

## Database Design & Management

**MASY1-GC 3500 | 102 | Spring 2024 | 1/22/2024 - 5/6/2024 | 3 Credit**

**Course Site URL:** <https://brightspace.nyu.edu/>

### General Course Information

**Name/Title:** Wajahat Gilani/He

**NYU Email:** wg2287@nyu.edu

**Class Meeting Schedule:** 1/22/2024 - 5/6/2024 / Monday | 06:20pm -- 08:55pm

**Class Location:** 7 East 12th St Room LL27

**Office Hours:** By appointment, please e-mail me to arrange.

### Description

This is an introductory course for database management systems and applications. It presents concepts, methodologies, and techniques important for database analysis, design, implementation, and management. The course focuses on the logical, conceptual and physical implementation of relational database management systems so that students can assimilate a basic knowledge of database design as it relates to business rules. The course utilizes a combination of lectures, hands-on computer exercises, examples from Oracle and other leading databases, and real-world database projects to accomplish the learning process.

### Prerequisites

MASY1-GC1240 – Information Technology and Data Analytics

### Learning Outcomes

At the conclusion of this course, students will be able to:

1. Create databases based on the relational database model
2. Construct conceptual data logical data models
3. Use normalization to providing efficiencies and data integrity
4. Transform business requirements into viable, efficient, and reliable databases aligned with business requirements
5. Appraise the objectives of data and information management

### Communication Methods

Be sure to turn on your [NYU Brightspace notifications](#) and frequently check the “Announcements” section of the course site. This will be the primary method I use to communicate information critical to your success in the course. To contact me, send me an email. I will respond within 24 hours.

### Structure | Method | Modality

There are 14 session topics in this course. The session topics are organized into three (3) areas of study: 1) History, 2) Learning Principles, and 3) Instructional Design in Practice.

Active learning experiences and small group projects are key components of the course. Assignments, papers, and exams will be based on course materials (e.g., readings, videos), lectures, and class discussions. Course sessions will be conducted synchronously on NYU Zoom, which you can access from the course site in [NYU Brightspace](#).

## Expectations

### Learning Environment

You play an important role in creating and sustaining an intellectually rigorous and inclusive classroom culture. Respectful engagement, diverse thinking, and our lived experiences are central to this course, and enrich our learning community.

### Participation

You are integral to the learning experience in this class. Be prepared to actively contribute to class activities, group discussions, and work outside of class.

### Assignments and Deadlines

Please submit all assignments to the appropriate section of the course site in [NYU Brightspace](#). If you require assistance, please contact me BEFORE the due date.

### Course Technology Use

We will utilize multiple technologies to achieve the course goals. I expect you to use technology in ways that enhance the learning environment for all students.

### Feedback and Viewing Grades

I will provide timely meaningful feedback on all your work via our course site in NYU Brightspace. You can access your grades on the course site Gradebook.

### Attendance

I expect you to attend all class sessions. Attendance will be taken into consideration when determining your final grade.

Refer to the [SPS Policies and Procedures](#) page for additional information about attendance.

## Textbooks And Course Materials

**Required:** Database Systems: Design, Implementation, & Management 13th Edition (January 1, 2018) ISBN-13: 978-1337627900

We will be using Oracle database for assignments and labs in this course. The below software(s) downloads are free for educational use. You will need to create an account with Oracle. We will connect to NYU Oracle environment, which we will go over in class, step-by-step

1. Software(s) used in this class (on your personal PC)
2. Oracle SQL Developer - <http://www.oracle.com/technetwork/developer-tools/sql-developer/overview/index.html>
3. Oracle SQL Developer Data Modeler <http://www.oracle.com/technetwork/developer-tools/datamodeler/overview/index.html>
4. Windows only: putty and pscp - [Putty](https://www.putty.org/) <https://www.putty.org/>
5. ASCII text editor - Visual Studio Code

## Grading | Assessment

Your grade in this course is based on your performance on multiple activities and assignments. Since all graded assignments are related directly to course objectives and learning outcomes, failure to complete any assignment will result in an unsatisfactory course grade. All written assignments are to be completed using APA format and must be typed and double-spaced. Grammar, punctuation, and spelling will be considered in grading. Please carefully proof-read your written assignments before submitting them for a grade. I will update the grades on the course site each time a grading session has been completed— typically three (3) days following the completion of an activity.

<u>DESCRIPTION</u>	<u>PERCENTAGE</u>
In Class Group Assignments	20%
Midterm Exam 1	20%
Midterm Exam 2	20%
Final Exam	40%
<hr/> TOTAL POSSIBLE	<hr/> 100%

See the [“Grades” section of Academic Policies](#) for the complete grading policy, including the letter grade conversion, and the criteria for a grade of incomplete, taking a course on a pass/fail basis, and withdrawing from a course.

## Course Outline

**Start/End Dates:** 1/22/2024 - 5/6/2024 / Monday

**Time:** 06:20pm -- 08:55pm

**No Class Date(s):** Presidents’ Day - Monday, February 19, 2024 and Spring Break - Monday, March 18, 2024

**Special Notes:**

### Session 1 - 01/22/24

**Topic Description:**

**Setup Environment**

**Database tools**

**Assignments:**

**Homework 1 - Database connection**

### Session 2 – 01/29/24

**Topic description –**

**Introduction to database and Data Modeling**

**Assignments:**

**Homework 2 – Data models**

**Group 1 – Project proposal**

### Session 3 – 02/05/24

**Topic description** –  
Loading data into the database using SQL Loader

**Assignments:**  
Homework 3 – SQL Loader

**Session 4 – 02/12/24**

**Topic description** –  
Introduction to SQL

**Assignments:**  
Homework 4 – Populate HR tables  
Group 2a – Data Model discussion

**Session 5 – 02/26/24**

**Topic description** –  
SQL Fundamentals

**Assignments:**  
Homework 5 – Discussions topic functions and joins  
Group 2 – Data Model final

**Session 6 – 03/04/24**

**Topic description** –  
Midterm # 1

**Assignments:**  
None

**Session 7 – 03/11/24**

**Topic description** –  
SQL Joins and functions

**Assignments:**  
Homework 6 – SQL functions

**Session 8 – 03/25/24**

**Topic description** –  
Review for Midterm Exam

**Assignments:**  
Group 3 – Data Load

**Session 9 – 04/01/24**

**Topic description** –  
Advanced SQL – Sub Queries

**Assignments:**  
Homework 7 – Sub Queries

**Session 10 – 04/08/24**

**Topic description** –  
Midterm # 2

**Assignments:**

None

**Session 11 – 04/15/24**

**Topic description –**

**Advanced SQL – Top N, Pivot, Merge, and Analytical functions**

**Assignments:**

**Homework 8 – Top N, Pivot, Merge, analytical function**

**Session 12 – 04/22/24**

**Topic description –**

**Advanced SQL**

**Assignments:**

**Homework 9 – Putting it all together in views**

**Group 4 – SQL views**

**Session 13 – 04/29/24**

**Topic description –**

**Database performance**

**Assignments:**

**Homework 10 - performance**

**Session 14 – 05/06/24**

**Topic description –**

**Final Exam**

**Assignments:**

**None**

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## **NOTES:**

The syllabus may be modified to better meet the needs of students and to achieve the learning outcomes.

The School of Professional Studies (SPS) and its faculty celebrate and are committed to inclusion, diversity, belonging, equity, and accessibility (IDBEA), and seek to embody the IDBEA values. The School of Professional Studies (SPS), its faculty, staff, and students are committed to creating a mutually respectful and safe environment (*from the [SPS IDBEA Committee](#)*).

## New York University School of Professional Studies Policies

1. Policies - You are responsible for reading, understanding, and complying with [University Policies and Guidelines](#), [NYU SPS Policies and Procedures](#), and [Student Affairs and Reporting](#).
2. Learning/Academic Accommodations - New York University is committed to providing equal educational opportunity and participation for students who disclose their dis/ability to the [Moses Center for Student Accessibility](#). If you are interested in applying for academic accommodations, contact the [Moses Center](#) as early as possible in the semester. If you already receive accommodations through the Moses Center, request your accommodation letters through the Moses Center Portal as soon as possible ([mosescsa@nyu.edu](mailto:mosescsa@nyu.edu) | 212-998-4980).
3. Health and Wellness - To access the University's extensive health and mental health resources, contact the [NYU Wellness Exchange](#). You can call its private hotline (212-443-9999), available 24 hours a day, seven days a week, to reach out to a professional who can help to address day-to-day challenges as well as other health-related concerns.
4. Student Support Resources - There are a range of resources at SPS and NYU to support your learning and professional growth. For a complete list of resources and services available to SPS students, visit the [NYU SPS Office of Student Affairs site](#).
5. Religious Observance - As a nonsectarian, inclusive institution, NYU policy permits members of any religious group to absent themselves from classes without penalty when required for compliance with their religious obligations. Refer to the [University Calendar Policy on Religious Holidays](#) for the complete policy.
6. Academic Integrity and Plagiarism - You are expected to be honest and ethical in all academic work. Moreover, you are expected to demonstrate how what you have learned incorporates an understanding of the research and expertise of scholars and other appropriate experts; and thus recognizing others' published work or teachings—whether that of authors, lecturers, or one's peers—is a required practice in all academic projects.

Plagiarism involves borrowing or using information from other sources without proper and full credit. You are subject to disciplinary actions for the following offenses which include but are not limited to cheating, plagiarism, forgery or unauthorized use of documents, and false form of identification

[Turnitin](#), an originality detection service in NYU Brightspace, may be used in this course to check your work for plagiarism.

Read more about academic integrity policies at the NYU School of Professional Studies on the [Academic Policies for NYU SPS Students](#) page.

7. Use of Third-Party Tools - During this class, you may be required to use non-NYU apps/platforms/software as a part of course studies, and thus, will be required to agree to the "Terms of Use" (TOU) associated with such apps/platforms/software.

These services may require you to create an account but you can use a pseudonym (which may not identify you to the public community, but which may still identify you by IP address to the company and companies with whom it shares data).

You should carefully read those terms of use regarding the impact on your privacy rights and intellectual property rights. If you have any questions regarding those terms of use or the impact on the class, you are encouraged to ask the instructor prior to the add/drop deadline.