

MGT 4058 Syllabus

Database Management, 3 Credits

Fall 2026

Instructor Information

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General Course Information

Description

Databases play a critical role in today's business environment. Almost every modern organization, whether in the manufacturing, service, technology, healthcare, financial, or public sector, uses database technology to store critical data and manage operations. Database technology is central to many functional areas in an organization, including marketing, operations, accounting, finance, supply chain management, and human resources.

This course introduces students to the foundations of database management and design. Students will learn how to translate business requirements into conceptual data models, convert those models into relational database structures, implement database solutions, query data using SQL, and understand how databases support business intelligence, analytics, artificial intelligence, and data-driven decision-making.

The course emphasizes hands-on learning. Students will work with database design concepts, Entity-Relationship modeling, relational modeling, SQL, normalization, database implementation, and selected topics in data warehousing and contemporary database systems. The goal is to help students build a strong database-centered foundation for business analytics, information systems, and AI-enabled decision support.

Course Learning Outcomes

Upon successful completion of this course, students should be able to:

- Explain the role of database systems in modern organizations and business decision-making.

- Translate business requirements into conceptual data models using Entity-Relationship modeling.
- Convert conceptual data models into relational database schemas.
- Apply normalization principles to improve database design and reduce redundancy.
- Write SQL queries to create, retrieve, filter, join, summarize, and manipulate data.
- Implement and use a relational database system to support business applications.
- Explain the relationship among databases, data warehouses, business intelligence, analytics, and AI-enabled applications.
- Communicate database design decisions and technical results clearly to both technical and managerial audiences.

Course Materials

Textbook: Nenad Jukic, Susan Vrbsky, Svetlozar Nestorov, and Abhishek Sharma, *Database Systems: Introduction to Databases and Data Warehouses*, 2nd edition, 2021, Prospect Press. ISBN-13: 9781943153688; ISBN-10: 194315368X.

The textbook is optional but recommended as a supporting reference.

Grading Policy

Final grades are determined using the following weighted components.

Graded Component	Weight
Exam I	20%
Exam II	25%
Quizzes / Self-Assessments	15%
Assignments	20%
Group Project	20%
Total	100%

The conversion of Percentage Scores to Letter Grades is expected to be as follows: Rounding: Final percentage points will be rounded to the nearest integer. For example, 89.6% = 90% while 89.4% = 89%.

A = 89.5% – 100.0% (above 90% with rounding)

B = 79.5% – 89.4% (80-89% with rounding)

C = 69.5% – 79.4% (70-79% with rounding) D = 59.5% – 69.4% (60-69% with rounding)
F = 0% – 59.4% (0-59% with rounding)

Description of Graded Components

Exams

There will be two exams on this course. Both exams are non-cumulative unless otherwise announced. Makeup exams will not be given unless required by Institute policy or approved accommodation.

After each exam, students who have questions or concerns about grading must submit their questions or appeals in writing to the instructor no later than one week after the grade is posted.

Quizzes / Self-Assessments

Weekly quizzes or self-assessments will be administered through Canvas and will count for 15% of the final course grade. Quiz questions will cover topics that have already been discussed in class or assigned through course materials.

Unless otherwise stated, quizzes are untimed and open book. Each quiz will have a clearly posted availability window and due date on Canvas. Students may have more than one attempt when allowed by the quiz instructions. Makeup quizzes will not be allowed unless required by Georgia Tech policy or an approved accommodation.

Assignments

Homework assignments will be given throughout the semester. Assignments are designed to help students practice database modeling, relational design, SQL, implementation, and interpretation of database-related results.

All assignments must be submitted through Canvas by the posted deadline. Late submissions may be penalized by 25% per day unless an alternative arrangement has been approved in advance or is required through approved accommodation. Detailed instructions for each assignment will be provided on Canvas.

Unless explicitly stated otherwise, individual assignments must be completed independently. Students may discuss general course concepts and similar practice problems with classmates, but each student must independently prepare and submit their own work.

Group Project

The group project gives students an opportunity to design and implement a database-centered solution for an organization, business process, or realistic business scenario. The project may include conceptual modeling, relational design, database implementation, SQL queries, and a discussion of how the database could support analytics, reporting, data warehousing, or AI-enabled decision support.

Students will work in teams. Unless otherwise announced, each team should have no more than five students. Project details, deliverables, rubrics, team formation instructions, and due dates will be posted on Canvas.

All team members are expected to contribute meaningfully to the project. Peer evaluations may be used to assess individual contributions. Students who do not contribute substantially to the team project may receive reduced or no credit for the project component.

Course Policies

Attendance and/or Participation

Students are expected to fully participate in the class. If you must be absent for valid reasons, such as an emergency, you must notify the instructor as early as possible. Examples of these valid reasons include participation in official Institute activities such as an athletic event as a member of the team or staff or representing the Institute as part of a competition or conference, or mandatory military deployment. Absences for any sincerely held religious belief, observance, or practice will be accommodated where reasonable. If you miss points for some activity on a given day, it is up to you to not miss other opportunities to earn points.

Students are expected to devote at least 10 hours per week to completing the course requirements. Initially, you will be getting familiar with R, which has a steep learning curve. However, this investment is worthwhile because R is widely used in the business analytics/data science communities worldwide.

This estimate of effort encompasses all class activities, including reading the textbook and supplementary resources, participating in office hours and forum discussions, completing

homework assignments, and studying for exams. Of course, students can spend as much time as necessary, but it is important to avoid falling behind.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review [Georgia Tech's Honor Code](#) and the student [Code of Conduct](#).

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, [contact the Office of Disability Services](#) (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. [The Student-Faculty Expectations](#) articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Collaboration, Group Work, and Use of Generative AI

You are encouraged to discuss assignments, and course materials with your peers. However, all work that you submit must be written independently and reflect your own understanding. The use of generative AI tools (e.g., ChatGPT) is permitted to support your work on assignments. However, you are expected to critically evaluate and verify any AI generated content, and you must be able to clearly understand, explain, and defend all material included in your submissions.

Campus Resources for Students

Undergraduate Student Academic Success Resources:

A list of resources for undergraduate students' academic success and information about advising can be found at [Success at Tech](#)

- Academic Support: Academic Success and Advising (a unit in the Office of Undergraduate Education & Student Success) provides free support for your courses. Students can attend scheduled supplemental review (PLUS) sessions, stop by Drop-In Tutoring, or schedule a one-on-one appointment through Knack. To explore what options work best for you, please visit us online at success.gatech.edu/tutoring, email us at tutoring@gatech.edu, or come see us at Clough Undergraduate Learning Commons, Suite 283.

Student Well-Being:

At Georgia Tech, we are concerned about your overall physical, social, and mental wellbeing. A [comprehensive list](#) of wellness related resources has been compiled and maintained by the Office of the Vice President for Student Engagement and Well-being ([student-resource-guide \(gatech.edu\)](#)).