ISM 671-02: ORGANIZING DATA FOR ANALYTICS  
SPRING- 2023  

Thursday: 6:30 – 9:20 p.m. (Online Synchronous)

INSTRUCTOR INFORMATION
Name: Indika Dissanayake  
Office: 436 Bryan Building  
E-mail address: i_dissan@uncg.edu  
Office Phone: 336-334-4988 [Please do not leave voice-mail – use e-mail instead.]  
Office Hours (Virtual) Thursday 5:30 – 6:30 p.m. or by appointment

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;  

REQUIRED MATERIALS:
Textbook:  

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 in an interactive lecture/demonstration format. 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. 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.

**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 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): 25%
- Class participation/Quizzes: 5%

**Grading Scale:**

<table>
<thead>
<tr>
<th>Points</th>
<th>Grade</th>
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<th>Grade</th>
<th>Points</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>95-100%</td>
<td>A</td>
<td>83 – 86.9%</td>
<td>B</td>
<td>70 – 76.9%</td>
<td>C</td>
</tr>
<tr>
<td>90-94.9%</td>
<td>A-</td>
<td>80 – 82.9%</td>
<td>B-</td>
<td>&lt; 70%</td>
<td>F</td>
</tr>
<tr>
<td>87 – 89.9%</td>
<td>B+</td>
<td>77 – 79.9%</td>
<td>C+</td>
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**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](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 2023, please uphold UNCG’s culture of care to limit the spread of covid-19 and other airborne illnesses. These actions include, but are not limited to:

- 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 isolate if ill
- Completing a self-report when experiencing covid-19 symptoms or testing positive for covid-19
- Following the CDC’s exposure guidelines when exposed to someone who has tested positive for covid-19
- Staying informed about the University’s policies and announcements via the covid-19 website

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 http://shs.uncg.edu/srp or reaching out to recovery@uncg.edu

ATTENDANCE POLICY

Students are expected to attend every online synchronous class session. Each student is responsible for all the information and announcements that are made in class. https://catalog.uncg.edu/academic-regulations-policies/university-policies/.

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)*

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics</th>
<th>Reading and Assignment Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan-12</td>
<td>Welcome to ISM 671: Introduction to database systems and data models</td>
<td>Chapter 1: Database systems</td>
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<td>Chapter 2: Data Models</td>
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<td>2</td>
<td>Jan-19</td>
<td>Conceptual database and entity, relationship and ERD</td>
<td>Chapter 3: The Relational Database Model</td>
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<td>Chapter 4: Entity Relationship (ER) Modeling</td>
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<tr>
<td>3</td>
<td>Jan-26</td>
<td></td>
<td>Chapter 5: Advanced Data Modeling</td>
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<td>4</td>
<td>Feb-02</td>
<td>Normalization</td>
<td>Chapter 6: Normalization of Database Tables</td>
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<td></td>
<td></td>
<td>Assignment 1 due</td>
<td>Assignment 1 due</td>
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<tr>
<td>5</td>
<td>Feb-09</td>
<td>Introduction to SQL</td>
<td>Chapter 7: Introduction to SQL</td>
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<tr>
<td>6</td>
<td>Feb-16</td>
<td>Querying single and multiple tables</td>
<td>Assignment 2 due</td>
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<td>7</td>
<td>Feb-23</td>
<td>Midterm Exam</td>
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<tr>
<td>8</td>
<td>Mar-02</td>
<td>Advanced SQL</td>
<td>Chapter 8: Advanced SQL</td>
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<td>Assignment 4 due</td>
<td>Assignment 4 due</td>
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<td>Spring Break. No classes.</td>
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<tr>
<td>9</td>
<td>Mar-16</td>
<td>Advanced SQL</td>
<td>Assignment 3 due</td>
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<tr>
<td>10</td>
<td>Mar-23</td>
<td>Advanced database concepts</td>
<td>Chapter 10: Transaction Management and Concurrency Control</td>
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<tr>
<td>11</td>
<td>Mar-30</td>
<td>Advanced database concepts</td>
<td>Chapter 13: Business Intelligence and Data Warehouses</td>
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<td></td>
<td>Assignment 4 due</td>
<td>Assignment 4 due</td>
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<tr>
<td>12</td>
<td>Apr-06</td>
<td>Big data and No SQL</td>
<td>Chapter 14: Big Data and No SQL</td>
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<td>Assignment 5 due</td>
<td>Assignment 5 due</td>
</tr>
<tr>
<td>13</td>
<td>Apr-13</td>
<td>Big data and No SQL</td>
<td>Chapter 14: Big Data and No SQL</td>
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<tr>
<td>14</td>
<td>Apr-20</td>
<td>Database administration, security, and management / Project presentations</td>
<td>Chapter 16: Database Administration and Security</td>
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<td></td>
<td>Project due</td>
<td>Project due</td>
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</tbody>
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Exam week (May 4th) **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.