BAX 421 – 002: Data Management

TERM: Fall 2020

INSTRUCTOR: Mehul Rangwala   mrangwala@ucdavis.edu

**INSTRUCTOR
OFFICE HOURS:**   By appointment.

CLASS SCHEDULE:

Date	Timing
Fri 10/2/2020	12:10 PM – 1:50 PM
Fri 10/9/2020	12:10 PM – 1:50 PM
Fri 10/16/2020	12:10 PM – 1:50 PM
Fri 10/23/2020	12:10 PM – 1:50 PM
Fri 10/30/2020	12:10 PM – 1:50 PM
Fri 11/6/2020	12:10 PM – 1:50 PM
Fri 11/13/2020	12:10 PM – 1:50 PM
Fri 11/20/2020	12:10 PM – 1:50 PM
Fri 12/4/2020	12:10 PM – 1:50 PM
Fri 12/11/2020	12:10 PM – 1:50 PM
Fri 12/18/2020 (Final)	12:10 PM – 1:50 PM

**COURSE
DESCRIPTION:**   Introduction to the extraction, assembly, storage and organization
                        of data in IT systems.

PREREQUISITES: None.

**RECOMMENDED
TEXTBOOKS:**   SQL: The Complete Reference, 3rd Edition
                        ISBN-13: 978-0071592550
                        ISBN-10: 0071592555

                        Murach's MySQL, 3rd Edition
                        ISBN 978-1-943872-36-7

**NOTES AND
HANDOUTS:**   They will be made available on Canvas.

**TOPICS
TO BE COVERED:**   A detailed schedule is available on Page 3.

COMPUTER
PACKAGES: MySQL for Relational Databases. You can either use the MySQL
                         command line console or install MySQL Workbench.

                         Neo4j for Graph databases.

CLASS WORK: As a part of class exercises, we will write SQL queries in MySQL
                         and we will use Cypher Query Language to retrieve data from
                         graph databases.

GRADING: Homework (Individual)   30%
                         Midterm Exam   30%
                         Final Exam   40%

Learning Objectives:

1. Understand the fundamentals of database systems and their use in analytics.
2. Learn the concepts of Structured Query Language (SQL) and evaluate how it can be used to retrieve and transform data from relational databases.
3. Learn the fundamentals of NoSQL and evaluate how it can be used to store and extract data from non-relational databases (graph databases).

Academic Honor Code:

All students are expected to adhere to the University of California, Davis' Code of Conduct as noted here: http://sja.ucdavis.edu/files/cac.pdf.

Schedule on the Next Page

Schedule (Tentative): This is a tentative schedule. Contents and sequence are subject to change.

Date	Assignments Due	Topics Covered

Fri, 10/2/2020		• Fundamentals of Database Management System
		• Fundamentals of Database Design
		• SQL Basics – creating simple queries
		   o SELECT statements
		   o DISTINCT, WHERE, ORDER BY clauses
		   o UNION
		   o UNION ALL

Fri, 10/9/2020		• Review of SQL Joins
		   o Inner Joins
		   o Outer joins
		   o Self Joins
		   o Cross Joins

Fri, 10/16/2020	Homework 1	• SQL Aggregate Functions
		   o Summarizing
		   o Grouping
		   o Filtering Grouped data

Fri 10/23/2020		• Subqueries
		   o Subqueries versus Joins
		   o Nested Subqueries
		   o Correlated Subqueries
		   o Temporary tables

Fri 10/30/2020	Homework 2	• Data Wrangling o Using String functions to clean data
Fri 11/6/2020	Midterm Exam (Take Home)	• Performance Tuning SQL Queries o Pivoting Data using SQL
Fri 11/13/2020		• SQL Window Functions 1
Fri 11/20/2020		• SQL Window Functions 2
Fri 12/4/2020	Homework 3	• Introduction to NoSQL o Graph Databases 1
Fri 12/11/2020		o Graph Databases 2
Fri 12/18/2020	Final Exam (during the class time)	

Final exam is comprehensive and during the class time.

UCDAVIS
GRADUATE SCHOOL OF MANAGEMENT

Keeping our community safe and healthy will require patience, consideration and empathy. Welcome back to campus for a unique year. We are in it together and are here for you!

BEFORE YOU ARRIVE AT SAN FRANCISCO CAMPUS

Please assess how you are feeling. **DO NOT COME TO CAMPUS IF YOU ARE NOT FEELING WELL.** Err on the side of caution. Your professors and organization leaders will not penalize you for staying home.

While on campus and in the building, we expect you to follow these guidelines:

- Wear a face covering at all times.
- Maintain social distancing of six feet from other individuals.
- Complete a Daily Symptom Survey (CAS login) prior to arrival. You can complete via a smart phone and is required to be on campus.
- Wash your hands frequently and use sanitizer. There are several hand sanitizer stations located throughout all campus buildings.
- Stay home if you are sick.
- Employees and students must report a COVID-19 diagnosis for themselves or someone with whom they share a residence. To report a positive case or concern, email **reportcovid@ucdavis.edu**. You may also visit the **Campus Reporting** website for more information.

symptomsurvey.ucdavis.edu

As community members enter the San Francisco campus at 200 McAllister or 333 Golden Gate Ave, security will check your ID and that you have completed the screening survey with approved status. Do not come to campus if you are not approved as your health can adversely impact the health of others. There are two entrances to the facilities. UC Davis staff will pre-assign students to utilize the two entry points evenly to minimize the queue. You will need to show government-issued ID or a UC Hastings ID. Please allow plenty of time, as we expect lines. Security will provide a sticker showing your approved status to wear during your entire time on campus.

All guidelines follow **Campus Policy 290-01.** While in the building, please follow the safety signage posted throughout the building. Signage has been placed for your safety. We appreciate your cooperation to keep yourself and others safe. If you have any questions or concerns about COVID Safety procedures and protocol, please contact: **Amy Russel (atrussell@ucdavis.edu)**
MSBA Executive Director
(925) 487-9095 (cell)

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