CMPS 182:
Introduction to Database Management Systems

Instructor: David Martin

Overview

CMPS 182, Summer 2017 Course Information

Introduction to Database Management Systems

Classes: Tues & Thurs, 6:00-7:45pm, <u>Engineering 2, Room 194</u>

Instructor: <u>David Martin</u>

Office Hours: Tues & Thurs, 4:30-5:30pm; <u>E2-249B</u>
also possible by appointment (phone or Google hangout)

Labs: Mon & Wed, times TBD; <u>Social Science 1, Room 135</u>

- **Teaching Assistant:** <u>Avi Kaushik</u>

- **Office Hours:** TBD, <u>E2-213</u>

Course Description/Syllabus

CMPS 182 covers concepts, approaches, tools, and methodology of database design and querying. Topics include:

- Relational data model and normal forms
- Commercial languages such as SQL (data definition, queries and update, indexes, constraints, triggers)
- Transaction Processing
- On-Line Analytical Processing (OLAP)
- APIs to access databases from applications
- XML and JSON data representations
- Big data/NOSQL

CMPS 182 Textbook

A First Course in Database Systems
Jeffrey Ullman and Jennifer Widom,
Prentice-Hall, 3rd edition.

- In the bookstore
  - ISBN 013600637X
- The ebook is no longer available, unfortunately
- *Many* auxiliary materials available free
  - http://infolab.stanford.edu/~ullman/fcdb.html
  - ***Including the first two chapters***
- Large used/rental market; e.g. on Amazon
- A paperback version, printed for use overseas, may be available online
  - Apparently legal, but missing detailed TOC and chapter heading numbers
- On reserve in library; just one copy; 2-hour loan period

Evaluation
(subject to change)

- Midterm

- Final Exam

- Homework problems

- Gradiance homeworks (online system)

- Project/Lab Assignments

- Weights of the above components are TBD

Projects & Homework

- This course involves database application development projects through a series of Lab assignments
  - You should attend a lab section, as the teaching assistant will be available to guide you through your project/lab assignments and answer your questions during lab sections.
- Some non-lab homework assignments will be assigned via Gradiance; see: http://www.gradiance.com/pub/stud-guide.html.
  - For CMPS182, use http://www.gradiance.com/services, with class code TBA
- There will be also be written homework assignments
- UCSC tutoring services: http://www2.ucsc.edu/lss/tutorial_services.shtml

Lecture Schedule
Initial Draft, subject to change

	Lectures	Dates	Chapters
History and Introduction	1	6/27	1
The Relational Data Model	1	6/29	2.1,2.2
SQL: DDL, DML; Defining relations and constraints, writing queries; Modifications, transactions; Views, indexes	4	7/6-7/18	2.3, 2.5*; 6.1-6.7; 8.1-8.4 (except 8.2.3 and 8.4.3)
Relational Algebra	3	7/20-7/27	2.4, 2.5
Wrap up above topics; Midterm review (time permitting)	1	8/1	-
Midterm	1	8/3	-
Constraints and Triggers	1	8/8	7.1-7.3, 7.5
Database Application Development	1	8/10	9.1,9.2,9.6
Schema Refinement and Normal Forms	2	8/15-8/17	3.1-3.5 (except 3.2.5, 3.4.2, 3.4.3, 3.5.3)
Semistructured Data Model: XML, JSON	2	8/22-8/24	11.1-11.3, 12.1-12.2
NOSQL; Knowledge Bases	1	8/29	
Final Exam	1	8/31	

* Textbook section 2.5: Focus on the concepts first time through; we will cover the notation in the Relational Algebra material

A Few Online Resources
for Learning SQL

- http://www.w3schools.com/sql
- http://www.tutorialspoint.com/sql
- http://www.tutorialspoint.com/postgresql
- http://sqlzoo.net

  This last one allows you to try queries against a live server (not sure whether the others do)