Northeastern University
Khoury College of Computer Sciences

CS 3200 - Introduction to Databases - Fall 2024

Course Overview

Data is everywhere! This course will introduce you to relational database management systems (RDBMS). We will study the foundations of the relational model, design of a relational database, SQL, use of a modern RDBMS, and more advanced topics as time permits. Prerequisites for this course are CS2500 or DS 2000 or EECE 2560.

Course Section

Section 2 MWR 1:35 - 2:40 pm - Blackman Auditorium - Ell Hall

Instructional Team

Professor:

Mark Fontenot, PhD m.fontenot@northeastern.edu
Office: Meserve Hall 353
Office Hours: MW 3 - 4:30pm
If the above times do not work for you, please reach out via Slack and we can schedule a better time.

Teaching Assistants:

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Learning Outcomes

1. Design a relational database model
2. Write simple and complex CRUD SQL against a database model
3. Access and query a database from a programming language (such as Python or Java)
4. Perform a conceptual modeling and logical modeling for a stated scenario
5. Build a simple CRUD application using a RDBMS in the back-end

Class Webpage: https://markfontenot.net/teaching/cs3200/cs3200-fall-2024/

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Communication and HW Submission Platforms

Join Slack: https://join.slack.com/t/fontenotsclasses/signup

- Use your Northeastern Email
- Join the **#24f-cs3200** channel after joining the Slack Organization.

Join CampusWire: https://campuswire.com/p/GE200C637

- Use your Northeastern Email address to register
- You will be prompted for a code during the process. It is in a pinned message in the #24f-cs3200 Slack channel

Join GradeScope:

- https://gradescope.com
- Log in and add a new class OR Create an Account with your NU email address
- You'll be prompted for the *Course Entry Code* at some point. The code is in a pinned message in the #24f-cs3200 Slack channel

Textbook

Through the Northeastern Library, you have free access to the O'Reilly for Higher Education service, which hosts thousands of modern professional texts on countless technical topics. You can gain initial access to this resource by following > this < link. When creating your account on O'Reilly, you must use your Northeastern email address. Once you've created your account, you can search for the **CS 3200 - References** playlist, also available through > this < link.

Evaluation

The relative weights of the various assessment types is given below:

- Homeworks: 35%
- Exams: 35%
- Semester Project: 30%

Final Grade Scale Mapping:

- A 93 - 100
- A- 90 - <93
- B+ 87 - <90
- B 83 - <87
- B- 80 - <83
- C+ 77 - <80
- C 73 - <77
- C- 70 - <73
- D+ 67 - <70
- D 63 - <67
- D- 60 - <63
- F <60

Homework Assignments:

- All homework assignments will be posted on the class webpage.
- Submission details will be contained within the assignment itself. Homework assignments will be submitted via GradeScope. No assignments will be accepted by means other than what is indicated in the assignment (not accepted via email, slack, etc.).
- When submitting your assignments via GradeScope, **it is your responsibility to properly complete the submission process by associating each question of the assignment with the specific part of the PDF that contains your solution** for assignments where you submit a PDF. Failure to do this will result in a grade of 0 on the assignment.

Submission Deadlines:

- Rather than pen`alize late submissions, I prefer to incentivize early submissions. You can earn an extra 3% on each homework assignment that is submitted 48 hours **BEFORE** the stated deadline. (This does not apply to project submissions)
- No late submission of assignments will be accepted, except…
    - In recognition of "life happens", everyone gets ***one free 48 hour extension***, ***no questions asked*** on **one** homework assignment. (This,too, cannot be used on any course project deliverables or exams.)
    - It is your responsibility to let Dr Fontenot know that you want to use your free extension on a particular assignment **BEFORE** the original due date. A late submission option has to be entered in GradeScope for you to be able to submit.

Project:

There will be a team project in the 2nd half of the semester. It will be an opportunity for you to explore database systems beyond what is covered in class. More information on the project will be released later in the semester.

Exams:

- There will be 2 exams during the semester. The dates are in the semester overview at the end of this syllabus.
- Neither exam is officially cumulative. However, you will need to remember some of the Exam 1 material for Exam 2.
- If you need to miss an exam for any reason, you must contact Dr. Fontenot **before the exam**. When a make-up exam is warranted, it may contain different questions and/or take a different form than the exam originally administered in class at the sole discretion of Dr. Fontenot.

There is NO FINAL EXAM during the finals week for this course.

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Academic Conduct and Integrity

Submitting work that is not your own is **wrong**. Facilitating someone else in submitting work that is not their own is **wrong**. Unless expressly stated otherwise in an official course document or handout, I expect that all work you submit to be your own. You may not share any source code files, queries, other code, design documents, homework solutions, quiz or exam answers, etc. "Sharing" includes allowing (either actively or passively) someone access to your computer or to look at your screen where solutions might be displayed.

You must understand *everything* you submit for any assignment. For any submission, you should be prepared to explain it in detail to me in-person.

I take academic integrity very seriously. **The penalty for any act of cheating or academic dishonesty will be a failing grade in the course and submission of the matter to OSCCR**. I reserve the right to impose a less severe penalty at my sole discretion. Any penalties that OSCCR imposes will be separate from the course penalties.

Classroom Environment

Northeastern University values the diversity of our students, staff, and faculty, recognizing the important contribution each makes to our unique community.

Respect is expected at all times throughout this course. In the classroom, it is expected that everyone is treated with dignity and respect. We realize everyone comes from a different background with different experiences and abilities. Our knowledge will always be used to better everyone in the class.

We strive to create a learning environment that is welcoming to students of all backgrounds. If you feel unwelcome for any reason, please let me or a TA know so we can work to make things better. If you feel uncomfortable talking to members of the teaching staff, please consider reaching out to your academic advisor.

Northeastern is committed to providing equal access and support to all qualified students through the provision of reasonable accommodations so that each student may fully participate in the learning experience. If you have a disability that requires accommodations, please contact the Disability Access Services (DAS)

- https://disabilityaccessservices.sites.northeastern.edu/
- DASBoston@northeastern.edu
- 617-353-2675

Accommodations cannot be made retroactively and to receive an accommodation, a letter from DAS or LDP is required.

Schedule of Topics (Tentative):

Unless otherwise stated on the handout, all homework assignments will be due on Tuesdays at 11:59pm EST of the week listed.

Week:	**Topics:**	**Assignments:**
Week 1 (Sep 4 & 5)	Administrivia & the DB Landscape The Relational Model	Mini HW 00 Out HW 01 Out
Week 2 (Sep 9 - 13)	Relational Algebra	Mini HW 00 In
Week 3 (Sep 16 - 20)	SQL I	HW 01 In; HW 02 Out
Week 4 (Sep 23 - 27)	SQL II	
Week 5 (Sep 30 - Oct 4)	SQL III	HW 02 In; HW 03 Out
Week 6 (Oct 7 - 11)	Advanced SQL Wed - Exam 1 Review **Thursday (Oct 10) - Exam 1**	
Week 7 (Oct 14 - 18)	*Monday - No Class (Indigenous Peoples Day)* DB Modeling I	HW 03 In; HW 04 Out
Week 8 (Oct 21 - 25)	DB Modeling II	
Week 9 (Oct 28 - Nov 1)	ER Model -> Relational Model Physical Modeling	HW 04 In; HW 05 Out
Week 10 (Nov 4 - 8)	>> Project Kickoff << Technical Background for the Project Databases in Software	
Week 11 (Nov 11 - 15)	*Monday - No Class (Veteran's Day)* Introduction to Normalization DB Performance	HW 05 In; HW 06 Out
Week 12 (Nov 18 - 22)	Generating Test Data Exam 2 Review Wednesday **Thursday (Nov 21) - Exam 2**	
Week 13 (Nov 25 - 29)	Project Topics *No Class on Wed or Thursday for Fall Break*	HW 06 In
Week 14 (Dec 2 & 4)	Project Work	Course Project Due Dec 4 11:59pm

More information about the course project will be available later in the semester.