



DAMG 6210: Data Management and Database Design

Course Information

Course Title: Data Management and Database Design

Course Number: DAMG 6210 -Section 01

Term and Year: Fall 2024[9/4 to 12/14] [Meets WF 11:45-1:25] in [West Village G 104]

Credit Hour: 4

CRN: 14300

Course Format: On Ground

Instructor Information

Full Name: Dimitrios Fotiadis

Email Address: d.fotiadis@northeastern.edu

Office Hours: MWRF 9:30-11:30 in 319L Hayden Hall

Instructor Biography

Dimitrios has a BS and MS in Applied Mathematics & Statistics from Northeastern University, with some graduate courses in Operations Research. Worked in the industry for over 20 years doing intensive work as a Sr. Systems Analyst using the Oracle RDBMS, but kept teaching all along. Was heavily involved in the NEOUG(North East Oracle Users Group), and IOUG(International Oracle Users Group). Presented paper on Normalization Theory(DR EF Codd), in Oracle User Group Conferences around the country. Have been teaching courses in Algebra, Calculus, Probability & Statistics, Analytics, Data Mining and Databases. Created the first ever course in Data Mining at the D'Amore McKim School of Business at NU. Have been teaching for over 40 years, and love doing it. His passion is dealing with collecting, analyzing, reporting and maintaining data. He has been involved with the whole SDLC(System Development Life Cycle). He helped create many "systems" in the private sector and lead teams of developers responsible for these "systems". As the advisor of the Business Analytics club at the DMSB, Dimitrios invited guest speakers from around the country. One such speaker was the VP of Analytics for the Boston Red Sox.

Teaching Assistant Information

Full Name: Prajwal Verma

Email Address: verma.proj@northeastern.edu

Office Hours: TBD

Course Prerequisites

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; data normalization; data-driven application design for personal computer, server based, enterprise wide, and internet databases; and distributed data applications.

Course Learning Outcomes

- 1) Understand Data Modeling Principles: Students will be proficient in data modeling techniques, including entity-relationship (E-R) and object-oriented approaches, to design effective information systems for engineering and business applications.
- 2) Master Relational Database Concepts: Students will gain a comprehensive understanding of fundamental concepts of relational database management systems (DBMS), relational algebra, SQL, and data normalization; and be able to apply these concepts to design and implement relational databases.
- 3) Design Data-Driven Applications: Students will be equipped with the skills to design data-driven applications tailored to various computing environments, including personal computer, server-based, and Internet databases.

Required Tools and Course Textbooks.

Jeffrey A. Hoffer, Ramesh, Heiki Topi
 Modern Data Base Management, 13th Editio,
 Pearson
 ISBN-13: 978-0134773650

Sanjay Mishra & Alan Beaulieu
 Mastering Oracle SQL
 O'Reilly, 2nd edition
 ISBD: 978-0-596-00632-7

Software : Oracle 21c(21.3)
 SQLDeveloper
 E/R design tool
 Does not run natively on Macs., but there are a number of options.
 Directions will be provided via Canvas announcements

Course Schedule/Topics Covered. (HRT= Hoffer, Rameash, Topi),(SA=Sanjay, Alan)

- RQ : Review Questions,
- PE : Problems and Exercises,
- Proj : Project
- PQ : Practice Question
- FAME : "Forondo Artist Management Excellence Inc" Case. Cases are found at the end of the chapters
- PVFC : "Pine Valley Furniture Company" Case

WEEK	M	D	Deliverables(To be e-submitted) (All Projects and PQs are from HRT, unless otherwise indicated.)	Topics	Readings
1	1	W:9/4	Proj 1: FAME - ch1 ----- Ch1: RQ:1,2,3,10,12,16,18 PE: 1,3,8,14,15,22 ----- Due 9/13	General Database Purpose and Development History	HRT:Ch1:"The Database Environment and Development Process"
1	2	F:9/6	Create tables, some basic	Lab:	SA:Chapters 1-3

			SQL, PKs,FKs		
2	3	W:9/11	Proj2: FAME case - Graded ----- PQs: 5.97 to 5.100(HRT) Due 9/20	SQL	Chapter 5 Introduction to SQL(HRT)
2	4	F:9/13	Create tables, Basic SQL,PKs,FKs	Lab	Chapters 3-5(SA),9 Joins
3	5	W:9/18	PQs: Ch5	SQL	Chapter 5 "Introduction to SQL"(HRT)
3	6	F:9/20		Lab	SA-Chapters 3-5
4	7	W: 9/25	Proj 3: FAME 6.88(HRT 12e). Chapter 6: PQs Due 10/4	SQL	Chapter 6 "Advanced SQL" (HRT)
4	8	F:9/27		Lab	SA: Ch6 temporal Data
5	9	W:10/2	Cont...	SQL	Chapter 6 "Advanced SQL" (HRT)
5	10	F:10/4	Cont...	Lab	SA: Ch7 . SEToperations
6	11	W:10/9	Proj 4: FAME : PQs: 2.59 to 2.62 Due 10/18	Modeling	Chapter 2 – "Modeling Data in the Organization": (HRT)
6	12	F:10/11		Lab	SA: Ch 8-Hierarchical Queries
7	13	W:10/16		Modeling	Chapter 2 – "Modeling Data in the Organization": (HRT)
7	14	F:10/18		Lab	SA:
8	15	W:10/23	Midterm	Midterm	Midterm HRT:Ch 1,2,5,6 SA :Ch 1-5
8	16	F:10/25	Catch up		Catch up

9	17	W:10/30	Project 5:Problem 3.33 PQs : Due : 11/8	Modeling	HRT: Chapter 3 “The Enhanced E-R Model”
9	18	F:11/1	Lab:	Lab	SA:
10	19	W:11/6	Ch3:	Modeling	HRT: Chapter 3 “The Enhanced E-R Model”
10	20	F:11/8		Lab	SA:
11	21	W:11/13	Proj6: FAME PQs: Due 11/22	Logical Design	Chapter 4 “Logical database Design and the Relational Model”- HRT
11	22	F:11/15	Lab:	Lab	SA:
12	23	W:11/20	Ch4	Logical Design	Chapter 4 “Logical database Design and the Rel. Model”- HRT
12	24	F:11/22	Lab	Lab	
13	25	W:12/4	Proj7-Ch 8:PVFC Probs 8.65-8.68		Chapter 8 “Physical Database Design” HRT
13	26	F:12/6		Lab	
14	27	W:12/11	Finals		
14	28	F: 12/14	Finals		

Assignment Grading

Please insert all assignment grades and weights for the course. Example below:

- Attendance/Participation 10%
- Projects 20%

- Homeworks 10%
- Midterm Exam 20%
- Final Exam 40%

Grading Scale

95-100% A	87-89.9% B+	77-79.9% C+	69.9% or below F
	84-86.9% B	74-76.9% C	
90-94.9% A-	80-83.9% B-	70-73.9% C-	

Attendance/Late Work Policy

Attendance Policy

Students registered in MGEN courses (INFO, CSYE, and DAMG) are allowed **a maximum of 2 absences per course, with 3 or more absences resulting in an automatic 'F' for that course.** Students are expected to inform their instructors of any absences in advance of the class; if a student is sick long-term or experiences a medical issue that prevents class attendance, it is strongly encouraged that they speak with their Academic Advisor (coe-mgen-gradadvising@northeastern.edu) to learn more about the Medical Leave of Absence. Should a student anticipate being unable to attend 3 or more classes, they should discuss their situation with their Academic Advisor to explore other types of leave in accordance with the University's academic and global entry expectations. International students should review the Office of Global Services webpage to understand their visa compliance requirements.

Teaching Assistants (TAs) or Instructional Assistants (IAs) will be present at each class to collect student attendance.

Late Work Policy

Students must submit assignments by the deadline in the time zone noted in the syllabus. Students must communicate with the faculty prior to the deadline if they anticipate work will be submitted late. Work submitted late without prior communication with faculty will not be graded.

End-of-Course Evaluation Surveys

Your feedback regarding your educational experience in this class is particularly important to the College of Engineering. 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 Northeastern University Mail account notifying you when surveys are available.

Academic Integrity

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.

MGEN Student Feedback

Students who would like to provide the MGEN unit with anonymous feedback on this particular course, Teaching Assistants, Instructional Assistants, professors, or to provide general feedback regarding their program, may do so using this survey: https://neu.co1.qualtrics.com/jfe/form/SV_cTIAbH7ZRaaaw0Ki

University Health and Counseling Services

As a student enrolled in this course, you are fully responsible for assignments, work, and course materials as outlined in this syllabus and in the classroom. Over the course of the semester if you experience any health issues, please contact UHCS.

For more information, visit <https://www.northeastern.edu/uhrs>.

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 <https://drc.sites.northeastern.edu>.

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 <https://library.northeastern.edu>
Network Campus Library Services: [Northeastern University Library Global Campus Portals](#)

24/7 Canvas Technical Help

For immediate technical support for Canvas, call 617-373-4357 or email help@northeastern.edu

Canvas Student Resources: <https://canvas.northeastern.edu/student-resources/>

For assistance with my Northeastern e-mail, and basic technical support:

Visit ITS at <https://its.northeastern.edu>

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, members 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 <https://www.northeastern.edu/ouec> for a complete list of reporting options and resources both on- and off-campus.