**COURSE SYLLABUS**

**BOROUGH OF MANHATTAN COMMUNITY COLLEGE**

The City University of New York

Department of Computer Information Systems

**CIS 495 – Database Systems II** **Credits:** 3

**Class Hours:** 2

**Fall 2020** **Laboratory Hours:** 3

**Instructor Information (Phone#, Office#, email)**

**Course Description:**

This is an advanced course on database management systems that builds upon the concepts covered in CIS 395 and provides in-depth understanding of the design, implementation and administration of database systems. It starts with review of relational model, E-R modeling, normalization and basic SQL. Then, it discusses topics including index structure and data storage, query processing and optimization, transaction processing, concurrency control and recovery, database administration, and security. In the application level, SQL programming, stored procedure, triggers, and Web-based database integration are also discussed. Students implement a major database application project, which includes processes of system requirement, design, architecture, implementation, installation, and server administration.

**Basic skills:** ENG 095; ESL 095; ACR 095

**Prerequisites:** CIS395 or departmental approval.

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| --- | --- |
| **Course Student Learning Outcomes** | **Measurements** |
| Create advanced SQL statements | Homework, exam questions |
| Generate E-R Diagrams and implement resulting databases | Homework and term project |
| Demonstrate data normalization | Homework, exam questions and term project |
| Construct and implement stored procedures and functions | Homework, exam questions and term project |
| Implement triggers enforcing referential integrity | Homework and term project |
| Describe the different transaction modes | Homework |
|  |  |
| **General Education Learning Outcomes** | **Measurements** |
| **Communication Skills-** Students will be able to write, read, listen and speak critically and effectively. | Term project documentation |
| **Quantitative Reasoning-** Students will be able to use quantitative skills and the concepts and methods of mathematics to solve problems. | Solve problems in computer representations of data, arithmetic and conversions among different radixes**.** |
| **Information & Technology Literacy-** Students will be able to collect, evaluate and interpret information and effectively use information technologies. | Use of software development environment to implement programs. |

**Suggested Reading:**

Title: Database Systems: A practical Approach to Design, Implementation and Management, 5th Edition

Author: Thomas Connolly and Carolyn Begg

Publisher: Addison Wesley, 2005

ISBN-10: 0-321-52306-7

ISBN-13: 978-0-32-15230-68

**Other Resources:** Flash drives are recommended.

**Evaluation & Requirements of Students:**

Midterm Exam 25%

Final Exam 30%

Project 35%

Homework/Quizzes 10%

Total 100%

**Outline of Topics:**

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| --- | --- |
| **Week** | **Topic** |
| Week 1 | Review and introduction to MySQL Workbench IDE |
| Week 2 |
| Week 3 | Extract Transform and Load (ETL) process |
| Week 4 | Subqueries and advanced queries |
| Week 5 | Entity Relationship Diagrams and data modelling |
| Week 6 |
| Week 7 | Normalization |
| Week 8 |
| Week 9 | **Review and Midterm** |
| Week 10 | Views |
| Week 11 | Stored Procedures |
| Week 12 | Functions |
| Week 13 | Triggers |
| Week 14 | Transactions |
| Week 15 | **Final Exam** |

**Class Participation**

Participation in the academic activity of each course is a significant component of the learning process and plays a major role in determining overall student academic achievement. Academic activities may include, but are not limited to, attending class, submitting assignments, engaging in in-class or online activities, taking exams, and/or participating in group work. Each instructor has the right to establish their own class participation policy, and it is each student’s responsibility to be familiar with and follow the participation policies for each course.

BMCC is committed to the health and well‐being of all students. It is common for everyone to seek assistance at some point in their life, and there are free and confidential services on campus that can help.

**Single Stop** www.bmcc.cuny.edu/singlestop, room S230, 212‐220‐8195. If you are having problems with food or housing insecurity, finances, health insurance or anything else that might get in the way of your studies at BMCC, come by the Single Stop Office for advice and assistance. Assistance is also available through the Office of Student Affairs, S350, 212‐220‐ 8130.

**Counseling Center** www.bmcc.cuny.edu/counseling, room S343, 212‐220‐8140. Counselors assist students in addressing psychological and adjustment issues (i.e., depression, anxiety, and relationships) and can help with stress, time management and more. Counselors are available for walk‐in visits.

**Office of Compliance and Diversity** www.bmcc cuny.edu/aac, room S701, 212-220-1236. BMCC is committed to promoting a diverse and inclusive learning environment free of unlawful discrimination/harassment, including sexual harassment, where all students are treated fairly. For information about BMCC's policies and resources, or to request additional assistance in this area, please visit or call the office, or email olevy@bmcc.cuny.edu, or twade@bmcc.cuny.edu. If you need immediate assistance, please contact BMCC Public safety at 212-220-8080.

**Office of Accessibility** www.bmcc.cuny.edu/accessibility, room N360 (accessible entrance: 77 Harrison Street), 212-220-8180. This office collaborates with students who have documented disabilities, to coordinate support services, reasonable accommodations, and programs that enable equal access to education and college life. To request an accommodation due to a documented disability, please visit or call the office.

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Plagiarism is the presentation of someone else’s ideas, words or artistic, scientific, or technical work as one’s own creation. Using the idea or work of another is permissible only when the original author is identified. Paraphrasing and summarizing, as well as direct quotations, require citations to the original source. Plagiarism may be intentional or unintentional. Lack of dishonest intent does not necessarily absolve a student of responsibility for plagiarism. Students who are unsure how and when to provide documentation are advised to consult with their instructors. The library has guides designed to help students to appropriately identify a cited work. The full policy can be found on BMCC’s Web site, www.bmcc.cuny.edu. For further information on integrity and behavior, please consult the college bulletin (also available online).