Course	CSI 3450,Winter 2018 Database Design and Implementation Dept. of Computer Science and Information, Oakland University
Credit	4
Lecture	Sections 14767, TR 10:00 – 11:47 AM, DH 127
Instructor	Xiaotong Lin xlin@oakland.edu Office Hours: TR 12:00-1:00 PM, and by appointment, at DH129
TA	Jaya Vara Naga Sindoori Sistla sistla@oakland.edu Office Hours: Wednesday 11am-12pm at EC 501
Textbook	(**Required)** *Database Systems: Design, Implementation, and Management, 11th Ed* by Coronel and Morris, ISBN-13: 978-1-285-19614-5, 2015

Course Description

Introduction to the design and implementation of database systems. Topics include designing a practical database for an application using normal forms, understanding relational database schemas, planning and implementing a database using software such as Oracle and Microsoft SQL Server, advanced database topics in redundancy, replication, loading balancing, compatibility, ODBC and JDBC, and database systems administration.
Prerequisite(s): major standing.

Objectives

By successfully completing this course, students should be able to (letters in parenthesis indicate ABET student outcomes):

1. Apply theoretical knowledge to develop database applications using DBMS and SQL language. (IT: abcdegij, CS: abcdegij)
2. Effectively use the Entity Relationship diagram for the representation of conceptual schemas.(IT:ci, CS:ci)
3. Identify functional dependencies and apply normalization algorithms. (IT:abij, CS:abij)
4. Use Data Definition Language to define database schemas. (IT:bcgijk, CS:bcgijk)
5. Construct data retrieval procedures using the Data Manipulation Language. (IT: cik, CS: cik)
6. Develop data retrieval procedures using Relational Algebra. (IT: bcik, CS: bcik)

Recourses

1. DreamSpark site for OU students to download Microsoft applications free: https://elara.secs.oakland.edu/msdnaa/?action=signin
2. XAMP: PHP development environment for Window, Mac OS-X, and Linux: https://www.apachefriends.org/index.html
2. Cloud 9: Free web application development environment. https://c9.io/
3. Github : version control https://github.com/

Grade Assessments

Grade weights: Homework 25%, Project 15%, Exams 52%, and Quizzes 8%
Numeric course grades (4.0-0.0) are determined with formula:

Grade = Score/16 -2, where *Score* is in 100 scale

Homework

We will have seven to nine assignments finished individually. The assignments will be due at 11:55pm on the specified dates, unless instructed differently. Without informing the instructor in advance, *no late work will be accepted*.

Project

The term-long projects will be group-oriented with 2-3 members in each group. Students will design and implement a web application with database support. MySQL will be the recommended DBMS. Server side applications can be in PHP, C#, JSP/JDBC, ColdFusion, Node.js, or your choice. The final deliverable needs to be deployed to the Internet, hosted by the SECS servers or by the servers of your choice (Cloud 9 is recommended).

Exams

We will have four closed-book exams, each of which weighs 13% of the course grade. The first three will be given during lectures, and the forth will be in the Final Exams week, referring to the Tentative Class Schedule for the exam dates.

Quizzes

Occasionally throughout the semester, we will have some popup quizzes without announcements in advanced. They may take place anytime during a lecture. Thus, your class attendance is highly recommended.

Advice for performing well in this class

1. Attend the class, bringing the required textbook to work on the exercises.
2. Keep up with the weekly assignments, since many of the concepts build upon each other.
3. Review the assignments when assigned (even if you don't have time to work on them right then). This way you can plan out your week and get your questions answered early. Don't wait until the last minute to work on an assignment at home.
4. Read ahead in the book. Many of the questions you encounter in the homework and exams can be found in the reading.
5. Check Moodle website of this session at https://moodle.oakland.edu/moodle often for updates. This website will contain notes, assignments, supplementary materials, assignment due dates, exam dates, etc.
6. Class announcements and reminders through Moodle will go to your OU email. If you don't check OU email very often, forward it to your primary email account.
7. Last but not least, if you have trouble understanding a concept, please contact me right away. Best way to catch me is by email (xlin@oakland.edu).

Behavioral Contract

Please mute your cell-phone during lectures. If you need to use your laptop or a computer in the classroom, please sit at the back of the room, in order to minimize the distraction you cause to the fellow classmates.

Academic Conduct

It is assumed that all work throughout the term is your own. Discussion of assignments is permitted but copying of assignments or parts of assignments is not. Oakland University Academic Conduct Policy can be found at http://wwwp.oakland.edu/studentcodeofconduct/

Tentative Class Schedule

Week	Topic	Note
1 **(Jan 4)**	Introduction/Ch1-Database System	
2 **(Jan 9, 11)**	Ch2-Data Models	
3 **(Jan 16, 18)**	Ch3-Relational Database	
4 **(Jan 23, 25)**	Ch4-Entity Relationship Modeling	
5 **(Jan 30, Feb 1)**	Ch5-Advanced Data Modeling	Exam 1(01/30): Ch 1-3
6 **(Feb 6, 8)**	Ch6-Normalization	
7 **(Feb 13, 15)**	Ch7-Intro to SQL	Exam 2(02/15): Ch 4-6
8 (**Feb 20, 22)**	No classes	Winter Recess
9 **(Feb 27, Mar 1)**	Ch8-Advanced SQL	
10 **(Mar 6, 8)**	Ch9-Database Design	
11 **(Mar 13, 15)**	Chapter 10	
12 **(Mar 20, 22)**	Ch10-Transcation/Concurrent	Exam 3(03/22): Ch 7-8
13 **(Mar 27, 29)**	Ch11/12-Performance/Distributed DB	
14 **(Apr 3, 5)**	Ch13/14-BI/Data Warehouses/Web App	
15 **(Apr 10, 12)**	Review /Project Presentations	
16 **(Apr 17)**	Project Presentations	
Final Exams	8:30-10:15 am, Thursday, **April 19**	Exam 4: Ch 9-14