MIS 7373

Business Applications of Database Management Systems

Spring 2016 Revision: 2016-01-19

INSTRUCTOR

Dr. Mark Grimes
gmgrimes@bauer.uh.edu
Office: Melcher 280D

CLASS TIME

Monday 6:00 - 9:00 PM

LOCATION

Melcher 110

OFFICE HOURS

Tue 2:00 - 3:00 PM
Wed 10:00 - 11:00 AM

WEBSITE

UH Blackboard:
http://elearning.uh.edu

TEXTBOOK

Data Modeling and Database Design
2nd Edition

N. S. Umanath and R. W. Scamell

ISBN: 1-285-08525-6

Why are we doing this?

Data is one of the most important assets modern businesses have. Consider Google, Uber, Facebook, AirBnB, eBay, and Alibaba - these companies do not provide value by the physical products they provide, but rather by managing and presenting data in such a way as to provide value to users. As a future IS professional, learning to manage data is critical to your success.

In this course, we will learn about the fundamentals of data modeling, database design, and structured query language (SQL). By the end of the class you should have a solid understanding of how and why businesses use databases and the tools necessary to start designing, developing, and using databases yourself.

The topics covered in this class are divided into four parts:

1. Conceptual data modeling using entity relationship (ER) diagrams.
2. Creating relational data models based on conceptual ER models
3. Normalizing data to improve the accuracy, speed, efficiency, and robustness of a database.
4. Implementation of the relational data model using SQL to define and create a database, implement various relational algebra operations, and query multiple tables.

Learning Objectives

Each module will have specific learning objectives to help you gauge your understanding of the material (and ensure you are prepared for the exams!). In general, by the end of this class you should be able to:

- Describe the differences between data, information, and metadata
- Create a data dictionary
- Create entity relationship diagrams
- Create relational data models
- Infer and describe the types of data and data structures a system is using
- Describe the normal forms and transform data between first, second, and third normal form
- Compose SQL code to create, read, update, and delete data and data structures

Grading

My primary goal is that you leave this class with skills you did not previously have. If you put forth the work to obtain these skills, your grade will reflect it.

Grade Allocation	
A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	< 60%

Element	Total Points	Percentage
Exams: **2 @ 250 points**	**500**	**50%**
Assignments: **4 @ 75 points**	**300**	**30%**
SQL Project: **1 @ 100 points**	**100**	**10%**
In Class Exercises (ICE)	**100**	**10%**
Extra credit for exceptional ICE completion	**10-20**	**1-2%**
Total:	**1020**	**102%**

Exams

Two exams, each worth 25% of your grade, will be given during the semester. Rescheduling exams will only be allowed in exceptional circumstances - please let me know as far in advance as possible if you have a conflict. If you miss an exam without prior approval no makeup opportunities will be available. Exams may consist of multiple choice, matching, short answer, essay and diagramming questions.

Assignments

Four assignments, each worth 7.5% of your grade, will be collected during the semester. Some assignments will require you to think critically about the material and apply the concepts to a real world scenario, while others will be used to reinforce technical or conceptual items from the textbook and presentations. The assignments will help develop skills that will be useful in completing the SQL project and exams, while also enhancing your marketable skills.

SQL Project

SQL (Structured Query Language) is a language used by people and applications to create, query and update relational databases. We will work with Oracle 11g using a cloud-based solution provided by Amazon, called Amazon RDS. The purpose of the SQL Experience is to illustrate how this powerful language can be used to create the structure of a database, populate a database, and

In Class Exercises (ICE)

On most days we will complete short in class exercises. These are designed to assess your comprehension of the material and to encourage critical thinking about technology. You can miss two ICEs without penalty, however, if you complete 100% of the ICEs you will receive 20 points of extra credit. If you complete all but one you will receive 10 points of extra credit.

Grade petitions must be made in writing!

All petitions to receive a different grade on an assignment or exam must be submitted in writing within one week of receiving the grade. The petition must include a detailed description of why the grade should be changed. All petitions will be kept on file until the end of the semester. If the student's grade is near a breakpoint for a higher letter grade, the petition and related assignment will be reviewed. The grade review will involve a full regrading of the assignment, and may result in a higher, lower, or the same grade.

One exception: I will happily correct errors in point calculation on the spot

Schedule

Subject to change - please read modules in the textbook prior to coming to class

Week	Date	Topic	Deliverable
1	M: 2016-01-25	Course Introduction Database Architecture: Modules 1.1, 1.2, 1.3 1.4, 1.5, 1.6	
2	M: 2016-02-01	Database Concepts: Modules 2.1, 2.2, 2.3 Entity-Relationship Modeling: Module 3.1	**A1 Assigned**
3	M: 2016-02-08	Business Applications of Databases Entity-Relationship Modeling: Module 3.2, 3.3	**A1 Due**
4	M: 2016-02-15	Relational Data Modeling: Modules 6.1, 6.2, 6.3, 6.4	**A2 Assigned**
5	M: 2016-02-22	Relational Data Modeling: Modules 6.5, 6.6, 6.7, 6.8, 6.9	**A2 Due**
6	M: 2016-02-29	Database Creation: Module 10.1, 10.2 Exam Review	
7	**M: 2016-03-07**	**Exam 1—Data Modeling**	**Exam 1**
Week 8	**3/14 - 3/18**	**Spring Break**	
9	M: 2016-03-21	Relational Algebra: Modules 11.1, 11.2 - Return Exams Structured Query Language: Module 12.1	**A3 Assigned**
10	M: 2016-03-28	Structured Query Language: Module 12.2, 12.3	**A3 Due**
11	M: 2016-04-04	Advanced SQL: Modules 13.1, 13.2 Business applications of Databases	**A4 Assigned**
12	M: 2016-04-11	Advanced SQL: Modules 13.3, 13.4, 13.5, 13.6, 13.7	**A4 Due**
13	M: 2016-04-18	Normalization	
14	M: 2016-04-25	Normalization Review Day	
15	**M: 2016-05-02**	**Exam 2—SQL/Normalization**	**Exam 2**

Other Important Details

CLASSROOM BEHAVIOR

Cell phones, laptops, tablets, iPods and the like are distracting to yourself and those around you - plus it is rude! Silence or turn off your phone prior to entering the classroom, and do not use personal electronics during class. If you are causing a disruption you will be asked once to cease the activity. If the activity continues, you will be asked to leave the classroom.

Disruptive or threatening behaviors are strictly prohibited and will be dealt with in accordance with university policy.

LATE WORK POLICY

Assignments turned in late will be penalized 10% per calendar day for a maximum of five days, after which no credit will be given. Technology failure is not an excuse for late work, so do not wait until the last minute!

ACADEMIC INTEGRITY

A zero tolerance policy on cheating is in effect. Cheating in the workplace can cost you your job, and cheating in this class will cost you your grade (and sanctions from the dean of students).

Cheating includes any action where you take credit for work on any assignment or exam that you did not do yourself. Likewise, if you allow another student to copy your work, you are complicit in cheating and equally guilty. It is your responsibility to ensure your work does not fall into the wrong hands (i.e. do not "forget" to delete you assignment from a shared computer).

Plagiarism is cheating! If you include any material obtained elsewhere in your assignment, you must reference the original work. Plagiarism is not just when you "copy and paste", but is also when you take ideas from another place without referencing the original source. If in doubt, cite your source.

UH and Bauer Policies on Academic Dishonesty and Misconduct

High ethical standards are critical to the integrity of any institution, and bear directly on the ultimate value of conferred degrees in the business community. All UH students are expected to contribute to an atmosphere of the highest possible ethical standards.

Maintaining such an atmosphere requires that all academic dishonesty be recognized and addressed.

http://www.uh.edu/provost/academic-affairs/policy-guidelines/honesty-policy/

The **Bauer Code of Ethics and Professional Conduct** (Bauer Code) is designed to reflect the values held by the C. T. Bauer College of Business faculty and students. Just as professionals in medicine, law, and accounting operate within ethical principals designed to maintain a high standard of behavior within each profession, business professionals also should be guided by a set of principles specific to the business community consisting of managers, executives, and business employees. Therefore, the Bauer Code reflects principles we believe should govern a student's behavior while a Bauer College major.

Ultimately, Bauer's reputation depends on the actions of its students and graduates. It is our hope that each Bauer College graduate applies these principles within his or her professional and personal lives both during and after college.

http://www.bauer.uh.edu/business-ethics/bauer-code-of-ethics.php

NECESSARY HARDWARE/ SOFTWARE

All assignments will be completed digitally and submitted via Blackboard. The Bauer computer labs are available to complete assignments.

In order to complete some of the assignments and SQL project, you will need access to a computer that meets the following specifications:

PC running Windows Vista, 7 or 8
or
Mac running OS X 10.8, 10.7, or 10.6

Please contact me ASAP if you do not have access to the required hardware so that special arrangements can be made.

REQUESTS FOR ACCOMMODATION

If you anticipate issues related to the format or requirements of this course, please contact me to discuss ways to ensure your full participation in the course. The C. T. Bauer College of Business would like to help students who have disabilities achieve their highest potential. To this end, in order to receive academic accommodations, students must register with the Center for Students with Disabilities (CSD) (telephone 713-743-5400), and present approved accommodation documentation to their instructors in a timely manner.

GOOD LUCK

This course is not easy!

...however, databases are a fundamental part of information systems and modern business. The skills you learn in this class will serve you well if you put in the effort to learn them!