

Fall 2023

## IS 631 - 101: Enterprise Data Management

James Markulic

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# **NJIT Course Syllabus - IS631 - Enterprise Data Management**

## **Fall 2023**

**Instructor:** James Markulic

**Lecture:** In Class or Distance Learning

**Office Hour:** By appointment

**E-Mail:** Markulic@njit.edu

### **Course textbook:**

- Avi Silberschatz, Henry F. Korth, S. Sudarshan, Database System Concept, McGraw- Hill, ISBN 0-07-352332-1, 7th edition.

### **Course Description:**

This course provides an understanding of the issues as well as hands-on experience in managing database systems as an essential organizational resource. Students will obtain a conceptual foundation of database design and explore the implications for organizational database usage. Students also will gain experience with enterprise database management systems, such as SQL Server. This course introduces the design and management of enterprise-wide database systems. Topics include: (1) data modeling and database design; (2) database implementation with SQL; (3) database access standards for enterprise database systems; (4) multidimensional databases, online analytic processing (OLAP) and data warehousing, customer relationship management (CRM); and (5) web-based enterprise database systems.

### **Class Communication Space/Learning Management System:**

We will be using Canvas, a state-of-the-art, open source, Learning Management System (LMS), and is nationally/internationally the fastest-growing LMS. We will be using this system for online sections of the class, where I will be posting additional resources as needed throughout the semester. The PowerPoint slides for each lecture will be available for download in Canvas.

### **Course Goals:**

At the end of the course, you should be able to develop a set of business requirements and implement a database that fulfills those requirements.

1. To understand the design and development issues regarding databases and enterprise database management.
2. To convert a set of requirements into an effective database structure.
3. To obtain a strong conceptual foundation of the underpinnings of database design and enterprise database management.
4. To implement a database using some commercial database management systems, such as using SQL within MS/SQL Server.
5. To communicate effectively through oral presentations and written documents.

Module	Description
1	Introduction to Database Systems
2	Introduction to Relation Models and Relational Algebra
3	Intro to SQL
4	Intro to SQL – Continued
5	Intermediate SQL
6	Advanced SQL
7	Transaction Processing
8	Relational Database Design
9	Entity Relation Model
10	Normalization
11	Cloud Computing and Database
12	NoSQL Databases
13	XML and APIs

14	Graph Databases
15	Tableau

**Assignments, Due Dates and Policy on Late Submissions** - See the Course Summary below for assignment due dates. Changes to assignments may be made at the professor's discretion

**The final grade will be calculated as follows:**

<b>Discussions</b>	<b>5%</b>	<b>Average Grade of Category</b>
<b>Short Assignments</b>	<b>20%</b>	<b>Average Grade of Category</b>
<b>Major Assignments</b>	<b>45%</b>	<b>Average Grade of Category</b>
<b>Class Project</b>	<b>30%</b>	<b>Average of Class Project Grades</b>
<b>Extra Credit</b>	<b>5%</b>	

Extra credit assignments are optional and only add to your grade. If you do not complete the extra credit, it will not count against your grade. This course uses the standard NJIT Grading Scheme for final grades.

Grades are assigned as follows:

<b>NJIT Grading Scheme</b>		
<b>Final Grade</b>		<b>Range:</b>
A	100 %	to 90.0%
B+	< 90.0 %	to 85.0%
B	< 85.0 %	to 80.0%
C+	< 80.0 %	to 75.0%
C	< 75.0 %	to 70.0%
F	< 70.0 %	to 0.0%

**Assignment feedback** will be provided to students in the comments associated with the grade in Canvas. Unless otherwise noted in the Canvas grade comments, once **assignments are graded, you will not be able to resubmit the assignment**. Make sure that you are submitting the correct files and that it has been properly tested before submitting it for grading.

**Tutoring:**

I am glad to assist student however I can, but if you are more comfortable working with a tutor, tutoring is available at [Tutoring | Ying Wu College of Computing \(njit.edu\)](https://njit.edu/tutoring)

**For Fall and Spring Semesters:**

**Assignments will automatically have 1 full letter grade deducted if it is more than 14 days late. So at that point, the highest grade you can receive is an 84. An additional 5 points will be deducted for every week after that.** The course builds on the assignments from each section so not completing the

work will make it difficult to keep up with the classwork. The only exception to this is if you have a very good reason and I am asked for an extension **BEFORE** the due date. Exceptions for medical reasons must be coordinated with and receive approval from the Dean of Students.

**All assignments must be submitted by the last day of class - December 13th - unless otherwise noted in Canvas or you have received prior permission from the professor. Assignment work will not be accepted after that date. Class project work has a separate due date - December 12st - and can be submitted until that time. No late submissions will be accepted for the class project.**

### **For Summer Semesters:**

Summer courses are viewed as self-paced due to the compressed timeline and other considerations. Assignment dates are indicative of where you should be in the course to prevent falling behind. All assignments can be submitted up to the last day of class. After that, absolutely no submissions will be excepted and a 0 will be received for any unsubmitted assignment.

### **Our Strict Policy on Collaboration/Cheating:**

*“Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: <http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>.*

*Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. **Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university.** If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at [dos@njit.edu](mailto:dos@njit.edu)”. No excuses will be accepted for submitting plagiarized materials.*

**Policy on Submission of Assignments/Projects :** The format of submission will be announced with each assignment/project. Assignments and projects are to be posted in Canvas. Students are allowed to work in group subject to written request and approval by the professor. Groups must be comprised of 3 students or less.

Below are the TOPICS covered in the course and the related TEXTBOOK readings. Remember one of the keys to success in IS631 is your own self-discipline - your goal should be to maintain currency each week, and NEVER fall behind!

**Accessibility:** The Canvas statement on accessibility can be found here at the [accessibility statement](#) .

Student Services: A list of the NJIT services available to students can be found [here](#)

**Note:** The syllabus may be changed to be adjusted to provide better educational services. In such a case, the changes will be announced in advance.

## Course Summary:

Date	Details	Due
Tue Sep 5, 2023	<a href="#">Modules 1, and 2</a>	
Fri Sep 8, 2023	Discussion Topic <a href="#">Assignment 1 - Introduce Yourself</a>	due by 11:55pm
Mon Sep 11, 2023	<a href="#">Module 3 - SQL 1</a>	
Fri Sep 15, 2023	Assignment <a href="#">Assignment 2 - Create Baseball Database</a>	due by 8:55am
Mon Sep 18, 2023	<a href="#">Module 4 - SQL 2</a>	
Mon Sep 25, 2023	<a href="#">Module 5 - Intermediate SQL</a>	
	Assignment <a href="#">Assignment 3 - Create the Missing Table Assignment</a>	due by 11:55pm
Fri Sep 29, 2023	Assignment <a href="#">Assignment 4 - Chapter SQL Questions - Part 1</a>	due by 11:59pm
Mon Oct 2, 2023	<a href="#">Module 6 - Advanced SQL</a>	
Fri Oct 6, 2023	Assignment <a href="#">Assignment 5 - Chapter 3 SQL Questions - Part 2</a>	due by 11:59pm
Fri Oct 13, 2023	Assignment <a href="#">Assignment 6 - Create Foreign Keys</a>	due by 11:55pm
Mon Oct 16, 2023	<a href="#">Module 7 - Transactions and Cursors</a>	
Fri Oct 20, 2023	Assignment <a href="#">Assignment 10 - Chapter 5 SQL Question Assignment</a>	due by 11:55pm
	Assignment <a href="#">Assignment 7 - Create View</a>	due by 11:59pm
Mon Oct 23, 2023	<a href="#">Module 8 - ERD1</a>	
	<a href="#">Module 9 - Normalization</a>	

Date	Details	Due
Fri Oct 27, 2023	Assignment <a href="#">Assignment 8 - Function Assignment</a>	due by 11:59pm
Mon Oct 30, 2023	<a href="#">Module - Cloud</a>	
Fri Nov 3, 2023	Assignment <a href="#">Assignment 12 - Transaction Processing Assignment</a>	due by 11:59pm
Mon Nov 6, 2023	<a href="#">Module - NoSQL</a>	
Fri Nov 10, 2023	Assignment <a href="#">Assignment 11 - Trigger Assignment</a>	due by 11:59pm
Mon Nov 13, 2023	<a href="#">Modules 13 - XML and APIs</a>	
Fri Nov 17, 2023	Assignment <a href="#">Assignment 13 - ERD Assignment</a>	due by 11:59pm
Mon Nov 20, 2023	<a href="#">Module Graph Databases</a>	
Mon Nov 27, 2023	<a href="#">Module - Tableau</a>	
Mon Dec 4, 2023	<a href="#">Class Project Open Session</a>	
	Assignment <a href="#">Extre Credit - Chapter 5 ODBC Submission Area</a>	due by 11:55pm
Wed Dec 13, 2023	Assignment <a href="#">Extra Credit - Relational Algebra Extra Credit</a>	due by 11:59pm
	Assignment <a href="#">Extra Credit Assignment 2 - BaseBall Normalization</a>	due by 11:59pm
Thu Dec 14, 2023	Assignment <a href="#">Roll Call Attendance</a>	due by 11:59pm
Thu Dec 21, 2023	Assignment <a href="#">Assignment 15 - Class Project Submission 1 - SQL Questions - Submission Area</a>	due by 11:59pm
	Assignment <a href="#">Assignment 16 - Class Project Submission 2 - Geospatial Data and Stored Procedure</a>	due by 11:59pm

Date	Details	Due
	Assignment <a href="#">Assignment 17 - Class Project Submission 3 - Crime Data</a>	due by 11:59pm
	Assignment <a href="#">Extra Credit Assignment 3 - Class Project Extra Credit Submission</a>	due by 11:59pm