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# CIS 8040: Fundamentals of Database Management Systems

# Spring 2024 (Wednesday)

Computer Information Systems

Robinson College of Business   
Georgia State University

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| I am on a journey to help my students succeed. Please come with me. | |

This syllabus is a general plan. Deviations may be necessary.

**Course Description**

Developing and managing efficient and effective database applications requires understanding the fundamentals of database management systems, techniques for the design of databases, and principles of database administration. This course emphasized database concepts, development, use, and management in three main sections: database concepts, practice, and emerging trends. Relational database systems are the main focus. Practical design of databases and development of database applications using modern software tools will be emphasized.

**Learning Objectives**

At the conclusion of the course, the student should be able to:

* Create a valid conceptual model of a database application.
* Design and implement a relational database.
* Use SQL queries to complete database manipulation tasks.
* Understand major aspects of database administration and database applications.
* Understand data warehouses and their role in business intelligence.
* Appreciate trends in database technology, including big data management and privacy and security issues.
* Identify and explain the business impact of data management in today’s global society.
* Interpret and document the implications of the management of data in an application.
* Understand the role of data management in societal applications.

## **Materials**

Text: Kroenke, D., Auer, D. J., Vandenberg, S.L. and Yoder, R.C. *Database processing: Fundamentals, Design, and Implementation*, 16th Edition. Prentice Hall. **Copyright © 2022.** You should be able to rent this book.

iCollege will be used to support this class. It will contain class announcements, lecture material, quizzes and exams, grades, and assignment dropboxes. Please check for announcements prior to class.

**Exams**  
Quizzes and exams are taken in class and cannot be taken after the dates scheduled, except with permission from the instructor. The exams, in multiple formats, are designed to test the learning objectives of the course.

**Assignments**The assignments are due at 4:00 pm the day of class. Late assignments will receive a 20% penalty, available for one week only after the due date.

## **Grading**

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| **Component** | **Percentage** |
| Individual Examinations (2)  Midterm: 25%  Final: 25% | 50% |
| Assignment 1 | 10% |
| Assignment 2 | 5% |
| Assignment 3 | 15% |
| Quiz | 20% |
| **Total** | **100%** |

The following grading scale will be used to calculate the final grades: A+ (98-100%), A (93-97%), A- (90-92%), B+ (87-89%), B (84-86%), B- (80-83%), C+ (77-79%), C (73-76%), C- (70-72%), D (60-69%), F (less than 60%).

A student who withdraws prior to the midpoint in the semester or term will be awarded a “W”. Per University policy, students who withdraw or are given an administrative withdrawal after the midpoint will automatically receive a “WF.” The WF grade is assigned automatically by the GSU Registrar.

Descriptions of the assignments and brief are on iCollege under Assignments. Most quizzes and exams will be taken using the quiz function of iCollege. Please bring laptops to class for in-class work as well as to take the quizzes and exams. Install the lockdown browser.

**GSU Academic Honesty Policy**

All university and college regulations concerning academic honesty shall apply. In general, students are expected to recognize and uphold standards of intellectual and academic integrity. The university assumes as a minimum standard of conduct in academic matters that students be honest and that they submit for credit only the products of their own efforts.It is particularly important that students read and understand the portions of the University Policy on Academic Honesty that relate to plagiarism, unauthorized collaboration, falsification, and multiple submissions. The University Policy on Academic Honesty is explained in detail in the student handbook, <http://studenthandbook.gsu.edu/> and <https://codeofconduct.gsu.edu/>. This Policy represents a core value of the University. All members of the University community are responsible for knowing and abiding by its tenets. Academic dis-honesty results in a grade of ‘F’ in this class. Students are expected to carefully review the online Policy prior to undertaking any research or other assignments.

## **Accommodation Policy**

Students who wish to request accommodation for a disability may do so by registering with the Office of Disability Services.

**GSU Policy Prohibiting Students from Posting Instructor-Generated Materials on External Sites**

The selling, sharing, publishing, presenting, or distributing of instructor-prepared course lecture notes, videos, audio recordings, or any other instructor-produced materials from any course for any commercial purpose is *strictly prohibited* unless explicit written permission is granted in advance by the course instructor. This includes posting any materials on websites such as Chegg, Course Hero, OneClass, Stuvia, StuDocu or similar sites. Unauthorized sale or commercial distribution of such material is a violation of the instructor’s intellectual property and the privacy rights of students attending the class and is prohibited. Punishment may include *removal of class credit and prosecution of copyright infringement with legal consequences.*

# Class Schedule

[Adjustments may be necessary]­

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| Session 1  3 January 2024 | Introduction to course  The nature of data  Introduction to conceptual modeling | Read syllabus  Chapter 1 |
| Session 2  6 January 2024  (Saturday 8:00 am) | Conceptual modeling  (Chen and Crow’s Feet notations)  Min/max cardinalities | Chapter 5 |
| Session 3  10 January 2024 | Logical design  Relational model  Transformation of conceptual models to logical models  SQL: DDL / DML | Chapter 3  Due: Assignment 1  (4:00 pm) |
| Session 4  17 January 2024 | Single table queries  Multiple table queries | Chapter 2 |
| Session 5  24 January 2024 | SQL (cont’d)  Business intelligence and  data mining  Midterm examination (closed book) | Chapter 12 |
| Session 6  31 January 2024 | Reverse engineering  Disruptive technologies  Quiz (SQL, closed book) | Due: Assignment 2  (4:00 pm) |
| Session 7  7 February 2024 | Big data, data privacy, data ethics | Chapter 13 (big data) |
| Session 8  14 February 2024 | Course wrap-up  Final Examination (closed book) | Due: Assignment 3  (4:00 pm) |