Database Management
CS579 Summer 2020

- **Course Format**: Online
- **Time and Location**: Wednesdays 6:00 – 9:30pm

- **Instructor**: John Russo
- **Phone**: 978-618-3917 (Cell),Skype: jrusso440 **E-mail**: jrusso44@bu.edu
- **Office Hours**: by arrangement
- **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
    - Survey of NoSQL databases
  - Other topics, if time allows

- **Prerequisites**: MET CS231 or MET CS232 or MET CS331 or instructor's consent

- **Texts**: Hoffer, Ramesh and Topi. Essentials of Modem Database Management, Prentice-Hall, 2013 ISBN: 9780133405682

  J. Russo, SQL By Example, 2018, Momentum Press ISBN: 9781945612626

- **Courseware**: Blackboard Learn, URL: https://lms.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.

- **Grading**:
  - Midterm: 25%, Final: 25%
  - Homework: 15%
  - Class Project: 35%

- **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

- **Assignment**
  - There will be five homework assignments (the number of assignments may vary according to the actual progress of the class).
  - Solutions will be discussed in the class when graded papers are returned.

- **Class Project**: This is a design and implementation of a database. The project follows a typical database design process and consists of four parts. Details will be discussed in the class. You will be expected to present your project to the entire class.

- **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/code.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 catch up with the material discussed during the missed class. All Zoom classes will be recorded.

Late Policy

- All assignments are due at the beginning of the class on the due date.
- A late homework is subject to a penalty of 10% per day. An exception may be made if a student is in an unusual/urgent situation and obtains permission from the instructor before the due date.

Tentative Schedule

- The schedule may be adjusted 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)	Project Assignment
1	5/20	Basic Concepts, Conceptual Design with ERD	Hoffer Chapters 1 and 2	
2	5/27	EERD, Relational Data Model	Hoffer Chapters 3 and 4	Part 1
3	6/3	Logical Design	Hoffer Chapter 4	
4	6/10	Normalization, Relational Algebra	Handout, Hoffer Chapter 4	Part 2
5	6/17	Relational Algebra, SQL	Handout, Russo 1,2, Hoffer Chpt 6	
6	6/24	SQL	Russo 3,4, Hoffer Chpt 6	Part 3
	7/1	No class (4th of July break)		
7	7/8	SQL Wrap-up Physical Design	Russo 5-7, Hoffer Chpt 7	
8	7/15	Physical Design, Indexes Query Design	Hoffer Chpt 5	
9	7/22	Stored Procedures and Triggers	Handout	
10	7/29	Intro to query processing, Intro to transaction management Survey of NoSQL		Part 4
11	8/5	Data Warehousing Big Data	Handout, Hoffer Chpt 9	
12	8/12	Project Presentations		

- **Communication**
  - All official announcements will be made on Blackboard.
  - All assignments will be posted on the class web page. Please keep an eye on the calendar in Blackboard as well.
  - **Important:** The primary method of communication is through Blackboard announcements. I will also maintain a Slack channel for communication as well.
  - **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 (e.g., once a day).