

## **General Information about the Instructor**

Uğur Koç, kocugur@sabanciuniv.edu

## **Course Schedule**

Saturday 09:00 - 12:00

Monday 19:00 - 22:00

## **Course Objective**

At the end of the course the learner is expected to be able to transform end user business requirements into E-R diagrams, hence be able to complete the conceptual design from requirements specifications. The logical design and physical design phases are also expected to be successfully done by the learner, moreover s/he is expected to be able to use SQL at the fundamental level. We will also focus on SQL databases, and a variant of different NoSQL solutions.

## **Course Materials**

Fundamentals of Database Management (Elmasri & Navathe)

Modern Database Management (Jeffrey A. Hoffer)

NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence

Oracle Online Documentation Library

(<https://docs.oracle.com/en/database/oracle/oracle-database/19/admin/index.html>)

MySQL Online Documentation (<https://dev.mysql.com/doc/refman/8.0/en>)

PostgreSQL Online Documentation (<https://www.postgresql.org/docs/13>)

## **Course Outline**

This course gives students hands-on practice and experience in database design and administration along with the fundamental concepts and techniques involved. Topics covered include the entity-relationship model, relational database theory, file structure, indexing and hashing, query processing, crash recovery, concurrency control/transaction processing security and integrity. Creation of tables, views, synonyms and indexes are examined in detail. The use of SQL is considered and highlighted with the help of examples, and used to build the underlying database of an application. Topics include Introduction to RDBMS, Database Creation and Modification, SQL, Design data models, and perform processing with various NoSQL systems, including document, graph and key-value models.

## **Grading**

1 Midterm (30%)

1 Final (30%)

1 Project (40%)