation of the technical course material requires repeated exposure and practice. The SQL assignments are designed to encourage you to adopt the habit of working actively with the course material. The objective of the SQL assignments is to help you understand the course material and to help us both recognize any points that are not yet completely clear. You are encouraged to diligently attempt each assignment. However, if you get seriously stuck on a problem, make a note of the specific difficulty you are having and move on.

SQL assignments **may** be completed INDIVIDUALLY or as a MEMBER OF A TEAM that includes a maximum of 4 people. *However, it is essential that you* **individually** *understand the assignments in order to do well on the tests.* Details will be provided in a separate document and posted through Blackboard.

Research Report: You are required to conduct research and write a report about an advanced database topic. This research paper is your chance to delve into a topic on your own. You will find that as an IT professional, people in your organization look to you to provide a description of what a technology is, how it can help the business, and whether you think it is a good solution. This is your chance to practice that skill.

Course Activities (continued):

Research Report (continued):

You may choose one of the topics covered in Chapters 7 and 8 (Web database processing, database processing and XML, data warehouses and data marts, or data mining) or present your idea to me for approval. If you wish to choose a different topic than those listed in Chapters 7 and 8, you must submit your topic to me for approval by e-mail no later than June 1. The target audience is an organization's upper level management. You should assume high-level understanding of technology, but the focus is not in explaining the details of how the technology works. You should (1) briefly describe the technology involved, (2) explain how this technology can help an organization, and (3) summarize the challenges an organization should be prepared to face if it chooses to implement the technology. Details will be provided in a separate document and posted online.

Tests: There will be three (3) tests in this course. The last test is *not* comprehensive. Material for tests will be taken from lectures (which may cover material *not* in the text), class discussion, assigned readings, team presentations, and assignments. Tests will consist of questions with multiple formats (e.g., multiple choice, fill-in-the-blank, matching, short answer, problems). They will be designed to assess your basic understanding of the concepts and their application. If English is not your first language, and you encounter words or phrases you do not understand on the tests, please do not hesitate to ask me for clarification.

> **Makeup tests will not be given unless there is a credible excuse and I am notified *prior* to when the test is given. I will ask to see proof.**

*Late Submissions: **I do not accept late submissions**.* Once a deadline is passed, links are no longer available.

Course Policies:

Academic ethics: Academic misconduct, including plagiarism and cheating, is described on page 1 of the SIUE Student Academic Code (http://www.siue.edu/policies/3c2.shtml). Sanctions for academic misconduct are outlined in Section M of the Code. The University's policies will be enforced to the fullest extent.

Course Policies (continued):

Academic ethics (continued):
Don't let this happen to you:
- Cheating or copying another student's assignment: both students receive a zero on the assignment.
- Cheating or copying another student's assignment a second time: both students receive a zero on the assignment. In addition, you lose 70 points (a letter grade) and will be reported to the Department Chairperson, Associate Dean for Academic Affairs in the School of Business, and Provost and Vice Chancellor for Academic Affairs for possible disciplinary action.
- Cheating on a test: you **FAIL** the course and will be reported to the Department Chairperson, Associate Dean for Academic Affairs in the School of Business, and Provost and Vice Chancellor for Academic Affairs for possible disciplinary action.

Attendance: Poor or failing grades are directly correlated to your attendance habits. You are expected to be punctual, be attentive, and attend the entire class period. It is your responsibility to get the materials covered from another student should you be absent or late.

Students who are absent from class due to official University Business will be excused for up to 10 percent of the scheduled contact hours of the class (see the Student Academic Standards and Performance policy (http://www.siue.edu/policies/1i8.shtml)). However, the student and the sponsoring unit are required to inform me in writing at least one week in advance of the anticipated absence, and the student is not excused from fulfilling the academic requirements of the course.

Civility in the classroom: Classrooms must be a place where students and teachers feel safe to learn and exchange ideas. Students are therefore expected to maintain themselves in a professional and civil manner and to act in a manner that is in compliance with the Student Conduct Code (http://www.siue.edu/policies/3c1.shtml). Instructors are expected to uphold the Student Conduct Code in their classroom and maintain the highest professional standards as outlined in the Ethics of Instruction (http://www.siue.edu/policies/1q2.shtml).

E-mail: E-mail etiquette is expected on all e-mails sent to me. You must include a detailed subject line and sign the e-mail with your full name plus course name or number. E-mails that omit this information will be considered "junk."

Course Policies (continued):

Electronic Device Usage: Use of electronic devices during class is not authorized. Please turn off/silence your devices and put them away during class. Use of laptop computers for note taking is okay, but any other activity is not. Check with me if you wish to record lectures.

Feedback: Scores and feedback for all out-of-class assignments will be posted in Blackboard within one week.   Scores on tests will be posted within one week in Blackboard.   If you want to discuss your results further, please see me during scheduled office hours or by appointment.

Incomplete Grades: Grades of Incomplete will not be given unless some act beyond your control takes place that materially affects your ability to complete the course (e.g., severe illness, emotional trauma due to a death in the family, accident).   You must contact me to receive an Incomplete and finish the course requirements.

School of Business Code of Professionalism (What we expect of each other): Faculty, staff, and students in the School of Business at Southern Illinois University Edwardsville are expected to contribute to a culture of integrity and professionalism.   Our School's culture encourages behaviors associated with educated and self-disciplined individuals. Those behaviors include:
- being honest;
- being reliable and prepared;
- being responsible for one's own actions and decisions; and
- being respectful of all individuals.

CMIS 450 Database Design
Summer 2012

Week-by-Week Schedule (last modified 5/5/2012):

WEEK	DATES	TOPICS	K & A	B & B	Due Dates
1	5/21	Course Introduction			AWE: AW.1.1, AW.2.1 (due 5/25)
		Blackboard Materials			
		Introduction to Access	Ch 1 thru 5: Access Workbench		
		Database Fundamentals: Getting Started	Ch 1		
		Database Fundamentals: The Relational Model	Ch 2		
	5/23	Conceptual Model	Yager PPT		
		Database Design: Data Modeling and the E-R Model	Ch 4		
2	5/28	No class meeting – Holiday			*Research Report Topic* (ONLY if NOT in Chapters 7 & 8), AWE: AW.3.2, AW.3.3 (use GUI) (due 6/1)
	5/30	Conceptual Model	Yager PPT		
3	6/4	Conceptual Model	Yager PPT		AWE: AW.4.1 (due 6/8)
	6/6	Conceptual Model	Yager PPT		
4	6/11	Exam 1 - Weeks 1 thru 3			*Team Evaluations*, SQL Ch 3, 2 (due 6/15)
	6/13	Introduction to SQL	Ch 3	Ch 1, 2, 3	
		Logical Model	Yager PPT		
		Database Design: Database Design	Ch 5		
5	6/18	Logical Model	Yager PPT	Ch 4, 5, 6	SQL Ch 4, 5, 6 (due 6/22)
	6/20	Logical Model	Yager PPT		
6	6/25	Exam 2 - Weeks 4 thru 5		Ch 7, 8	*Research Report*, SQL Ch 7, 8 (due 6/29)
	6/27	Physical Model Database Management: Database Administration	Yager PPT Ch 6		
7	7/2	Database Management: Database Processing Applications	Ch 7	Ch 9, 10	*Team Project Report, Final Team Evaluations*, SQL Ch 9, 10 (due 7/6)
		Database Management: Database Processing for Business Intelligence Systems	Ch 8		
	7/4	No class meeting – Holiday			
8	7/9	*Team Presentations* Exam 3 - Weeks 6 thru 7			