Northeastern University
College of Engineering

DAMG 6210 Data Management and Database Design

Course Information

Course Title: Data Management and Database Design
Course Number: DAMG 6210
Term and Year: Spring 2024
Credit Hour: 4
Course Format: On-Ground

Course Prerequisites

N/A

Course Description

Studies design of information systems from a data perspective for engineering and business applications; data modeling, including entity-relationship (E-R) and object approaches; user-centric information requirements and data sharing; fundamental concepts of database management systems (DBMS) and their applications; alternative data models, with emphasis on relational design; SQL; data normalization; data-driven application design for personal computer, server-based, enterprise-wide, and Internet databases; and distributed data applications.

This course provides insights from a data perspective for engineering and business applications; data modeling, Relational Algebra, including entity-relationship (E-R) and object approaches; user-centric information requirements and data sharing; fundamental concepts of database management systems (DBMS) and their applications; alternative data models, with emphasis on relational design; SQL; data normalization; data-driven application design for personal computer, server-based, enterprise wide, and Internet databases; SQL Injection and distributed data applications.

At the end of this course student will have through hands on experience on SQL, Dynamic SQL, PL/SQL and Advanced topics.

Standard Learning Outcomes

Learning outcomes common to all College of Engineering Graduate programs:

1. *An ability to identify, formulate, and solve complex engineering problems.*
2. *An ability to explain and apply engineering design principles, as appropriate to the program's educational objectives.*
3. *An ability to produce solutions that meet specified end-user needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.*

The Information Systems Program accepts students of different engineering backgrounds with minimum programming skills and produces first class Information Systems engineers that operate at the intersection of real-world complexity, software development, and IT management. Graduating students will be able to construct end-to-end advanced software applications that meet business needs.

Specific Learning Outcomes for the Information Systems program:

1. *Create a strong technical foundation through diverse, high-level courses*
2. *Built crucial interpersonal skills needed to succeed in any industry*
3. *Foster a deep level of applied learning through project based case studies*

Reference Books

There are no required textbooks for this course. List of books listed here are helpful to understand the topics covered in this course.

Database Systems Design, Implementations and Management
By Carlos Coronel, Steven Morris, Peter Rob.

Database Management Systems
bb Raghu Ramakrishnan, Johannes Gehrke.

Resources for help

Piazza/Slack for communication and help TA's during their office hours

Course Grading

All assignments / mid-term and final examinations, presentations will receive a numerical value. Midterm and Final exam must be taken at the time and location determined by the schedule and announced in class. Grading is based on absolute grading system. You will have about 5 days to get your assignment graded by the TA. Make up exams permitted only for exceptional circumstances in accordance with NEU policy.

Assessment – Tentative	Allocation %
4 Assignments (Theory, SQL and PL/SQL based)	30%
2 Exams (Multiple choice questions)	30%
Project	40%

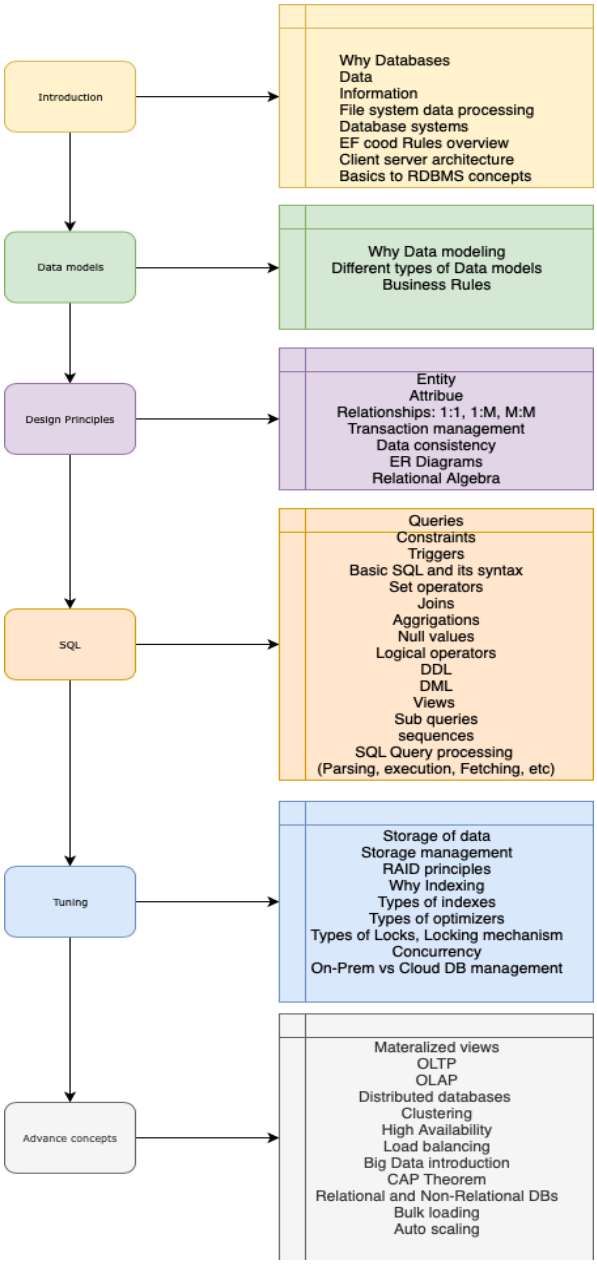
Grades scored %	Grade
94% and 100%	A
90% and < 94%	A-
87% and < 90%	B+
84% and < 87%	B
80% and < 84%	B-
77% and < 80%	C+
74% and < 77%	C
70% and < 74%	C-
0% and < 70%	F

Topics –

Below topics will be covered as part of the course. Oracle cloud database will be utilized for practices. Each student will need to sign up for oracle Autonomous Database and Cloud Infrastructure so in-depth practical experience can be gained on SQL and advanced topics.

Practical demos will be presented for each topic (see below for topics list) so that student can have hands on experience. Assign.

Note: This course doesn't need any prior cloud-based tools, Database's experience.



End-of-Course Evaluation Surveys

Your feedback regarding your educational experience in this class is very important to the College of Professional Studies. Your comments will make a difference in the future planning and presentation of our curriculum.

At the end of this course, please take the time to complete the evaluation survey at **https://neu.evaluationkit.com**. Your survey responses are **completely anonymous and confidential**. For courses 6 weeks in length or shorter, surveys will be open one week prior to the end of the courses; for courses greater than 6 weeks in length, surveys will be open for two weeks. An email will be sent to your HuskyMail account notifying you when surveys are available.

Academic Integrity

Midterm and Final exams are individual effort and collaboration of any kind would be considered violation. For group activities, you are strongly encouraged to work with your group and submissions must be done by each individual. Don't share your code to other teams.

A commitment to the principles of academic integrity is essential to the mission of Northeastern University. The promotion of independent and original scholarship ensures that students derive the most from their educational experience and their pursuit of knowledge. Academic dishonesty violates the most fundamental values of an intellectual community and undermines the achievements of the entire University.

As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, examinations of whatever kind, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Students are responsible for learning the conventions of documentation and acknowledgment of sources in their fields. Northeastern University expects students to complete all examinations, tests, papers, creative projects, and assignments of any kind according to the highest ethical standards, as set forth either explicitly or implicitly in this Code or by the direction of instructors.

Go to http://www.northeastern.edu/osccr/academic-integrity-policy/ to access the full academic integrity policy.

Student Accommodations

Northeastern University and the Disability Resource Center (DRC) are committed to providing disability services that enable students who qualify under Section 504 of the Rehabilitation Act and the Americans with Disabilities Act Amendments Act (ADAAA) to participate fully in the activities of the university. To receive accommodations through the DRC, students must provide appropriate documentation that demonstrates a current substantially limiting disability.

For more information, visit http://www.northeastern.edu/drc/getting-started-with-the-drc/.

Library Services

The Northeastern University Library is at the hub of campus intellectual life. Resources include over 900,000 print volumes, 206,500 e-books, and 70,225 electronic journals.

For more information and for Education specific resources, visit http://subjectguides.lib.neu.edu/edresearch.

24/7 Blackboard Technical Help

For immediate technical support for Blackboard, call 617-373-4357 or emailhelp@northeastern.edu

Within Blackboard, open a support case via the red support button on the right side of the screen, click Create Case

myNortheastern, e-mail, and basic technical support
Visit the Information Technology Services (ITS) Support Portal
Email: help@northeastern.edu
ITS Customer Service Desk: 617-373-4357

Diversity and Inclusion

Northeastern University is committed to equal opportunity, affirmative action, diversity and social justice while building a climate of inclusion on and beyond campus. In the classroom, member of the University community work to cultivate an inclusive environment that denounces discrimination through innovation, collaboration and an awareness of global perspectives on social justice.

Please visit http://www.northeastern.edu/oidi/ for complete information on Diversity and Inclusion

TITLE IX

Title IX of the Education Amendments of 1972 protects individuals from sex or gender-based discrimination, including discrimination based on gender-identity, in educational programs and activities that receive federal financial assistance.

Northeastern's Title IX Policy prohibits Prohibited Offenses, which are defined as sexual harassment, sexual assault, relationship or domestic violence, and stalking. The Title IX Policy applies to the entire community, including male, female, transgender students, faculty and staff.

In case of an emergency, please call 911.

Please visit www.northeastern.edu/titleix for a complete list of reporting options and resources both on- and off-campus.