

Instructor: James Markulic
Distance Learning

Lecture: In Class or

Office Hour: By appointment

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Course textbook:

- Avi Silberschatz, Henry F. Korth, S. Sudarshan, Database System Concept, McGraw- Hill, ISBN 0-07-352332-1, 6th edition.

Supplementary readings (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.)

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.

Course Prerequisite - [IS 601 - Web Systems Development](#)

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. Oracle and MySQL are also allowed as well as using the NJIT Oracle instance; however, MS/SQL is

recommended. Please discuss with the professor before using other options.

5. To communicate effectively through oral presentations and written documents.

Assignments	Due date	Grade Category
Submission Area for ERM Assignment	See Moodle for Dates	Major Assignment
BaseBall Normalization Assignment		Short Assignments
Relational Algebra Assignment		Short Assignment
Create BaseBall Database		Short Assignment
Create Foreign Keys		Major Assignment
Create the Missing HallOfFame Table		Short Assignment
Chapter 3 SQL Part 1		Major Assignment
Chapter 3 SQL Part 2		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
Transaction Processing Assignment		Short Assignment
Class Project		
Part 1 - SQL Questions		60% of Project Grade
Part 2 - Geospacial data and Front		40% of Project Grade
Basic Graphs Extra Credit		10% of Project Grade
Extra Credit		

The final grade will be calculated as follows:

Short Assignments	20%	Average Grade of Category
Major Assignments	50%	Average Grade of Category
Class Project	25%	See above for Category Percentages
Attendance	5%	For DL Class, Class Project will be 30% of 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 2 letter grade deducted for every week that then are late. For example, an assignment submitted 2 weeks late will have a B as the highest possible grade. An assignment 4 weeks late will have a C as the highest possible grades. The class material and assignment build on the prior material. You will not be able to keep up with the class if you do not do the assignments in a timely fashion.

All assignments must be submitted by May 1st, the last day of class. Assignment work will not be accepted after that date. Class project work can be submitted until May 7th.

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 project 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	To Be Determined

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.

