

ISM 671-02: ORGANIZING DATA FOR ANALYTICS
SPRING- 2022
(ONLINE)

INSTRUCTOR INFORMATION

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Zoom sessions: Tuesday 5:00 – 6:30 p.m. (sessions will also be recorded and made available)

CATALOG DESCRIPTION

Fundamental concepts of database management systems, including database design, implementation, and the use of the SQL query language. Credit Hours :3

STUDENT LEARNING OUTCOMES (SLO) / COURSE OBJECTIVES

- a) Conceptualize database management systems and data models
- b) Implement and manage database systems using SQL query language

Upon successful completion of this course students will be able to:

- 1. Model database requirements using the Entity-Relationship diagram;
- 2. Apply the concepts of normalization in database design;
- 3. Design and implement a relational database;
- 4. Address issues related to concurrent data access;
- 5. Apply methods to address various database security issues;
- 6. Express queries using relational algebra.

REQUIRED MATERIALS:

Textbook:

Database Systems, by Carlos Coronel and Steven Morris, 13th edition, ISBN: 9781337627900

The main materials covered in class will come from this book.

MySQL Database Management System

This will be our primary working environment. Instructions on installation and use of the software will be provided in the course.

Canvas Course Management Systems (<https://canvas.uncg.edu>)

Course materials, announcements, and updates will be posted on Canvas regularly. Students are required to check Canvas daily and will be responsible for any information or announcement posted on Canvas.

TEACHING METHODS

Class sessions will be delivered online. All teaching materials including lecture notes, assignments, and other learning resources needed for this course are available on canvas. Students will be required to review all the materials posted on Canvas. Weekly live zoom sessions are not mandatory, but students are strongly encouraged to attend. Students are required to watch recorded sessions if they are unable to attend live sessions. To enhance learning both elementary and advanced database issues, techniques, and concepts covered in this course, each

database topic may be complemented with exercises. Assignments, exams, and a class project will be used to evaluate students' performances in terms of learning outcomes.

LEGAL NOTICE FOR ZOOM AND COURSE RECORDINGS

This course will be recorded. If you are participating/viewing webcast (zoom, google chat, etc.) and do not wish to be recorded, please turn off your camera and mute your microphone. You may still use the chat to participate, and we will not archive the chat. Please note that only the main room, not breakout rooms, will be recorded. If you are attending this course in person and do not wish to be recorded, please advise me of that, and all efforts will be made not to record your participation

EVALUATION AND GRADING

Assignments:

SQL programming assignments and database design assignments constitute a major portion of the requirements for this course. Students are required to complete five assignments. Each assignment is due at 11:59 pm on the scheduled due date. Assignments submitted after the due date may not be accepted but, if they are based on a valid excuse, there will be a minimum of a 20% reduction for each day late. Please do not procrastinate on the assignments.

Group Project

Each student is required to join a group to work on a database project. More details about the project will be given during the course.

Exams:

This course has two exams, a midterm exam and a final exam. No makeup examination is offered for any reason. If a student must miss a midterm exam and has a written verifiable legitimate excuse for the absence, the weight of that the midterm exam may be allocated to the final. The final exam is cumulative. More will be discussed about the exam.

Grading Policy:

The following provides a percentage allocation of each component:

Class project:	20%
Homework Assignments	30%
Midterm:	20%
Final Exam (cumulative):	30%

Grading Scale:

Points	Grade	Points	Grade	Points	Grade
95-100%	A	83 – 86.9%	B	70 – 76.9%	C
90-94.9%	A-	80 – 82.9%	B-	< 70%	F
87 – 89.9%	B+	77 – 79.9%	C+		

FACULTY AND STUDENT GUIDELINES

The faculty and students in the course are expected to adhere to the faculty student guidelines stated at the following web page: http://www.uncg.edu/bae/faculty_student_guidelines.pdf.

ACADEMIC INTEGRITY POLICY

University students are expected to conduct themselves in accordance with the highest standards of academic honesty. A student is subject to penalty for academic misconduct, such as illicit possession of exams or exam materials, forgery, or plagiarism. Plagiarism is the presentation of the work of another, as one's own work. Discussing your assignments with other students can be a valuable learning resource; however, each student is

expected to do their own original work. It is the student's responsibility to prove their work is original, if challenged.

All students are required to follow the provisions of the UNCG Academic Integrity Policy (<https://osrr.uncg.edu/academic-integrity/>) in completing coursework. If you do not know the provisions of the Academic Integrity Policy, make time to study it.

COVID-19

As we return for spring 2022, all students, faculty, and staff are required to uphold UNCG's culture of care by actively engaging in behaviors that limit the spread of COVID-19. These actions include, but are not limited to:

- [Following face-covering guidelines](#)
- Engaging in proper hand-washing hygiene
- Self-monitoring for symptoms of COVID-19
- Staying home when ill
- Complying with directions from health care providers or public health officials to quarantine or isolate if ill or exposed to someone who is ill
- Completing a [self-report](#) when experiencing COVID-19 symptoms, testing positive for COVID-19, or being identified as a close contact of someone who has tested positive
- Staying informed about the University's policies and announcements via the [COVID-19](#) website

Instructors will have seating charts for their classes. These are important for facilitating contact tracing should there be a confirmed case of COVID-19. Students must sit in their assigned seats at every class meeting. Students may move their chairs in class to facilitate group work, as long as instructors keep seating chart records. Students should not eat or drink during class time.

A limited number of disposable masks will be available in classrooms for students who have forgotten theirs. Face coverings are also available for purchase in the UNCG Campus Bookstore. Students who do not follow masking requirements will be asked to put on a face covering or leave the classroom to retrieve one and only return when they follow the basic standards of safety and care for the UNCG community. Once students have a face covering, they are permitted to re-enter a class already in progress. Repeated issues may result in conduct action. The course policies regarding attendance and academics remain in effect for partial or full absence from class due to lack of adherence with face covering and other requirements.

For instances where the Office of Accessibility Resources and Services (OARS) has granted accommodations regarding wearing face coverings, students should contact their instructors to develop appropriate alternatives to class participation and/or activities as needed. Instructors or the student may also contact OARS (336.334.5440) who, in consultation with Student Health services, will review requests for accommodations.

COVID-19 Spartan Shield Video

UNCG Chancellor Frank Gilliam has challenged us to create a Culture of Care at UNCG where we all wear face coverings and social distance, less to protect ourselves but rather more to protect everyone around us. It shows that you care about the well-being of everyone around you. We have created this video featuring your student body presidents to better explain how and why this is so important.

Please watch this video before the first day of classes.

<https://youtu.be/Mb58551qxEk>

HEALTH AND WELLNESS:

Health and well-being impact learning and academic success. Throughout your time in the university, you may experience a range of concerns that can cause barriers to your academic success. These might include illnesses, strained relationships, anxiety, high levels of stress, alcohol or drug problems, feeling down, or loss of motivation. Student Health Services and The Counseling Center can help with these or other issues you may experience. You can learn about the free, confidential mental health services available on campus by calling 336-334-5874, visiting the website at <https://shs.uncg.edu/> or visiting the Anna M. Gove Student Health Center at 107 Gray Drive. For undergraduate or graduate students in recovery from alcohol and other drug addiction, The Spartan Recovery Program (SRP) offers recovery support services. You can learn more about recovery and recovery support services by visiting <https://shs.uncg.edu/srp> or reaching out to recovery@uncg.edu

RELIGIOUS HOLIDAYS:

It is expected that instructors will make reasonable accommodations for students who have conflicts due to religious obligations. Please make arrangements with the instructor in advance of any conflict. For more information on UNCG's Religious Obligations policy, visit [UNCG's Religious Obligations Policy](#).

ACADEMIC ACCOMMODATIONS:

The University of North Carolina at Greensboro respects and welcomes students of all backgrounds and abilities. If you feel you will encounter any barriers to full participation in this course due to the impact of a disability, please contact the Office of Accessibility Resources and Services (OARS). The OARS staff can meet with you to discuss the barriers you are experiencing and explain the eligibility process for establishing academic accommodations. You can learn more about OARS by visiting their website at <https://ods.uncg.edu/> or by calling 336-334-5440 or visiting them in Suite 215, EUC.

ELASTICITY STATEMENT:

It is the intention of the instructor that this syllabus and course calendar will be followed as outlined; however, as the need arises, there may be adjustments to the syllabus and calendar. In such cases, the instructor will notify the students in class and via email with an updated syllabus and calendar within a reasonable timeframe to allow students to adjust as needed.

FLEXIBLE COURSE OUTLINE

(SUBJECT TO CHANGE DEPENDING UPON THE PROGRESSION OF THE CLASS)

Week	Date	Topics	Reading and Assignment Due
1	Jan-11	Welcome to ISM 671: Introduction to database systems and data models	Chapter 1: Database systems Chapter 2: Data Models
2	Jan-18	Conceptual database and entity, relationship and ERD	Chapter 3: The Relational Database Model Chapter 4: Entity Relationship (ER) Modeling
3	Jan-25		Chapter 5: Advanced Data Modeling
4	Feb-01	Normalization	Chapter 6: Normalization of Database Tables Assignment 1 due
5	Feb-08	Introduction to SQL	Chapter 7: Introduction to SQL
6	Feb-15	Querying single and multiple tables	Assignment 2 due
7		Midterm Exam	
8	Mar-01	Advanced SQL	Chapter 8: Advanced SQL project proposal due
	Mar 08	Spring Break. No classes.	
9	Mar-15	Advanced SQL	Assignment 3 due
10	Mar-22	Advanced database concepts	Chapter 10: Transaction Management and Concurrency Control
11	Mar-29	Advanced database concepts	Chapter 12: Distributed Database Management Systems Assignment 4 due
12	Apr-05	Data Preprocessing / Data Warehousing and Analytics	Chapter 13: Business Intelligence and Data Warehouses Assignment 5 due
13	Apr-12	Big data and No SQL	Chapter 14: Big Data and No SQL
14	Apr-19	Database administration, security, and management	Chapter 16: Database Administration and Security Project due
15	Apr-26	Exam review	
Exam week		Final Exam	

The syllabus operates as our document of mutual understanding; it represents our agreement. Changes may be made to it as our progress dictates. Such changes will be discussed in class and class members will be responsible for all changes.