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IS 631-102: Enterprise Data Management

James Markulic

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Course Syllabus

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Course Syllabus - IS631 - Enterprise Data Management

Instructor: James Markulic

Lecture: In Class

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

Class Discussions - Each module includes a discussion. You are expected to post comments, questions or problems you are having with the material in these discussions. This allows students to learn from each other and provides an area for students to directly communicate with each other.

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:

Discussions	**0%**	**Average Grade of Category**
Short Assignments	**20%**	**Average Grade of Category**
Major Assignments	**45%**	**Average Grade of Category**
Class Project	**30%**	**Average of Class Project Grades**
Extra Credit	**5%**	

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:

NJIT Grading Scheme

Final Grade	**Range:**	
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://t.e2ma.net/click/ycldtf/u5gu4fi/27rqlj)**

For Fall and Spring Semesters:

Assignments will automatically have 1 full letter grade deducted if it is more than 14 days late unless you have an extension approved by the professor. . So at that point, the highest grade you can receive is an 84. An additional 5 points will be deducted for every two weeks 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 - April 30th - 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 - May 9th - 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*** **(https://t.e2ma.net/click/zft90hb/v4haoovf/rh98dox)** *.*

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.*

It is easy to tell if someone submitted work from another semester. Work from another semester will receive a grade of 0. Note that **"I submitted the wrong file will not be accepted as an excuse."** You should be checking what you submit before you submit it.

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 up to 4 students.

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 (https://www.instructure.com/canvas/accessibility)** .

Student Services: A list of the NJIT services available to students can be found **here (https://docs.google.com/document/d/1xGO2qcVEF1tsOgZn-_W1LjSOKn_jhEVs9IWI_6jeuPs/edit)**

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 Jan 16, 2024	**Modules 1, and 2** (https://njit.instructure.com/calendar?event_id=70865&include_contexts=course_33719)	12am
Sun Jan 21, 2024	**Assignment 1 - Introduce Yourself** (https://njit.instructure.com/courses/33719/assignments/389056)	due by 11:55pm
Mon Jan 22, 2024	**Module 3 - SQL 1** (https://njit.instructure.com/calendar?event_id=70866&include_contexts=course_33719)	12am

Date	Details	Due
Sun Jan 28, 2024	Assignment 2 - Create Baseball Database (https://njit.instructure.com/courses/33719/assignments/389067)	due by 11:55pm
Mon Jan 29, 2024	Module 4 - SQL 2 (https://njit.instructure.com/calendar?event_id=70867&include_contexts=course_33719)	12am
Mon Feb 5, 2024	Module 5 - Intermediate SQL (https://njit.instructure.com/calendar?event_id=70868&include_contexts=course_33719)	12am
Sun Feb 11, 2024	Assignment 3 - Create the Missing Table Assignment (https://njit.instructure.com/courses/33719/assignments/389068)	due by 11:55pm
Mon Feb 12, 2024	Module 6 - Advanced SQL (https://njit.instructure.com/calendar?event_id=70869&include_contexts=course_33719)	12am
Sun Feb 18, 2024	Assignment 4 - Chapter SQL Questions - Part 1 (https://njit.instructure.com/courses/33719/assignments/389069)	due by 11:59pm
Sun Feb 25, 2024	Assignment 5 - Chapter 3 SQL Questions - Part 2 (https://njit.instructure.com/courses/33719/assignments/389070)	due by 11:59pm
Mon Feb 26, 2024	Module 7 - Transactions and Cursors (https://njit.instructure.com/calendar?event_id=70870&include_contexts=course_33719)	12am
Fri Mar 1, 2024	Assignment 7 - Create View (https://njit.instructure.com/courses/33719/assignments/389072)	due by 11:59pm
Mon Mar 4, 2024	Module 8 - ERD1 (https://njit.instructure.com/calendar?event_id=70872&include_contexts=course_33719)	12am
	Module 9 - Normalization (https://njit.instructure.com/calendar?event_id=70871&include_contexts=course_33719)	12am

Date	Details	Due
Mon Mar 11, 2024	Module - Cloud (https://njit.instructure.com/calendar?event_id=70864&include_contexts=course_33719)	12am
Sun Mar 17, 2024	Assignment 6 - Create Foreign Keys (https://njit.instructure.com/courses/33719/assignments/389071)	due by 11:55pm
Mon Mar 18, 2024	Module - NoSQL (https://njit.instructure.com/calendar?event_id=70875&include_contexts=course_33719)	12am
Sun Mar 24, 2024	Assignment 8 - Function Assignment (https://njit.instructure.com/courses/33719/assignments/389073)	due by 11:59pm
Mon Mar 25, 2024	Modules 13 - XML and APIs (https://njit.instructure.com/calendar?event_id=70873&include_contexts=course_33719)	12am
Sun Mar 31, 2024	Assignment 11 - Trigger Assignment (https://njit.instructure.com/courses/33719/assignments/389061)	due by 11:59pm
Mon Apr 1, 2024	Graph Databases (https://njit.instructure.com/calendar?event_id=70874&include_contexts=course_33719)	12am
Sun Apr 7, 2024	Assignment 10 - Chapter 5 SQL Question Assignment (https://njit.instructure.com/courses/33719/assignments/389060)	due by 11:55pm
Mon Apr 8, 2024	Module - Tableau (https://njit.instructure.com/calendar?event_id=70876&include_contexts=course_33719)	12am
Sun Apr 14, 2024	Assignment 12 - Transaction Processing Assignment (https://njit.instructure.com/courses/33719/assignments/389062)	due by 11:59pm
Mon Apr 15, 2024	Class Project Open Session (https://njit.instructure.com/calendar?event_id=70877&include_contexts=course_33719)	12am

Date	Details	Due
Sun Apr 21, 2024	Assignment 13 - ERD Assignment (https://njit.instructure.com/courses/33719/assignments/389063)	due by 11:59pm
Thu Apr 25, 2024	Roll Call Attendance (https://njit.instructure.com/courses/33719/assignments/389103)	due by 11:59pm
Tue Apr 30, 2024	Extre Credit - Chapter 5 ODBC Submission Area (https://njit.instructure.com/courses/33719/assignments/389095)	due by 11:55pm
	Extra Credit Assignment 1 - Relational Algebra Extra Credit Assignment (https://njit.instructure.com/courses/33719/assignments/389091)	due by 11:59pm
	Extra Credit Assignment 2 - BaseBall Normalization Assignment (https://njit.instructure.com/courses/33719/assignments/389092)	due by 11:59pm
Thu May 9, 2024	Assignment 15 - Class Project Submission 1 - SQL Questions - Submission Area (https://njit.instructure.com/courses/33719/assignments/389064)	due by 11:59pm
	Assignment 16 - Class Project Submission 2 - Geospatial Data and Stored Procedure (https://njit.instructure.com/courses/33719/assignments/389065)	due by 11:59pm
	Assignment 17 - Class Project Submission 3 - Crime Data (https://njit.instructure.com/courses/33719/assignments/389066)	due by 11:59pm
	Extra Credit Assignment 3 - Class Project Extra Credit Submission (https://njit.instructure.com/courses/33719/assignments/389093)	due by 11:59pm