

**ISM 671-02: ORGANIZING DATA FOR ANALYTICS**  
**SPRING- 2019**

**INSTRUCTOR INFORMATION**

Name: Indika Dissanayake  
Office: 436 Bryan Building  
E-mail address: [i\\_dissan@uncg.edu](mailto:i_dissan@uncg.edu)  
Office Phone: 336-334-4988 [Please do not leave voice-mail – use e-mail instead.]  
Office Hours: By appointment  
WebEx session: Tuesday 5:00 – 6:00 p.m.

**CATALOG DESCRIPTION**

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

**COURSE OBJECTIVES**

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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:**

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Textbook:

Database Systems, by Carlos Coronel and Steven Morris, 13<sup>th</sup> edition, ISBN: 9781337627900

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

MySQL Database Management System (<https://baelearn.uncg.edu/sql2/>)

This will be the primary working environment. Access credentials to the Bryan MySQL server will be provided by the instructor.

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.

**TEACHING METHODS**

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This course will be delivered online. Students will be required to read materials posted on Canvas. 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 and exams will be used to evaluate students' performances in terms of learning outcomes.

## EVALUATION AND GRADING

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### 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 11:59pm 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.

### Determination of Course Grade:

The following provides a percentage allocation of each component:

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

Points	Grade	Points	Grade	Points	Grade	Points	Grade
93-100%	A	83 – 86%	B	73 – 76%	C	63 – 66%	D
90-92%	A-	80 – 82%	B-	70 – 72%	C-	60 – 62%	D-
87 – 89%	B+	77 – 79%	C+	67 – 69%	D+	< 60%	F

## FACULTY AND STUDENT GUIDELINES

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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](http://www.uncg.edu/bae/faculty_student_guidelines.pdf).

## ACADEMIC INTEGRITY POLICY

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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.

**HEALTH AND WELLNESS:**

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Your health impacts your learning. Throughout your time in college, you may experience a range of health issues that can cause barriers to your learning. These might include physical ailments, illnesses, strained relationships, anxiety, high levels of stress, alcohol/drug problems, feeling down, or loss of motivation. Student Health Services and The Counseling Center can help with these or other issues you may be experiencing. 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. Help is always available.

**ACADEMIC ACCOMMODATIONS:**

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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 336-334-544 or visiting them in Suite 215, EUC.

**FLEXIBLE COURSE OUTLINE**

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

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Week	Date	Topics	Reading and Assignment Due
1	Jan-15	Welcome to ISM 671: Introduction to database systems and data models	Chapter 1: Database systems Chapter 2: Data Models
2	Jan-22	Conceptual database and entity, relationship and ERD	Chapter 3: The Relational Database Model Chapter 4: Entity Relationship (ER) Modeling
3	Jan-29		Chapter 5: Advanced Data Modeling
4	Feb-5	Normalization	Chapter 6: Normalization of Database Tables <b>Assignment 1 due</b>
5	Feb-12	Introduction to SQL	Chapter 7: Introduction to SQL
6	Feb-19	Querying single and multiple tables	<b>Assignment 2 due</b>
7	Feb-26	Mid Term Exam	
8	Mar-05	<b>Spring Break – No Class</b>	
9	Mar-12	Advanced SQL	Chapter 8: Advanced SQL <b>Group project proposal due</b>
10	Mar-19	Conceptual database design and refining ERD Logical database design	Chapter 9: Database Design <b>Assignment 3 due</b>
11	Mar-26	Advanced database concepts	Chapter 10: Transaction Management and Concurrency Control Chapter 11: Database Performance Tuning and Query Optimization
12	Apr-02	Advanced database concepts	Chapter 12: Distributed Database Management Systems <b>Assignment 4 due</b>
13	Apr-09	Data Warehousing and Analytics	Chapter 13: Business Intelligence and Data Warehouses
14	Apr-16	Big data and No SQL	Chapter 14: Big Data and No SQL <b>Assignment 5 due</b>
15	Apr-23	Database administration, security, and management	Chapter 16: Database Administration and Security
16	Apr-30	Presentations of Final Projects	<b>Group project due</b>
	May-07	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.