

COURSE SYLLABUS

I-Course Information :

Title of the course	Database I
Department	Data Science
Specialization	
Academic Year	2020-2021
Semester Duration	
Credit Number	3
Number of Hours	40 Hours
Course Instructor	Hamssa Hasrouny
Email	Hamssa.hasrouny@ul.edu.lb
Office Hours	

II- Course Description

This course allows the student to have the theoretical foundations to design a database. It involves understanding and acquiring the concepts of conceptual and relational modeling of data while relying on the notions of relational algebra. It is also a question of knowing how to realize the conceptual and relational diagrams of the data on a concrete example in order to implement it under any type of Database Management System. It covers:

- The ER (Entity-Relationship) approach to data modeling.
- The relational model of database management systems (RDBMS).
- The use of relational algebra and query languages such as SQL to create, modify or query the database.
- This course will also touch upon Database Normalization/optimization.

III-Course Objectives

This course aims to provide students with/allows students to:

- Understand conceptual and relational data models.
 - Realize conceptual and relational data schemas.
 - Implement a concrete example using SQL.
- ❖ Student who successfully fulfills the course requirements will have demonstrated an ability to:
- Express databases in relational algebra form and perform CRUD (Create, Read, Update and Delete) operations.
 - Describe systems with E/R models and convert such models into relational form.
 - Organize and normalize Database schemas.



- Use and apply SQL to create, update and query information from the database.

In order to achieve the objectives of the course, the following requirements must be met by the student:

- Scientific activities
- Academic regulations
- Academic work and perseverance
- 70% attendance and participation

IV- Course Outline and Calendar

Learning Objective	Session(s)	Learning Content	Pedagogical Strategy & Tools
		Chap1:Databases and Database users	
		Chap2:Database System Concepts and Architecture	
		Chap3:Data Modeling Using the Entity-Relationship (ER) Model	
		Chap4: Enhanced Entity-Relationship(EER) Modeling	
		Chap9: Relational Database Design by ER- and EERR-to-Relational Mapping	
		Chap5: The Relational Data Model and Relational Database Constraints.	
		Chap6: Basic SQL	
		Chap7: More SQL: Complex Queries, Triggers, Views, and Schema Modification.	
		Chap14:Basics of Functional Dependencies and Normalization for Relational Databases	
Final Exam			

P.S.: The course outline above may be modified during the semester.

V- Teaching approach & methods

- Course: Power Point presentations
- Performing exercises.
- Application over MySQL.

VI- Assessment Methods

The success of the student in this course is based on:

- 1- His/her active participation in class.
- 2- His/her scientific contribution through research done outside the classroom.
- 3- His/her reading notes, research reports and practical applications as requested by course instructor.

The assessment of the student is carried out according to the following grid:

Assessment Type	Final Grade Weighting (%)	Dates/Deadlines
Project	10%	
Quizzes, Assignments	30%	
Final exam	60%	
Total	100%	

VII- Specific Course Requirements

1- Regulations concerning deadlines for written and applied work submissions

The teacher has the right to:

- Refuse to receive written applied work outside the deadlines.
- Give the student additional time after omitting up to 25% of the mark awarded to the concerned activity.

2- Academic measures in case of plagiarism

The student shall be liable to the following penalties in case of any attempt of illicit scientific citation:

- Cancellation of the student's contribution, activity or scientific article and reduction of the final mark.
- If the same offense is reported in other courses, cancellation of the final exam and failure in the relevant course(s).

VIII- Reference Book

- « Fundamentals of Database Systems», 7th edition, ELMASRI and NAVATHE, 2017.

IX- Bibliography& Additional Sources

- Textbook: Database Systems: The complete book. (Second) by Garcia Molina, Ullman and Widom, ISBN: [9780131354289]. Pearson