Database Systems in Business

OMSBA 5145 | 6 credit hours

Spring 2022

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COURSE DESCRIPTION

This course introduces the fundamental concepts of popular database systems, including structured (relational), semi-structured (NoSQL), and unstructured (Big Data) databases and database systems.

The first part of the course is focused on the relational model and SQL queries, using Microsoft's SQL Server for practice and assignments.

The second part of the course dives into the data management concepts of MongoDB and Hadoop, respectively. It provides an opportunity for students to query data structures that are distinctly different than the traditional SQL relational databases. It will also introduce the complexity of Graph databases and allow students to use query features in Power BI, which they'll need for creating visualizations later.

LEARNING OUTCOMES

On successful completion of this course (i.e. by passing this course), you will be able to:

1. Understand corporate data requirements and data management
2. Understand modern database designs and management systems
3. Be proficient in understanding the design and implementation of relational and nonrelational database systems
4. Master SQL to query relational data for decision making
5. Develop a comfort with MongoDB Query Language (MQL) and understand how to build queries that access Document data structures
6. Develop skills in using Power BI's data query (M-language) tools to query a variety of data structures and systemsAble to query and visualize Graph data for network analysis.
7. Understand the complexities and design requirements for unstructured database systems using Hadoop.

TEXTS AND MATERIALS

- *SQL Queries for Mere Mortals, 4/E*, by John Viescas, ISBN-10: 0-13-485833-6; ISBN-13: 978-0-13-485833-3; Publisher: Pearson; Copyright: 2018.
- *MongoDB The Definitive Guide, 3/E,* by Bradshaw, Brazil, & Chodorow, ISBN-978-1-491-95446-1; Publisher: O'Reilly
- *Hadoop Application Architectures, 1/E,* by Grover, Malaska, Seidman, & Shapira, ISBN-978-1-491-90008-6; Publisher: O'Reilly
  - This book is available for free-download from Github at:
  - https://github.com/samadhankadam/Hadoop-Ebook/blob/master/Hadoop%20Application%20Architectures.pdf

COURSE OUTLINE

WEEK	TOPICS
1	Introduction and Overview, DBMS and SQL Overview
2	SQL Basics and filtering
3	SQL Sets and Joins
4	SQL Unions and SubQueries
5	SQL Aggregations and advanced filtering and grouping
6	MidTerm SQL Case statements
7	SQL Modifying Data, Logic, Views, and stored procedures
8	NoSQL Overview, MongoDB (MQL) Basics and Query Operators
9	MongoDB Aggregation and CRUD
10	Power BI, Graph Data Unstructured Data Overview and Hadoop Framework

EVALUATION AND GRADING

Assignment	Percentage
Assignments	40 %
MidTerm Exam	20 %
Data Translation Project	20 %
Final Exam	20 %
Total	100%

Point scale	Letter grade		Point scale	Letter grade
94.0% and higher	A			
90.0% - 93.9%	A-		77.0% - 79.9%	C+
87.0% - 89.9%	B+		74.0% - 76.9%	C
84.0% - 86.9%	B		70.0% - 73.9%	C-
80.0% - 83.9%	B-			

COURSE POLICIES

ATTENDANCE

Attendance in an online course is evidenced by logging into, and being an active participant, in our online course site. Active participation is an essential and intrinsic element of the education process. Absence affects the learning experience and erodes the program's norms for quality. Inactivity in the course may result in a grade reduction at the discretion of the instructor(s).

INTERNET ACCESS

We will use a variety of online applications to communicate and collaborate. As such, you will need a reliable, high-speed Internet connection for the duration of this course. If you are traveling to countries such as China, Vietnam, Saudi Arabia, Iran, Burma, and others, some content in this course may be blocked. Please contact me immediately if you will be traveling to a country that may block Internet access during any portion of this class.

LATE WORK

Assignments must be submitted by the set deadlines. Since professors block out times in their schedules specifically for grading your work, the MBA program faculty

have established a policy of not accepting late work. We also understand, however, how demanding your work and school and life are as well. As such, we do allow late work to be accepted with a 10%/day grade reduction (including weekends). The deduction will be taken from the maximum number of points available on the assignment. Exceptions or extensions or modifications to these penalties may be made only in the event of rare and extenuating circumstances. Every effort should be made to let your professor(s) know about your extenuating circumstances before the assignment is due.

UNIVERSITY RESOURCES & POLICIES

ACADEMIC RESOURCES

- [Library and Learning Commons](#)

  Research Services, Learning Assistance, Writing Center, Math Lab, Media Production Center

- [Academic Integrity](#)

ACADEMIC POLICIES

- [Academic Integrity](#)

- [Academic Grading Grievance Policy](#)

- Support for Students with Disabilities

  If you have, or think you may have, a disability (including an "invisible disability" such as a learning disability, a chronic health problem, or a mental health condition) that interferes with your performance as a student in this class, you are encouraged to arrange support services and/or accommodations through Disabilities Services staff located in Loyola 100, (206) 296-5740. Disability-based adjustments to course expectations can be arranged only through this process.

- Notice Regarding Religious Accommodations

  It is the policy of Seattle University to reasonably accommodate students who, due to the observance of religious holidays, expect to be absent or endure a significant hardship during certain days of their academic course or program. Please see, *Policy on Religious Accommodations for Students*.

- **Office of Institutional Equity**

    Title IX of the Education Amendments of 1972 (Title IX) prohibits discrimination based on sex in educational programs or activities that receive Federal financial assistance. This prohibition includes sexual misconduct, which encompasses sexual harassment and sexual violence. Seattle U remains committed to providing a safe and equitable learning, living, and working environment. Seattle U offers emergency, medical, and other support resources, as well as assistance with safety and support measures, to community members who have experienced or been impacted by sexual misconduct.

    Seattle U requires all faculty and staff to notify the University's Title IX Coordinator if they become aware of any incident of sexual misconduct experienced by a student.

    For more information, please visit https://www.seattleu.edu/equity/. If you have any questions or concerns, you may also directly contact the Title IX Coordinator in the Office of Institutional Equity by email: oie@seattleu.edu or phone: (206) 296-2824.