Stevens Institute of Technology
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Syllabus

CS561: Database Management Systems I

Semester taught:	**Start and end date of the semester:**
Spring 2007	1/22/07 to 5/4/07
Professor Name: Dr. David Klappholz **Office address:** Department of Computer Science, Lieb 312 **Office phone number:** (908) 447-2346 **E-mail address:** david@cs.stevens.edu	Office Hours: Tuesday 4PM-6PM (EST) Course Web Address:

Overview

CS 561 is an introduction to relational database management systems. Topics covered include:
Relational schemas
Keys and foreign key references
Relational algebra (as an introduction to SQL)
SQL
Entity-Relationship (ER) database design
Translating from ER models to relational schemas
Translating from relational schemas to ER models (reverse engineering)
Functional dependencies
Normalization.

Prerequisites

CS590 or the equivalent.

Learning Goals

After taking this course, the student will be able to:

- Design and normalize a relational database
- Query a relational database in SQL

Pedagogy

Each week students read a Powerpoint lecture and related sections in the two textbooks. They submit a homework assignment based upon the week's lecture by 11:59PM Sunday. Once all homeworks have been submitted, solutions are posted. If students have questions regarding disparities between their solutions and the posted ones, they post questions to the discussion group.

Required Text(s)

1. Ramez Elmasri, Shamkant B. Navathe, Fundamentals Of Database Systems(Fourth or Fifth Edition), Addison Wesley Longman, Inc

2. Klappholz, David, "SQL," chapter in "Little Languages and Tools" volume of Peter Salus, ed., Handbook of Programming Language (4 Volume Set : Object-Oriented Programming Languages, Imperative Programming Languages, Little Languages and Tools, Functional and Logic Programming Languages), NY, Macmillan. This chapter is posted, for personal use only, to the course web site.

Required Readings

Readings are assigned for each week. They are found in the individual Powerpoint lectures.

Assignments

1. Weekly Powerpoint lecture
2. Weekly homework
3. Midterm Examination
4. Final Examination

The assignments and their approximate weights are as shown below:

1. 11 homework assignments	20%
2. Midterm examination	40%
3. Final examination	40%
TOTAL	**100%**

Course Schedule

Week	Subject	Assignment Due
1	Orientation Week	Overall structure of course including description of three types of assignments: **Teams formed and assigned a team topic. Each student assigned to a team to work on Team Assignment due at the team's discretion either week 9 or week 10. A Team Assignment consists of a Power Point presentation together with detailed notes.**
2	Database Technology for Management I	Read Blaha: Chapters 1,2,4,5 &6. **Midterm Paper Individual Assignment Assigned. Midterm consists of a short paper (in Word format) accompanied by supporting Power Point Slides.**
3	Database Technology for Management II	Read Blaha: Chapters 8.9.10. & 11
4	Foundations of Data Quality I	Read two short papers by Redman + paper by English.
5	Foundations of Data Quality II	Read Strong et al's paper + paper by Haebich on a Methodology for Management of Data Quality. Optionally read paper by Wand & Wang.
6	Datawarehouses	Read Blaha: Chapters 12, 13 + paper entitled "DW 2.0: the Next Generation of Data Datawarehousing " by Inmon.
7	Strategic Information Systems Planning + **Midterm Project (Due)**	Read Earl's paper on Strategic Information Planning systems (SISP). **Individual Midterm Project Paper and accompanying Power Point Slides to be sent to instructor via email by March 11, 2007 at 5:00 PM.**
8	Knowledge Work/ Knowledge Binding	Read paper on Knowledge Binding by Morabito, Sack & Bhate Read paper on the Next Society by Peter Drucker
9	**Team Project (Due)** + Organization Modeling/ Organizational Molecules	**Each Team must submit Team Project in the form of a Power Point Presentation with detailed notes either this week or the week after (i.e., Week 10)** **Final Individual Project Assigned.. Final Assignment will consist of a paper in Word format + a set of accompanying Power Point Slides.** Also, read short paper on Organization Modeling and Organization Molecules by Sack..
10	Data, Knowledge and Information I	**Last week to submit Team Project if not submitted the previous week.. Final date for submission of Team Project is April 8, 2007 before 5:00 PM.** Read Organization Modeling Chapter 12 pp. 199 - 214
11	Data, Knowledge and Information II	Read Organization Modeling Chapter 12 pp. 215 -229
12	Data Knowledge and Information III/ Organizational Learning	Read Organization Modeling Chapter 14 pp 248 -265 + paper on the Learning Organization
13	Emergent Knowledge/ Semantic Web	Read paper on Emergent Knowledge by Mui and paper on the Semantic Web by Berners-Lee et al.
14	**Final Project (Due)**	**Final Individual Project consisting of a Final Paper and accompanying Power Point Slides to be sent via email to instructor by Friday May 4, 2007 at noon.**