

**INLS 523 – 001 Database Systems I: Introduction to Database Concepts and Applications !**  
**School of Information and Library Sciences**  
**The University of North Carolina at Chapel Hill**  
**Spring 2023**

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**Class Hours**              Wednesday    5:45 PM – 8:30 PM  
**Location:**                Manning – Room 208

**Objective:**                The course will provide a foundation in designing and implementing database systems. Concepts introduced in this course aim to develop an understanding of the role of database systems in information systems and are crucial to good database design and systems development practices. Design and implementation of basic database systems. Semantic modelling, relational database theory, including normalization, indexing, and query construction using SQL. At the completion of this subject, you should:

- Develop an appreciation of the role of databases in information systems of organizations.
- Be familiar with the conceptual, logical and implementation models of databases.
- Be able to create and modify relational databases and pose complex queries of relational databases.
- Be familiar with a broad range of data management issues including data integrity and security.
- Understand development of database applications and implementation of database concepts
- Develop a perspective on emerging issues in database design, development, and implementation.

**Textbooks:**              **Recommended**  
Modern Database Management – Jeffery A. Hoffer, V. Ramesh and Heikki Topi  
Edition 13, Pearson Prentice Hall Publishing  
ISBN 9780134773650

<b>Assessment:</b>	Assignments	30 %
	Mid Term Exam	25 %
	Project	10 %
	Final Exam	25 %
	Class Participation	10 %

All documents related to this course will be available from sakai ([sakai.unc.edu](http://sakai.unc.edu)). You are expected to view/download the assignments in a timely manner.

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### Grading:

Note that the SILS grading policy is based on the University Grading Policy. SILS uses the following [graduate and undergraduate grading scales](#):

Description	Graduate	Undergraduate
Clear excellence	H	A (90-100)
Entirely satisfactory	P	B+, B, B- (80-89.99)
Low Passing	L	C-, C, C+(70-79.99)
Failed	F	D, D+ (60-69.99)
		F (0-59.99)

### Accounts: E-mail, Sakai, Database

All students must have a UNC ONYEN account. If you need help, please go to <http://help.unc.edu/> or call the help desk at 919 962 HELP. This will be needed for access to Sakai. Please make sure you update your Sakai profile with current information so that e-mails sent to the class reach a valid e-mail address that you use and have access to. You should ensure that your Sakai account works and provide you access to the needed courses before the beginning of second week of class.

### Computing Requirements:

You will need to use several software packages in this course.

- UNC VPN: To access the UNC network, you may need to install UNC's VPN client. See [help.unc.edu](http://help.unc.edu) for details.
- Database: For this course, we will use a database system that is hosted on a server. In class, we will discuss options for installing software on your Mac, PC, or Linux computer that will allow you to connect to the server to access your database.
- Diagramming tools: You will need to use a diagramming tool to create your E/R diagrams and database models. No specific tool is required. However, your diagrams must look professional and use good formatting (the ER diagrams in the textbook are good examples). Many online tools for creating ER diagrams are available (e.g., LucidChart, Gliffy, Google Slides).
- PDF: You will need the ability to save Word processing files and diagrams as PDF files. Most current word processors support saving to PDF. You will also need a tool such as Acrobat Reader that will allow you to open and view PDF files.
- In-class exercises: We will do in-class exercises that will require computer use.

### Assignments:

Three assignments will be given, one of which will require the use of SQL client. All assignments are due on the dates specified below and are to be submitted at the beginning of each class. An assignment is considered late if submitted after the beginning of the class. All assignments are required to be submitted in Sakai, please note that they are time stamped (unless otherwise stated). No late submissions will be accepted unless specifically allowed by the instructor prior to the deadline. Keep track of what is happening by checking the announcements on Sakai regularly.

Assignment #	Posted Date	Due Date
Assignment 1 – SQL	January 24 <sup>th</sup> , 2023	February 7 <sup>th</sup> , 2023
Assignment 2 – ERD	February 7 <sup>th</sup> , 2023	February 21 <sup>st</sup> , 2023
Assignment 3 - Normalization	February 21 <sup>st</sup> , 2023	February 28 <sup>th</sup> , 2023

### Project

The project would be a topic of your choice. It would involve identifying a problem/emerging database topic. You must submit your proposal by **February 7<sup>th</sup>, 2023** and the due date for

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submission of your deliverable is **April 18<sup>th</sup>, 2023**. The deliverable would be in the form of a TED video for a minimum of 3 min and maximum of 4 min. There would be 1 min for Q and A.

**Exams** There will be two exams during the semester, a midterm and final. The final exam will include material covered prior to the mid-term exam. The dates and times are posted in the syllabus. Please plan accordingly.

**Class Participation:** Class participation will be evaluated at the end of each class meeting. In order to participate, you must be on time, present and participate in class and/or online. You are expected to have completed the reading assigned for the class and be ready to respond to questions and contribute to discussions (in class or electronically).

**Honor Code** The UNC Honor Code is a long-standing student-administered judicial system. For information about the University Honor code and the culture of the Honor that underwrites all University activities, please see: <https://studentconduct.unc.edu/>. The full text of the “Instrument of Student Judicial Governance” is linked to this site.

**Lecture Schedule:** This is a tentative outline of when the various topics will be covered. You are expected to have read the designated chapters prior to attending the class. Exams will generally be based on material covered in class, but not necessarily restricted to it.

Week	Date	Topic	Chapter
1.	Jan 10, 2023	Database Concepts	1
2.	Jan 17, 2023	Database Application Development	7
3.	Jan 24, 2023	Structured Query Language – basic	5
4.	Jan 31, 2023	Structured Query Language – Advanced	6
5.	Feb 7, 2023	Modelling Data in the Organization	2,3
6.	Feb 14, 2023	<b>Well-being Day – No Class</b>	
7.	Feb 21, 2023	Logical Database Design and the Relational Mode (Normalization)	4
8.	Feb 28, 2023	Physical Database Design and Performance	8
9.	Mar 7, 2023	<b>Mid Term</b>	
10.	Mar 14, 2023	<b>Spring Break – No Class</b>	
11.	Mar 21, 2023	Transaction management and concurrency control	7
12.	Mar 28, 2023	Database Administration, Warehousing, Distributed databases, Analytics	9,11
13.	Apr 4, 2023	Big Data Technologies - NoSQL, Document DB, Graph DB	10
14.	Apr 11, 2023	Hands On / Demonstration of NoSQL, Analytics, Data Governance and Data Quality	12
15.	Apr 18, 2023	<b>Project Presentation - TEDs</b>	
16.	Apr 25, 2023	<b>Final Review</b>	
17.	May 2, 2023	<b>Final Exam Manning 208</b>	