

Database Management

CS579 A1, Spring 2024

- **Course Format:** On Campus
- **Time and Location:** Thursday 6:00 – 8:45 PM, SOC B63
- **Instructor:** Jae Young Lee
- **Office:** Room 303, 1010 Commonwealth Ave.
- **Phone:** 617-358-5165, **E-mail:** jaeylee@bu.edu
- **Office Hours:**
 - 3 – 4 PM Tuesday and Thursday, and by appointment
 - Can meet me in person (in my office) or via zoom
 - No office hours during the final exam period
- **Course Objectives**

The goal of this course is to study basic concepts of database systems with emphasis on relational databases. The topics include:

 - Entity-relationship model
 - Relational data model
 - SQL DML and DDL
 - Relational algebra
 - Database design for relational databases
 - Functional dependencies and normalization
 - Indexes, stored procedures, and triggers
 - Introductory topics: Introduction to query processing and transaction management
 - If time allows, we will also briefly discuss how to access MySQL database from a Python program.
- **Prerequisites:** MET CS231 or MET CS232 or instructor's consent
- **Text:** R. Elmasri and S.B. Navathe, “Fundamentals of Database Systems,” 7th Ed., 2016, Addison Wesley
- **Courseware:** BU Blackboard (onlinecampus.bu.edu)
- **References:** Our textbook is comprehensive. There are also many good database books, and any book which you think would best suit your style should be OK as a reference. A book on SQL will be also helpful.
- **Grading:**
 - Midterm: 25%, Final: 35%
 - Homework: 20%
 - Class Project: 20%
- **Letter Grade:**

$90 \leq G < 94$: A-	$94 \leq G$: A,	
$80 \leq G < 83$: B-	$83 \leq G < 87$: B	$87 \leq G < 90$: B+

$70 \leq G < 73$: C- $73 \leq G < 77$: C $77 \leq G < 80$: C+
 $60 \leq G < 70$: D
 $G < 60$: F

Note: Course grades will not be automatically rounded up. For example, a course grade of 93.9 will receive a letter grade A-, not A.

- **Assignment**
 - There will be total 11 assignments – 7 homework assignments and 4 lab assignments (the number of assignments is subject to change according to the actual progress of the class).
 - Solutions will be discussed in the class.
- **Class Project:** This is a design and implementation of a database. The project will be assigned as 4 lab assignments, which follow typical database design process. Details will be discussed in the class.
- **Exam:** Both the midterm and the final exams are in-class, paper-based exams.
- **Academic Integrity Policy**
 - Cheating and plagiarism will not be tolerated in any Metropolitan College course. They will result in no credit for the assignment or examination and may lead to disciplinary actions.
 - Please take the time to review the Student Academic Conduct Code: http://www.bu.edu/met/metropolitan_college_people/student/resources/conduct/ode.html.
 - This should not be understood as a discouragement for discussing the material or your particular approach to a problem with other students in the class. On the contrary – you should share your thoughts, questions and solutions. Naturally, if you choose to work in a group, you will be expected to come up with more than one and highly original solutions rather than the same mistakes.
- **Attendance and Absence:** Attendance is not required but strongly encouraged. If a student misses a class it is his/her responsibility to study the material discussed during the missed class.
- **Late Policy**
 - All assignments are due at the beginning of the class on the due date.
 - If you submit an assignment late, there will be a late submission penalty of 10% per day.
 - If you obtain a permission from the instructor or the TA **in advance**, the penalty may be waived.
- **Make-up Exam**
 - A make-up examination for the midterm can be arranged, but only if a student has an emergency (e.g., a medical emergency or an urgent family matter). Students may need to provide the instructor with an appropriate document (such as a letter from a physician).
 - There will be **no make-up exam for the final exam**. If a student cannot take the final exam on the designated day, she/he will receive an incomplete grade.

Tentative Schedule

- The schedule is subject to change according to the actual progress of the class.
- Students are strongly encouraged to read book chapters assigned for each lecture before coming to the class.

Week	Date	Lecture	Reading Assignment (Book chapters)	Assignment
1	1/18	Basic concepts	1, 2	H1
2	1/25	Conceptual design with ER	3	H2
3	2/1	ER, EER	3, 4	Lab 1
4	2/8	Relational data model, Logical design	5, 9	H3
5	2/15	SQL	6	Lab 2
6	2/22	SQL	6,7	
7	2/29	Midterm		
8	3/7	SQL, Relational algebra	7,8	H4
9	3/14	No class		Lab 3
10	3/21	Normalization	14	H5
11	3/28	Indexes	17	H6
12	4/4	Indexes, Stored programs	17, Note	
13	4/11	Stored programs	Note	Lab 4
14	4/18	Query optimization, Transaction Processing	19.1 20.1, 20.2, 20.3, 20.6	H7
15	4/25	Other topics		
16	TBD	Final Exam		

- **Email communication:**
 - When it is necessary to communicate to you, I will send an email to your BU email account. So, you need to check your BU email regularly, at least once a day.
 - When you send an email to me, include "CS579 A1" in the subject of your email.