CS 31A | INTRODUCTION TO DATABASE MANAGEMENT SYSTEMS

Course Information

Course Number/Term:	CS 31A – Winter 2019 (01/7/19-03/29/19)
Instructor:	Hanan Ibrahim
Email:	ibrahimhanan@fhda.edu
Course Dates and Times:	TBA
Office Hours:	Mondays 11:00 AM –12:00 PM (Online) On Campus: By appointment - Room 4124
Course Website:	https://foothillcollege.instructure.com
Online MySQL Resources:	MySQL Documentation

Description

Introduction to database design and use of database management systems for applications. Topics include database architecture, comparison to file-based systems, historical data models, conceptual model; integrity constraints and triggers; functional dependencies and normal forms; relational model, algebra, database processing and Structured Query Language (SQL), database access from Applications-Embedded SQL, JDBC, Cursors, Dynamic SQL, Stored Procedures. Emerging trends will be studied, such as NoSQL databases, Internet & Databases and On-Line Analytical Processing (OLAP). A team project that builds a database application for a real-world scenario is an important element of the course.

Advisory

One of the following: C S 1A, 1AH, 2A, 2AH or equivalent.

Student Learning Outcomes (SLOs)

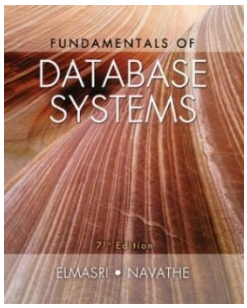
SLO #1 – Create a conceptual database design

SLO #2 – Use Structured Query Language to perform queries on a database

Course Objectives

- Examine the problems with file-based systems and the advantages of the database approach.
- Distinguish between the three levels in the architecture of a typical database management system.
- Practice conceptual database design through entity-relationship(ER), enhanced ER models. Describe models of historical interest such as Network and Hierarchical model.
- Design and model a database application using the relational model. Design by ER and EER to relational mapping.
- Define and apply integrity constraints and triggers; Tune design using functional dependencies and normal forms.
- Use Structured Query Language to perform queries and to perform relational operations.
- Understand emerging database technologies and applications.

Textbook



Fundamentals of Database Systems, 7th Edition
By Ramez Elmasri
Published Date: Jun 8, 2015
ISBN-10: 0-13-397077-9

Please note: I will provide on-line resources on all of the subjects that we cover.

MySQL Software

We will use the freely-available MySQL Database Server to work on programming assignments. Please install the software onto your computer.
You need to be able to use the command line interface as well as a graphical interface to MySQL. Download them through the link below:

MySQL Server: http://dev.mysql.com/downloads/mysql/

We will also learn how to connect to a database using JDBC. You may want to have Eclipse installed, in order to create your java programs. There are installation instructions for the JDBC driver and Eclipse.

Course Structure

This course is delivered entirely online through the course management system Canvas. There is a Foothill website for this course at https://foothillcollege.instructure.com, which is used for turning in assignments, viewing grades, and participating in the forums. In Canvas, you will access online lessons, course materials, and additional resources.

Course Topics

This course includes the following major topics:

- Introduction to Database Systems
- Conceptual Database Design
- Relational Data Model
- Entity-Relationship (E-R) Modeling
- Structured Query Language (SQL) through MySQL
- Relation Database Design
- Normalization techniques
- Database Application Development
- SQL Programming Techniques
- NoSQL databases
- Internet & Databases and On-Line Analytical Processing (OLAP)

Reading Assignments

Weekly reading assignments will be posted on Canvas. You should set aside 4-5 hours to complete each reading assignment.

Programming Assignments

There will be weekly assignments throughout the semester. The SQL assignment due dates are Mondays at 11:59 PM, unless told otherwise. Assignments should be submitted through the Canvas website, and I will return assignment grading reports to the same website. Assignments are listed under "*Assignments*" in Canvas.

Submitting Assignments

Assignments will be in the form of SQL scripts. Scripts should be text only with the *.sql* extension. You will need to label your assignments with your first initial, last name, and the name of the assignment.
Example: *hibrahim_assignment1*. Zip the files to upload to Canvas (hibrahim_assignment1.zip).

Quizzes

There will be bi-weekly quizzes listed under "*Quizzes*" in Canvas containing a series of multiple-choice and short-answer questions to reinforce knowledge of SQL commands and relational database systems. Quizzes are always due on Friday by 11:59 PM. Unlike assignments, late submissions will NOT be accepted for the quizzes

Final Project

This is a comprehensive project that requires and integrates all of the skills you have learned throughout the course. This project focuses on relational databases and SQL; therefore, you will use the MySQL system to complete this project. Each student will design, create, and populate a working database from description requirements provided by the instructor.

Late Policy

There are weekly programming assignments that assigned every Monday and due by the following Monday at 11:59 PM unless specified otherwise.

Programming assignments will be accepted up to four days past the original due date. They will be considered late and will receive a 10% deduction, with no exceptions. For example, if a programming assignment is due on Monday at 11:59 PM, it can be turned in by 11:59 PM on Monday.

I will not accept any assignment that is more than four days late. Plan your time carefully, and do not wait until the last minute to begin an assignment. Starting assignments early allows time for you to ask questions. I will provide feedback and post assignment grades within the week of the due date.

Exams

Midterm Exam: This is an **online** exam scheduled on **Friday, February 22nd, 2019**.

Final Exam: This is an **online** exam scheduled on **Monday, March 25th, 2019**.

These exams will be available for exactly 18 hours, starting 6:00 AM on the due date and closing at midnight. You must take the exams within that 18-hour period.

All exams and quizzes will take place on Canvas.

Make-up Exam Policy: NO MAKE-UP TESTS WILL BE GIVEN. If you know in advance that you are unable to make an exam for a valid and unavoidable reason, you must notify the instructor at least one week before the scheduled exam date to make arrangements for a make-up exam. Failure to follow either of these policies will result in a zero. Appropriate documentation and requisite permission are required for a make-up exam.

Communication Policy

Discussion Forums

Since this is an online course that utilizes discussion forums, it is important for all students to participate in the course promptly actively. The Canvas Forum is the main place for our class discussion. You can ask questions regarding course materials, assignments, and exams on the forum. Students are expected to participate in all graded discussions. Please consider the following general participation expectations:

- Log in regularly and actively participate in the course activities.
- Complete the readings and view other instructional materials for each week before participating in the discussion board.
- Review your posts carefully before submitting them.
- Be respectful of others and their opinions

Think of these forums as our online classroom. The forums on the website are a good way of interacting with other students, exchange thoughts, ask and answer questions as well as take part in the public discussion.

I will check the weekly forums daily and will respond to questions as needed. I also highly encourage students to read and respond to posts from fellow peers.

First Week Required, Afterwards Recommended

You must post an introduction in the first week of class, or you will be dropped as a "no show" according to the college requirements.

Do Not Post Homework Code

Whether you have a question or suggested answer, never post exact homework code to forums. Create a separate small program to display your issue or illustration.

Private Messages

Please use public DT for any question or comment that involves understanding the modules, tests, or assignments. If you have a confidential question (grades or registration), use the Message Tool (MT) by first clicking on Inbox at the far left, then selecting this course and your intended recipient.

Posting Program Code

You can post code to the public discussions that is not directly from your assignment. If you have an assignment question, translate that into a piece of code that does not reveal your answer or submission, exactly.

When posting code fragments (i.e., portions of your program) into questions, make sure these code fragments are perfectly indented and that they are properly formatted.

Grades

Points determine your final grade you earn in the following areas:

Submission	Total Points	Percentage %
Programming Assignments	350	35%
Quizzes	150	15%
Final Project	100	10%
Midterm Exam	200	20%
Final Exam	200	20%
TOTAL	1000	100%

Grading Scale

% of Points	Letter Grade	% of Points	Letter Grade
96 – 100	A+	76 - 79	C+
92 – 95	A	70 - 75	C (pass)
89- 91	A-	60 - 69	D
86 – 88	B+	< 60	F
83- 85	B	Withdraw	W
80- 82	B-		

Important Dates

Friday, Jan. 18: Last day to add 12-week, quarter-length classes.
Sunday, Jan. 20: Last day to drop for a full refund or credit (for 12-weeks, quarter-length classes).
Sunday, Jan. 20: Last day to drop 12-week, quarter-length classes with no record of grade.
Friday, Feb. 1: Last day to request pass/no pass grade.
Friday, March 1: Last day to drop with a "W." Withdraw date is enforced.

Academic Accommodations

If you are registered with DRC and have accommodations set by a DRC counselor, please use Clockwork to send your accommodation letter to your instructor and contact your instructor early in the quarter to review how the accommodations will be applied in the course.

DRC Location: Building 5400, Student Resource Center
Phone: 650-949-7017
On the web: http://www.foothill.edu/drc/
Email: drc@foothill.edu

Instructor Announcements and Q&A Forum

The instructor will post announcements on the "Instructor Announcements" page in Canvas throughout the session. Canvas notifies students according to their preferred Notification Preferences as soon as the instructor creates an Announcement.

Withdrawals and Drops

If you decide to drop the course, you must go on My Portal (or go the Admissions Office yourself) to officially drop from the course, or you may receive a grade of 'F.'

To continue in this class, you must participate weekly in all areas: assignments, quizzes, exams, and discussion.

You do not need a code from me to drop a course; however, I would appreciate hearing from you before you make the decision to drop a course. Often, we can work out a solution to help you stay in the course.

STEM Success Center

When you need help on an assignment, find yourself confused about a concept, or seek to improve your study skills, visit the STEM Center in Room 4213.

Academic Integrity

Plagiarism and cheating are serious offenses and may be punished by failure on exam, assignment, or lab as well as failure in course and expulsion from the college. No form of cheating (academic dishonesty) is tolerated in this course.

Please review the information on academic honesty before starting. Click on "Academic Integrity" at this link: Academic Integrity.

Technical Assistance

For technical help with your online course, contact the Online Learning Student Help Center.

Resources for Students

- Disability Resource Center
- Foothill Online Learning
- Foothill College Library
- Financial Aid