**Data Process and Structure**

**MASY1-GC 3505 | 100 | Fall 2024 | 09/09/2024 – 12/09/2024 | 3 Credit**

**In-person**

**Course Site URL:** [Brightspace - Data Process and Structure, Section 100 (nyu.edu)](https://brightspace.nyu.edu/d2l/home/374850)

**General Course Information**

**Name/Title**: Prof. Ronnie Obadiah, Adjunct Professor

**NYU Email**: ro253@nyu.edu

**Class Meeting Schedule:** 09/09/2024 – 12/09/2024 | Mondays | 06:20pm - 08:55pm

**Class Location**: TBA

**Description**

This course examines database models from a managerial perspective with an in-depth focus on business data requirements, operational rules, procedures, and logical structure. Using a case study method and real-world exercises, students research and present real world scenarios and develop automated business process solutions through evaluation and discussion. Upon successful completion of this course the student will have gained a comprehensive knowledge and understanding of data process and structures, database design and database management. Topics covered include: relational algebra and calculus, SQL queries, and business rules; database applications and Internet applications; indexing, disks and files; query evaluation; external sorting, evaluating relational operators; the query optimizer; transactional management and concurrency control; recovery.

**Prerequisites**

MASY1-GC3500 Database Design and Management

**Learning Outcomes**

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

* Analyze business requirements to identify entities, relationships and constraints in databases
* Design an entity relationship (ER) data model from identified entities, relationships, and constraints
* Analyze relations to reduce data redundancy using 1NF, 2NF, and 3NF
* Implement the data model into a physical database design
* Translate transactional user criteria into SQL manipulation language scripts
* Create relational algebra statements from user criteria

**Communication Methods**

Be sure to turn on your [NYU Brightspace notifications](about:blank) 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 12 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 is the key component of the course. Assignments, group project, 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](about:blank).

**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](about:blank). 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.

**Generative AI Use**

Use of ChatGPT (or other similar tools that generate text) is allowed in this class for specific assignments only. When use of the tool is allowed, it will be explicitly noted in the assignment directions. If you utilize ChatGPT for any part of the assignment (from idea generation to text creation to text editing), you must properly cite ChatGPT. Violations can result in failure of the assignment or failure of the course and a notation on your transcript.

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](about:blank) for additional information about attendance.

**Textbooks And Course Materials**

**Database Systems: Design, Implementation, & Management**

Carlos Coronel and Steven Morris

2022, 14th Edition

Publisher: Cengage

ISBN-13: 9780357673034

ISBN-10: 0357673034

$120

**Grading | Assessment**

Assignments range from written work on database design to SQL to building backend database code to demonstrate the comprehension and application of database design concepts and build. Each assignment should take about 2 hours to complete. The Group Project will take few days to complete and be presented at session 13. The open book Midterm and Final Exams will each take about 2 hours to complete. All assignments must be type written when possible and the answers must not be reordered. Diagrams can be hand drawn clearly. Grade is determined by providing correct and completed answers to problems. If assumptions must be made, they should be clearly stated. E-R model must be clearly legible.

DESCRIPTION PERCENTAGE

Assigned Activities (total of 10) 20%

Group Project 20%

Participation 10%

Midterm 25%

Final Exam 25%

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TOTAL POSSIBLE 100%

Failure to submit assignments on time will result in a grade reduction of -10% first day, -20% second day, -30% third day, -40% fourth day, -50% fifth day, -60% sixth day, and -100% seventh day. No form of extra-credit work is permissible. Students will not be permitted to redo/revise/resubmit any completed and graded assignment. Late Projects will not be accepted.

Student’s submission of assignments and exams will be returned with comments and corrections. Grades will be posted online. Formal review of assignments and midterm will be conducted during class.

*See the* [“*Grades*” *section of Academic Policies*](about:blank#Graduate1) *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.*

**NYU SPS Graduate Grading Scale**

|  |  |  |  |
| --- | --- | --- | --- |
| **A** | 95-100 | 4.000 | **Exceptional:** Demonstrates exceptional mastery of all learning outcomes of the course and thorough and complete understanding of all concepts. |
| **A-** | 90-94 | 3.667 | **Excellent:** Demonstrates highly competent mastery of all learning outcomes of the course and strong understanding of all concepts. |
| **B+** | 87-89 | 3.333 | **Very Good; exceeds course standards:** Demonstrates mastery of all learning outcomes of the course and understanding of core concepts. |
| **B** | 83-86 | 3.000 | **Good; meets course standards:** Demonstrates mastery of some learning outcomes; understanding of some core concepts could be improved. |
| **B-** | 80-82 | 2.667 | **Somewhat Satisfactory;** meets some course standards and requires improvement: Demonstrates basic understanding of some learning outcomes; improved understanding of all core concepts is needed. |
| **C+** | 77-79 | 2.333 | **Less than Satisfactory; requires significant improvement:** Demonstrates partial understanding of all learning outcomes and core concepts; requires significant improvement. |
| **C** | 73-76 | 2.000 | **Unsatisfactory; requires substantial improvement:** Demonstrates partial understanding of some learning outcomes and core concepts; requires substantial improvement. |
| **C-** | 70-72 | 1.667 | **Unsatisfactory; requires extensive improvement:** Demonstrates poor understanding of all learning outcomes and core concepts; requires extensive improvement. |
| **F** | Below 70 |  | **Fail:** Demonstrates minimal to no understanding of all key learning outcomes and core concepts; work is unworthy of course credit towards the degree. |
| **P** |  |  | **Passing:** If a Pass/Fail grade is allowed, the choice of pass/fail must be made prior to the completion of the fifth week of the term. |

**Course Outline**

**Start/End Dates:** 09/09/2024 – 12/09/2024 | Mondays

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

**No Class Date(s):** N/A

**Special Notes:** N/A

**Session 1, 09/09/24**

Syllabus Review

Chapter 1 Database Systems

Exercise

For next session:

Assignment 1, due 9/14/24 10pm

Read Chapter 2

**Session 2, 09/16/24**

Review Assignment 1

Chapter 2 Data Models

Exercise

For next session:

Assignment 2, due 9/21/24 10pm

Read Chapter 3

**Session 3, 09/23/24**

Review Assignment 2

Chapter 3 Relational Database Model

Exercise

For next session:

Assignment 3, due 9/28/24 10pm

Read Chapter 4

**Session 4, 09/30/24**

Review Assignment 3

Chapter 4 Entity Relationship Modeling

Exercise

For next session:

Assignment 4, due 10/5/24 10pm

Read Chapter 5

**Session 5, 10/07/24**

Review Assignment 4

Chapter 5 Advanced Data Modeling

Exercise

For next session:

Assignment 5, due 10/12/24 10pm

Read Chapter 6

**Session 6, 10/10/24 (TBC)**

Review Assignment 5

Chapter 6 Normalization of Database Tables

Exercise

Prepare for Midterm

For next session:

Midterm next week

**Session 7, 10/15/24**

Open bookMidterm

For next session:

Assignment 6, due 10/26/24 10pm

Read Chapter 7

**Session 8, 10/28/24**

Review Midterm

Review Assignment 6

Chapter 7 Introduction to SQL

Exercise

For next session:

Assignment 7, due 11/2/24 10pm

Read Chapter 8

**Session 9, 11/04/24**

Review Assignment 7

Chapter 8 Advanced SQL

Exercise

For next session:

Assignment 8, due 11/8/24 10pm

Read Chapter 9

**Session 10, 11/11/24**

Review Assignment 8

Chapter 9 Database Design

Exercise

For next session:

Assignment 9, due 11/16/24 10pm

Read Chapter 13

**Session 11, 11/18/24**

Review Assignment 9

Chapter 13 Business Inteligence and Data Warehouses

Exercise

For next session:

Assignment 10, due 11/23/24 10pm

**Session 12, 11/25/24**

Review Assignment 9

Work on Group Project

For next session:

Complete Group Project, due 11/30/24 10pm

**Session 13, 12/02/24**

Project Presentations

For next session:

Study for Final Exam

**Session 14, 12/09/24**

Final Exam

**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](about:blank)).

**New York University School of Professional Studies Policies**

1. Policies - You are responsible for reading, understanding, and complying with [University Policies and Guidelines](about:blank), [NYU SPS Policies and Procedures](about:blank), and [Student Affairs and Reporting](about:blank).

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](about:blank). If you are interested in applying for academic accommodations, contact the [Moses Center](about:blank) 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](about:blank) as soon as possible ([mosescsa@nyu.edu](about:blank) | 212-998-4980).

3. Health and Wellness - To access the University's extensive health and mental health resources, contact the [NYU Wellness Exchange](about:blank). 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](about:blank).

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](about:blank) 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](about:blank), 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](about:blank) 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.