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IS 631-851: Enterprise Database Management

James Markulic

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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 introduces the foundations of database systems, focusing on data modeling, query design, and applications. It provides an understanding of the issues in designing and managing database systems as an essential organizational resource. The components of enterprise data management are covered, with a strong emphasis on data modeling as well as the DBLC (Data Base Life Cycle). Implementing a database using SQL is an art and a science and will be addressed in the course. Data warehousing and data mining issues will also be examined.

Class Communication Space/Learning Management System:

We will be using Moodle, 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 Moodle.

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.

Assignments, Due Dates and Policy on Late Submissions

Assignments	Due date	Grade Category
Submission Area for ERM Assignment	See Canvas for Due Dates	Major Assignment
BaseBall Normalization Assignment		Major Assignments
Relational Algebra Assignment		Short Assignment
Create BaseBall Database		Short Assignment
Create Foreign Keys		Major Assignment
Create the Missing HallOfFame Table		Short Assignment
Submission for Chapter 3 SQL Questions		Major Assignment
Roles and Attributes Assignment		Short Assignment
View Assignment		Major Assignment
Chapter 5 ODBC Submission Area		Major Assignment
Chapter 5 SQL Question Submission Area		Short Assignment
Trigger Assignment		Major Assignment
Recursive Query Assignment		Short Assignment
Function Assignment		Major Assignment
Transaction Processing Assignment		Short Assignment
Class Project SQL Questions		60% of Project Grade
Class Project Basic Graphs (Extra Credit)		15% Added to Project Grade
Class Project – Crime Data		10% of Project Grade
Class Project Geospatial Data and Front End		30% of Project Grade
Critical Thinking Quiz		3% of Grade
Extra Credit		Up to 10% of Grade

Changes to assignments may be made at the professor's discretion

The final grade will be calculated as follows:

Short Assignments	**20%**	**Average Grade of Category**
Major Assignments	**50%**	**Average Grade of Category**
Class Project	**22%**	**See above for Category Percentages**
Critical Thinking Quiz	**3%**	
Attendance	**5%**	

For DL Class, the Class Project will be 27% of grade and there is no attendance grade

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.

Assignments will automatically have 1 full letter grade deducted if it is more than 21 days late. So at that point, the highest grade you can receive is an 84. An additional 5 points will be deducted for every 2 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.

All assignments must be submitted by the last day of class unless otherwise noted in Moodle 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 and can be submitted until that time. No late submissions will be accepted for the class project.

Our Strict Policy on Collaboration/Cheating:

Every assignment/project is to be regarded as an examination. The NJIT Honor Code will be upheld. A description of the NJIT Honor Code is available for your review at http://www.njit.edu/academics/honorcode.php. Students found cheating or collaborating or plagiarizing will be **immediately** referred to the Dean of Students and the NJIT Committee on Professional Conduct and subject to Disciplinary Probation, a permanent negative marking on their record, **possible dismissal and a definite grade of 'F' in the course. All submitted assignments are carefully checked for similarities, and plagiarism and guilty students will be identified. This also includes use of instructor materials no matter how they were provided to you.**

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 Moodle.

Our Strict Policy on Lateness of Submission: Every assignment/project will have a due date, and all submissions **are expected to be** made by this due date. **Assignments submitted after the due date will not be accepted regardless of any reason you might have.**

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!

For DL Classes, this is meant as a guideline to keep you on track for completing the material. You are free to complete assignments early; however, point will be taken off for work submitted past the Moodle due dates.

Week #	Topic(s)
1	Introduction to Database Systems
2	Entity Relation Model
3	Relational Database Design
4	Introduction to Relation Models and Relational Algebra
5	Intro to SQL
6	Intro to SQL – Continued
7	Intermediate SQL
9	Intermediate SQL - Continued
10	Advanced SQL
11	Transaction Processing
12	Cloud Computing and Database
13	NoSQL Databases
14	Class Project Presentations

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.

Supplementary readings if you need extra help (Not Required):

- A First Course in Database Systems (3rd edition) by Ullman and Widom.
- Database Systems: The Complete Book (2nd edition) by Garcia-Molina, Ullman, and Widom
- Database Management Systems (3rd edition) by Ramakrishnan and Gehrke.
- Fundamentals of Database Systems (6th edition) by Elmasri and Navathe.
- P. Rob, C. Coronel, S, Morris DATABASE MANAGEMENT: DESIGN, IMPLEMENTATION, AND MANAGEMENT 10e (Tenth Edition), Thomson/Course Technology – Cengage Learning. ISBN 13: 987-1-111-96960-8. (in case you do not have basic database concepts and knowledge.)