

## UC Extension

### Course Outline: Introduction to Relational Data Base Management Systems (X-409.1)

**Instructor:** Andy Oppel      **Email:** [aoppel@berkeley.edu](mailto:aoppel@berkeley.edu) (questions, assignments, etc.)

**Evening/Weekend Phone:** (510) 864-2299

**Day:** Tuesdays      **Time:** 6:30-9:30 p.m.  
**Location:** San Francisco (425 Market St., 8<sup>th</sup> floor)

**Course Web Site:** <http://www.andyoppel.com/X4091>

**Course Objectives:** At the completion of the course, the student will be able to do the following:

- Explain the fundamental architecture of existing database management systems, including data storage techniques of the Relational database model.
- Use Query-By-Example (QBE) and SQL to formulate basic database queries.
- Transform business requirements into logical and physical database designs using the Normalization Process.

**Course Prerequisites:** A programming course in any language or equivalent experience is recommended but not essential.

**Text:** *Databases: A Beginner's Guide*  
Andy Oppel  
First Edition, 2009, McGraw-Hill/Osborne, ISBN 978-0-07-160846-6

**Software Requirements:** Assignments 1 and 4 require access to a Database Management System (DBMS) such as Access, Oracle, Sybase and Microsoft SQL Server. Microsoft Access is available in the San Francisco Downtown Center Labs for class use in completing both assignments or you may use any SQL DBMS available to you at work or home (DBMS Products may be purchased at substantial discounts from the Bear Bookstore on the Berkeley campus). The data required for the assignments is available on the web site for the course.

<b>Grading:</b>	Assignment 1	15%	
	Assignment 2	15%	
	Assignment 3	20%	
	Assignment 4	20%	
	Mid-term Exam	15%	(TAKE HOME EXAM)
	Final Exam	15%	(TAKE HOME EXAM)

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<u>Schedule of Assignments &amp; Topics</u>	<u>Date</u>
1. Chapter 1: Database Fundamentals Chapter 2: Exploring Relational Database Components	01/17/12
2. Chapter 3: Forms-based Database Queries <ul style="list-style-type: none"><li>Classroom Demonstration of Query By Example (QBE) Using Microsoft Access</li><li>Classroom Demonstration of SQL Queries (SELECT) Using Microsoft Access</li></ul>	01/24/12
3. Chapter 4: Introduction to SQL <ul style="list-style-type: none"><li>Classroom Demonstration of SQL Using an SQL Based RDBMS</li></ul>	01/31/12
4. Chapter 5: The Database Life Cycle Chapter 6: Database Design Using Normalization <ul style="list-style-type: none"><li>1<sup>st</sup> Classroom Exercise on Normalization</li></ul> <b>ASSIGNMENT 1 DUE: 8 Lab Problems using QBE or SQL</b>	02/07/12
5. Chapter 7: Data and Process Modeling <ul style="list-style-type: none"><li>Normalization Revisited (2<sup>nd</sup> Classroom exercise on Normalization)</li></ul> <b>ASSIGNMENT 2 DUE: Normalize User Views and Draw ERD (College Library)</b>	02/14/12
6. Chapter 8: Physical Database Design <ul style="list-style-type: none"><li>Physical Storage Considerations (Added Material)</li><li>Assignment 2 Walk-through</li></ul> <b>TAKE HOME MID-TERM DUE</b>	02/21/12
7. Chapter 9: Connecting Databases to the Outside World Chapter 10: Database Security <b>ASSIGNMENT 3 DUE: Normalize User Views and Draw ERD (Fundraising)</b>	02/28/12
<b>*** no class on 3/6 ***</b>	
8. Chapter 11: Deploying Databases <ul style="list-style-type: none"><li>Demo of Creating Tables and Views using MS Access (For Assignment 4)</li></ul>	03/13/12
9. Chapter 12: Databases for Online Analytical Processing <ul style="list-style-type: none"><li>Demo of Creating Tables and Views using SQL (For Assignment 4) <b>*** Room 815C ***</b></li><li>Assignment 3 Walk-through</li></ul> <b>TAKE-HOME FINAL DUE</b>	03/15/12
10. Chapter 13: Integrating XML Documents and Objects into Databases <ul style="list-style-type: none"><li>Object-Oriented Databases</li><li>Object-Oriented Applications</li><li>Object-Relational Databases</li><li>SQL3</li><li>Careers in Database Management (forum discussion)</li></ul> <b>ASSIGNMENT 4 DUE: Implement Design Solution from Assignment 4 (using a Relational DBMS of the student's choice)</b>	03/20/12