

**SU DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE**  
**SYLLABUS (Tentative)**  
**COSC 386 Database Implementation**

**Course Description:** Introduction to the relational and semi-structured database models. Theoretical concepts include relational algebra and calculus, logical and physical database design, normalization, database security and integrity, data definition and data manipulation languages. Programming topics: database creation, modification, and querying using MySQL and PHP.

**Prerequisites:** COSC 220 Computer Science II and MATH 210 Introduction to Discrete Mathematics, both completed, with a grade of C or better.

**Required textbook:**

“A First Course in Database Systems.” Third Edition. Jeffrey D. Ullman and Jennifer Widom.  
eText: ISBN-10: 0136006752, ISBN-13: 9780136006756.  
Print: ISBN-10: 013600637X, ISBN-13: 9780136006374.

**Reference books (Optional):**

“PHP and MySQL Web Development.” Fourth Edition. Luke Welling and Laura Thomson.  
eText: ISBN-10: 0672332000, ISBN-13: 9780672332005.  
Print: ISBN-10: 0672329166, ISBN-13: 9780672329166.

<b>Topics</b>	<b>Weeks</b>
Data Models and Relational Models	1.0
Querying on Relational Database	1.0
Structured Query Language (SQL)	3.0
The E/R Model and Relational Design Theory	3.0
From E/R to Relational Designs, Transactions	2.0
Constraints and Triggers	1.0
Functional Dependencies, Design of Relational DB Schemas	1.0
Decomposition, Third Normal Form, Multivalued Dependencies	1.0
Project Presentation	<u>1.0</u>
	14.0

**Evaluation**

Homework and Programming Project 40%  
Midterm and Final Exams 50%  
Quizzes and In-class Exercises 10%

NOTE: ONCE A STUDENT HAS RECEIVED CREDIT, INCLUDING TRANSFER CREDIT, FOR A COURSE, CREDIT MAY NOT BE RECEIVED FOR ANY COURSE WITH MATERIAL THAT IS EQUIVALENT TO IT OR IS A PREREQUISITE FOR IT.