Database Management CS579 A1, Fall 2024

- **Course Format**: On Campus
- Time and Location: Tuesday 6:00 8:45 PM, BRB 122
- Instructor: Jae Young Lee
- Office: Room 303, 1010 Commonwealth Ave.
- **Phone**: 617-358-5165, **E-mail**: jaeylee@bu.edu
- Office Hours:
 - \circ 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 week (12/16 12/20)

• 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 connect to MySQL 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:

 $\begin{array}{ll} 90 \leq G < 94; \, A \text{-} & 94 \leq G; \, A, \\ 80 \leq G < 83; \, B \text{-} & 83 \leq G < 87; \, B & 87 \leq G < 90; \, B \text{+} \\ \end{array}$

 $\begin{array}{ll} 70 \leq G < 73 \colon C - & 73 \leq G < 77 \colon C & 77 \leq G < 80 \colon C + \\ 60 \leq G < 70 \colon D & \\ G < 60 \colon F & \end{array}$

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 12 assignments 8 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: <u>http://www.bu.edu/met/metropolitan_college_people/student/resources/conduct/code.html</u>.
 - 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 in advance, the penalty will 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	9/3	Basic concepts	1,2	H1
2	9/10	Conceptual design with ER	3	H2
3	9/17	ER, EER	3, 4	Lab 1
4	9/24	Relational data model	5	H3
5	10/1	Logical design, SQL	9	H4
6	10/8	SQL	6	Lab 2
7	10/15	No class		
8	10/22	Midterm		
9	10/29	SQL	6,7	Н5
10	11/5	SQL, Relational algebra	7, 8	Lab 3
11	11/12	Normalization	14	H6
12	11/19	Indexes	17	H7
13	11/26	Stored programs	Note	Lab 4
14	12/3	Query optimization,	19.1	H8
		Transaction Processing	20.1, 20.2, 20.3, 20.6	
15	12/10	Other topic		
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.