

Data Management

MSBR 70240

Summer 2025

Instructor:	Sharif Nijim Associate Teaching Professor of Information Technology, Analytics, and Operations Academic co-Director, M.S. in Business Analytics 336 Mendoza College of Business Phone: 574-631-5545 (office) / 574-344-3383 (mobile/text) snijim@nd.edu
Ask Me Anything Hours:	My normal office hours are available for self-scheduling on my calendar. I will also make myself available to you before and after our class sessions and at any other mutually convenient time. If you would like to see me outside of office hours, please email me, and we will figure something out.
Meeting Times and Classroom:	June 30 - July 11, 2025 All class sessions will be held in Stayer B003. Please see the daily schedule for details.
Course Description:	In this course, you will learn the fundamental skills of data management. As most business data resides in relational databases, we will spend a large portion of our time practicing the skills needed to structure data and answer questions of interest to a business in the form of SQL queries that execute against a relational database. While we will use Microsoft SQL Server as the core technology in this course, the skills that you learn are portable and translate well to other relational databases, including Oracle, PostgreSQL, and MySQL. The proliferation of data that powers business analytics efforts also raises significant data governance, privacy, and security concerns. You will learn about the core components of corporate data governance programs, including the development of consistent data definitions, data quality standards, and master data management (MDM). We will also discuss the critical privacy issues that exist, even within the context of anonymized information, and the security issues associated with protecting the confidentiality, integrity, and availability of enterprise data.
Learning Goals:	By successfully completing this course, you will fulfill the following objectives: • Understand the relational database model and major database concepts

- Understand how to structure transactional data and why data warehouses may use the same technology while using different design principles
- Write SQL queries to retrieve, group, and filter data from a relational database, including the combination of data from multiple tables through set operations and joins
- Evaluate security, privacy, and governance issues associated with databases and Big Data

**Virtues to
Cultivate:**

If all we get to in this class is the course content, we're completely squandering this opportunity. I am committed to developing you as individuals. There's nothing more important.

Of prime importance is **kindness**. It is the basic operating principle that should influence how we interact. When in doubt, ask yourself, "How am I improving the day for someone else?"

I want to cultivate your sense of **neighborliness**, because I'm deeply interested in what happens after you're done with your time at Notre Dame. I want Notre Dame to continue to be an active part of your life!

Specifically in this course, we will cultivate the intertwined virtues of **curiosity** and **perseverance**. During our time together, we will explore a variety of tools and the context in which it makes sense to apply them. Each lab is an opportunity to nurture your sense of curiosity about ways in which what you're learning applies to the world you live in.

In the context of **perseverance**, I want you to fall in love with the work. I don't play a piece of music perfectly the first time I encounter it. You'll have to use your troubleshooting skills and curiosity to persevere and extract value from this class!

Finally, I want to underscore the virtue of **integrity**. It's possible to misuse these tools. You need to be the voice of integrity as you leave Notre Dame and take on what's next.

**Required
Materials:**

[*SQL Queries for Mere Mortals: A Hands-On Guide to Data Manipulation \(4th ed\)*](#)
John Viescas
ISBN 0134858336

[*HBS Davenport article and Agoda Case*](#)

**Recommended
Materials:**

[*R for Data Science*](#)
Hadley Wickham and Garrett Grolemund
ISBN 9781491910399

(Note: If you do not want a physical copy, you can [access this book online](#) at no charge. While you will use Python extensively through this program, this is an

excellent companion to courses where you may encounter the R programming language.)

Honor Code: This class is conducted in accordance with the University’s Academic Code of Honor. I have a zero-tolerance policy for violations of this policy. To quote from du Lac, “At a minimum, a student found responsible for an Honor Code violation usually fails the assignment in question. A more serious offense may result in failure of an entire course, or suspension or dismissal from the university.”

My expectation for this course is that you will collaborate with other students during our in-class hands-on exercises. I expect that you will complete homework assignments on your own. You may discuss general strategies for solving problems with other students, but the assignment you turn in should be entirely your own work.

The final exam is to be taken in a closed-book manner, with no access to external resources or collaboration of any kind.

Grading: Grades for the course will be determined using the following weightings:

Item	Weight
Assignments and Quizzes	60%
Final Exam	25%
Citizenship	10%
Familiarization Assignments	5%

Letter grades will be assigned based upon your weighted average in the course. I *generally* use the following scale for assigning letter grades in this course:

Range	Grade	Range	Grade
95.0 or above	A	77.0 - 79.9	C+
90.0 - 94.9	A-	73.0 - 76.9	C
87.0 - 89.9	B+	70.0 - 72.9	C-
83.0 - 86.9	B	69.9 or below	F
80.0 - 82.9	B-		

Assignments: You will have five major assignments in this class. Be careful to follow the specific instructions for the content, formatting, and submission of each assignment.

You are expected to turn assignments in on time. **All assignments are due by 8 AM** on the indicated date. Assignments turned in after the deadline but on the same day they were due will be assessed a 25% penalty. Assignments turned in within three days of the due date/time will be assessed a 50% penalty. No assignments will be accepted more than three days after the deadline. Late submissions are not accepted after the last day of class, regardless of the original due date.

Quizzes: Some class sessions (noted on the syllabus) will begin with a short quiz on material covered in earlier classes. This quiz will be given in Canvas and will assess high-level understanding of the material.

Citizenship: The success of this class depends upon your professional conduct, active participation, and full attention to our class discussions. For these reasons, citizenship will be included in the calculation of your final grade.

You may use electronic devices in class to take notes and follow the examples we use. Please be considerate of others and silence all of your electronic devices. Please ensure your device does not distract you or others.

Course Schedule:

Session	Topic	Readings	Assignment Due	Quiz
Monday 6/30 9:30 am	What is Data Management?			Tech Check Quiz
Tuesday 7/1 9:30 am	Agoda Case Relational Databases	SQL Chapter 1 Agoda: People Analytics and Business Culture, A and B	About Me and SQL Familiarization	Agoda Quiz
Wednesday 7/2 9:30 am	Transactional Database Design			Quiz 1
Wednesday 7/2 1:00 pm	Retrieving Data from a Database	SQL Chapters 4-6		
Thursday 7/3 9:30 am	SQL Lab 1			Quiz 2
Thursday 7/3 1:00 pm	Sets and Joins	SQL Chapters 7-10		
Friday 7/4			SQL Assignment 1	
Monday 7/7 9:30 am	Summarizing, Grouping, and Filtering Data	SQL Chapters 12-14	Normalization	Quiz 3
Tuesday 7/8 9:30 am	SQL Lab 2			
Wednesday 7/9 9:30 am	Conditions and Hierarchies	SQL Chapters 19-22	SQL Assignment 2	Quiz 4
Thursday 7/10 9:30 am	Advanced Database Concepts 1			
Friday 7/11 9:30 am	Advanced Database Concepts 2		SQL Assignment 3	Quiz 5
Friday 7/11 1:00 pm	Security, privacy, and foundations for the future of analytics		Course Reflection	Quiz 6
Saturday 7/12			SQL Assignment 4	
Monday 7/14 1 pm	Final Exam, Stayer B003			