

MIS 310: Database Management Systems

(3 credit hours)

Class Times and Place

Place: Blackboard

Times: Asynchronous: Online recorded lessons

Instructor

Dr. Kumar Mehta

Office: Enterprise Hall 145

Contact: e-mail: kmehta1@gmu.edu;

Office Hours: by appointment

Course Description

Computerized databases are vital to the functioning of modern organizations. Businesses collect large amount of data such as names, addresses, and credit card numbers on a daily basis. All this information is stored in databases. With the proliferation of the Internet and the means to capture data in computerized form, a vast amount of data is available at the click of a mouse button. Organizing these data for ease of retrieval and maintenance is paramount. Thus managing databases has become a vital task in most organizations. In this course, we will study the fundamental concepts and techniques of modeling and designing relational databases. We will discuss why databases are used and describe the main components of database management systems. Further, we will cover the fundamental Structured Query Language (SQL) statements used to define and process databases. Using a wealth of sample databases and examples, students will gain skills to systematically solve basic and advanced problems in query formulation, data modeling, and normalization. The course will use Microsoft Access as the relational database management system to implement the concepts covered in class.

Learning Objectives

1. Describe the components of a database management system
2. Introduce the relational model and define key relational database terms.
3. Apply the Structured Query Language (SQL).
4. Model relational databases using Entity-Relationship diagrams.
5. Design and implement practical databases using Microsoft SQL Server

Required Course Materials

Textbook: **None**

Software:

- Microsoft SQL Server Express 2014
- Microsoft Visio 2019

IMPORTANT: Both software require Microsoft Windows Operating System and are not compatible with MacOS.

Course Website

Blackboard will be used for this course and can be accessed under “Courses” from <http://mymasonportal.gmu.edu>.

Students must have consistent access to an internet connection in order to access the learning materials, participate meaningfully in group work, and complete all of the graded work through Blackboard.

Note the technology requirements for School of Business here:

<https://business.gmu.edu/blog/buzz/2021/05/03/school-of-business-minimum-computing-requirement-for-the-2021-2022-academic-year/>

Participation

Knowledge is more important than facts and definitions. To effectively translate learned information from lectures and practice problems into real knowledge – it is important you play an active role and engage with your peers. This will help you internalize the concepts and develop deeper knowledge and skills through problem solving and discussing together, rather than simply repeating lecture information.

In this course, you will work to explore application of learned concepts and ideas under the guidance of the professor and your peers. Corresponding to each lesson, guidance is provided on how you can independently identify an application of the learned concepts, engage with your peers, discuss and improve on your solutions together.

Rules and Expectations:

In correspondence/communication students will be expected to:

- Be professional and respectful in correspondence
- Make reasonable requests of the instructor.

We will be happy to clarify course material and answer legitimate questions; however, please exhaust other information sources (e.g., syllabus, Blackboard) for answering your question before contacting me and remember, *“Poor planning on your part does not constitute an emergency on my part”*

Regarding honesty in work students will be expected to:

- Review the University integrity and honesty policies in the student handbook for guidelines regarding plagiarism and cheating (summarized below). I will gladly clarify my stance on any questionable or “grey area” issues you may have
- Refrain from dishonest work as it will receive a minimum penalty of zero on the assignment and a maximum penalty of a zero for the course with a report to the Honor committee. The GMU Honor Code requires that faculty submit any suspected Honor Code violations to the Honor Committee. Therefore, any suspected offense will be submitted for adjudication.

Academic Integrity and Honor Code

The Honor Code is an integral part of university life. Students are responsible, therefore, for understanding the code's provisions. In the spirit of the code, a student's word is a declaration of good faith acceptable as truth in all academic matters. Cheating and attempted cheating, plagiarism, lying, and stealing of academic work and related materials constitute Honor Code violations. To maintain an academic community according to these standards, students and faculty must report all alleged violations to the Honor Committee. Any student who has knowledge of, but does not report, a violation may be accused of lying under the Honor Code.

Please refer to <https://oai.gmu.edu> for further details. When in doubt (of any kind), please ask the instructor for guidance and clarification.

Academic Integrity & Inclusivity

This course embodies the perspective that we all have differing perspectives and ideas and we each deserve the opportunity to share our thoughts. Therefore, we will conduct our discussions with respect for those differences. That means, we each have the freedom to express our ideas, but we should also do so keeping in mind that our colleagues deserve to hear differing thoughts in a respectful manner, i.e. we may disagree without being disagreeable. <http://oai.gmu.edu/>

Diversity, Religious Holiday

Please refer to George Mason University's calendar of religious holidays and observations (<http://ulife.gmu.edu/calendar/religious-holiday-calendar/>). It is the student's responsibility to speak to the instructor in advance should their religious observances impact their participation in class activities and assignments.

Student Privacy Policy

George Mason University strives to fully comply with FERPA by protecting the privacy of student records and judiciously evaluating requests for release of information from those records.

Please see George Mason University's student privacy policy <https://registrar.gmu.edu/students/privacy/>

Special Accommodations

All students with questions or concerns about this class are encouraged to set up a time to meet with the professor, preferably during the first 2 weeks of the semester. Students with disabilities should work with the Disabilities Resource Center (DRC) to identify appropriate accommodations and communicate those with the professor. <http://ods.gmu.edu/>. All forms for exams must be submitted one week prior to exam date.

GMU Add/Drop Policy

The last day to drop this class without any penalty is provided on the GMU academic calendar page <http://registrar.gmu.edu/calendar/>. It is the student's responsibility to check to verify that they are properly enrolled as no credit will be awarded to students who are not.

Grading

Students must be officially registered in this course to receive a grade. It is the sole responsibility of the student to verify their own registration status. Specifically, you will not

receive a grade if your name does not appear on the official class list. (Don't wait until the end of the semester to be surprised.) Registration related questions should be directed to either the Office of Student Services at School of Business or the Registrar's Office. Grading for the course will be based on total points earned by the end of the course.

You can request a review of any grade within a week following the assignment of grades. After that period no grade will be revised. You are also encouraged to keep all graded material that is returned to you till after the semester is over and you have checked your final grade. If there is a discrepancy between my records and your scores for any of the graded material at any time, my records will be altered only if you can produce the graded material that I have returned to you as evidence -- failing which no changes will be made.

The different items will be weighted as follows.

Item	Percentage
Lecture Video pop quizzes (best 10)	10%
Lesson Quizzes (best 10)	15%
Study Group Participation (average peer evaluation)	15%
Exam 1 (Module 1 Materials)	10%
Exam 2 (Module 2 Materials)	10%
Exam 3 (Module 3 Materials)	10%
Final Exam Part 1 (Conceptual Materials)	15%
Final Exam Part 2 (SQL)	15%
Total	100%

The final course grade will be determined based on the following scale:

Grade	Score
A	93% - 100%
A-	90% - 92.99%
B+	87% - 89.99%
B	83% - 86.99%
B-	80% - 82.99%
C+	77% - 79.99%
C	70% - 76.99%
D	60% - 69.99%
F	60% and Below

Learning Goals

Learning goals for the School of Business Undergraduate Programs

- a. Our students will be competent in their discipline.
- b. Our students will be aware of the uses of technology in business.
- c. Our students will be effective communicators.
- d. Our students will have an interdisciplinary perspective.
- e. Our students will be knowledgeable about global business and trade.
- f. Our students will recognize the importance of ethical decisions.
- g. Our students will be knowledgeable about the legal environment of business.
- h. Our students will be knowledgeable about team dynamics and the characteristics of effective teams.
- i. Our students will understand the value of diversity and the importance of managing diversity in the context of business.
- j. Our students will be critical thinkers.

Learning Goals of the Information Systems and Operations Management Program

- 1. Apply knowledge of information technology and business functions to understand its application in assessing, designing and improving business processes.
- 2. Develop data organization, storage and processing solutions to support organizational needs for information management. They will also have the option of developing skills in the area of supporting decision making through business intelligence solutions.
- 3. Use knowledge of computer networks as part of the IT solutions for improving business processes. They will also have option of developing more advanced skills in the areas of network and security.
- 4. Effectively manage information technology projects.
- 5. Understand the overall systems development life cycle and be able to recommend IT system solutions accordingly. They will also have option of learning appropriate development tools to develop prototype of IT solutions for business management.

Assignments, Quizzes and Exams

Students are expected to complete and submit all course assignments on the dates scheduled. Accepting an assignment after the scheduled close of the class on its due date is at the sole discretion of the instructor

A student who misses an exam due to an emergency may petition for a makeup exam. The petition must be in writing and be accompanied by appropriate documentation about the emergency. Petitioning for a makeup exam does not guarantee that one will be offered. That decision is at the sole discretion of the instructor who will determine whether the evidence offered by the student justifies the absence.

Missed exams/quizzes will be assigned a score of zero.

If you have any work-related or personal time conflict, you need to resolve it in advance.

Assignments Descriptions

Course Lectures

The course is divided into four modules (Modules 1 through 4). Within each module there are several lessons by topic areas. Each lesson contains: 1) Lecture, and 2) Review Materials.

Lectures with Quiz (10%): These recorded lectures explain course concepts and include pop quiz questions that you must complete. Only best 10 quizzes will be counted towards the final grade.

Review Materials: ****Available only after successfully completing all recorded lectures with pop quiz****

Review materials are for when you need to refer to the lecture materials later on, and include: a) PDF copies of lecture slides, b) Lecture recordings without pop quiz.

Lesson Quizzes (15%): Each lesson is accompanied with a quiz to help you assess your understanding of the materials. Three attempts are allowed for each quiz, and only the highest score counts.

Weekly Study Group (15%): Accompanying each lesson, guidance is provided for individual contribution and expected participation from each group member. Each group is provided with its own space on Blackboard along with discussion forums and threads. These contributions will be monitored for satisfactory engagement by group members. If no group members are found to be active on regular basis, an automatic zero will be assigned. With groups that have satisfactory engagement, the score will be determined by average of peer-evaluation. The peer evaluation criteria is available on Blackboard.

Midterm Exams

Midterm Exams (3 x 10% = 30%): Three midterm exams are scheduled – one exam at the end of each of the modules: Exam 1 (Module 1), Exam 2 (Module 2), Exam 3 (Module 3). The topics covered in the midterm exam include only the lessons in the corresponding module. Practice exams are provided for each to help you: a) conduct self-assessment prior to taking the exam, and b) familiarize yourself with the nature of questions and problems in the upcoming exam.

Final Exam

Final Exams (2 x 15% = 30%): The final exam is divided into two parts: a) Conceptual and b) Technical. Both exams are cumulative. The conceptual part covers all non-SQL topics, and the technical exam covers all SQL topics. The two parts can be taken independently and in any order.

Extra Credit

Extra Credit (max 5%): Throughout the course, you will receive several emails and announcements. Read through all emails in detail to look for clues for extra credit opportunities. These will be limited time opportunities to act on and earn extra credit and will count towards a maximum of up to 5% towards the final grade.

Communications

All course related communications from me to you will be conducted as follows:

- Formal course-related announcements will be directed via email/Blackboard.
- Informal Q&A and communications with me will be conducted via MS Teams.

I will address all my emails only to your GMU email address for concerns of privacy and confidentiality. For same reason I will not reply to any email that is not from your gmu email.

If you use another e-mail account as your primary email, please be sure to forward your GMU email to that account.