

Contact information

Ryan Marcus

ryan@cs.brandeis.edu

Volen 110 (Ph.D. student offices)

Office hours: Wednesday, 5pm (in Volen 110 or Vertica Lounge)

Course description

This course will focus on relational database management systems. The first half of the course will cover the skills required to *use* a modern SQL database, including mathematical fundamentals, hands-on practice writing queries, and designing schemas. The second half of the course will focus on the techniques and ideas used to *build* modern SQL databases, including underlying storage technologies and algorithms.

Prerequisites

It is highly recommended that students complete COSI 12b and **at least one of** discrete math or data structures before taking this course. Students who do not meet this requirement, but still wish to take this course, should email me personally, and should expect to spend a **significantly higher** amount of time on this course than usual.

Topics covered

Relational algebra, SQL, schema design with ERDs, functional dependencies, physical storage, join processing, transaction processing, and (time permitting) advanced topics.

Coursework

This course will consist of three written assignments, three programming assignments, in-class activities, and a final exam. Their weight with respect to the course total are given below.

Item	Worth
Written homework assignments	20%
Programming assignments	35%
In-class participation	15%
Final exam	30%

Late policy

Students will be required to choose between two late policies. This choice must be made by each student (on LATTE) before January 21st.

- **Policy 1:** three (3) additional days at no penalty, then a zero. You may submit any homework assignment up to 72 hours late with no penalty. After 72 hours, 0 minutes, and 0 seconds, your assignment will receive a score of zero (although we will still grade the assignment, if you would like).
- **Policy 2:** turn in any assignment up until the last (teaching) day of the semester at a 25% penalty. If an assignment is submitted prior to the deadline, it is graded normally (no penalty). Any assignment submitted even a second after the deadline will be graded and given a 25% penalty (your grade as a percentage minus 25 percent). Assignments may be submitted up until May 2nd at 11:55PM with this penalty.

Note that there will be **no make-up opportunities for missed in-class assignments**. There will be many in-class assignments, so students who miss a few classes need not worry about the impact on their grade, but students who plan on missing a significant number of classes should be aware.

Academic integrity

You are expected to be honest in all of your academic work. Please consult Brandeis University Rights and Responsibilities for all policies and procedures related to academic integrity. Students may be required to submit work to various pieces of software to verify originality. Allegations of alleged academic dishonesty will be forwarded to the Director of Academic Integrity. Sanctions for academic dishonesty can include failing grades and/or suspension from the university.

Privacy

This class requires the use of tools that may disclose your coursework and identity to parties outside the class. To protect your privacy you may choose to use a pseudonym/alias rather than your name in submitting such work. You must share the pseudonym/alias with me and any teaching assistants as needed. Alternatively, with prior consultation, you may submit such work directly to me.

Communication

Communication for this course will happen through two channels: first, the LATTE “course announcements” forum, which, unless you have disabled it, will send you an email whenever there is a new posting. Second, the class “Slack” channel, which you will be able to join after the first day of class.

Course materials

No textbook is required for this course. However, you may find one useful for reference. I will recommend a few during the first lecture. Students should also ensure they have access to the CS departmental computers (i.e., a COSI account). While most students already have a CS account, other students should email guru@cs.brandeis.edu as soon as possible to have an account created.