

COP 4710: Theory and Structure of Databases Fall 2006

Instructor: Daniel Schwartz, schwartz@cs.fsu.edu, 644-5875, LOV 266, TR 4:00-5:15.

Teaching Assistant: TBA

Course Description: Theory of relational and object-oriented databases; relational database management systems and SQL; design, developmental, and implementation issues in database systems.

Prerequisites: MAD 2104 and COP 3330.

Textbook: M. Kifer, A. Bernstein, and P.M. Lewis, *Database Systems: An Application-Oriented Approach---Complete Version, Second Edition*, Pearson/Addison Wesley, 2005, ISBN 0-321-26845-8.

Course Website: www.cs.fsu.edu/~cop4710

Course Objectives: A student who has completed this course with a passing grade should be able to:

- Design and implement a database that employs the standard relational model, using the methodology of entity-relationship diagrams.
- Demonstrate an understanding of relational algebra and of how this provides a semantics for the structured query language (SQL).
- Use SQL for various types of queries, including ones entailing nesting and complex join operations, as well as for inserting and updating database records.
- Demonstrate an understanding of the standard techniques for physical data organization on disks and the construction of indexes.
- Understand how a database management system (DBMS) implements query processing, with and without indexes, and use this understanding to design optimally efficient SQL queries.
- Understand how a DBMS implements transaction processing and use this understanding to design effective and optimally efficient transactions.

Semester Plan: Tentative and subject to change. All optional sections will be skipped.

Week	Tue	Sections	Thu	Sections
1	8/29	1.1-1.4	8/31	2.1-2.3
2	9/5	3.1-3.2	9/7	3.3.1-3.3.6
3	9/12	3.3.7-3.3.12	9/14	4.1-4.4
4	9/19	4.5	9/21	4.7-4.9
5	9/26	Test 1	9/28	5.1
6	10/3	5.2.1-5.2.3	10/5	5.2.4-5.2.7

7	10/10	5.2.8-5.3	10/12	7.1-7.4
8	10/17	9.1-9.2	10/19	9.3-9.4
9	10/24	9.5	10/26	9.6
10	10/31	Test 2	11/2	10.1-10.3
11	11/7	10.4-10.7	11/9	18.1-18.5
12	11/14	20.1-20.3	11/16	20.4-20.5
13	11/21	21.1-21.2	11/23	Thanksgiving
14	11/28	21.3-21.4	11/30	21.5
15	12/5	22.1-22.4	12/7	Review

Grading: Homework counts 40%; each of Tests 1, 2, and 3 (Test 3 being the final) count 20%. It will be necessary to obtain passing grades (at least 60%) on *both* the homeworks *and* the tests in order to receive a passing grade for the course.

Homework Assignments: It is acceptable to work on homework in groups. If you do work with others, however, you are required to give the names of your collaborators on every assignment you turn in.

Academic Honor Code: Students are expected to uphold the Academic Honor Code published in The Florida State University Bulletin and the Student Handbook. The Academic Honor System of The Florida State University is based on the premise that each student has the responsibility (1) to uphold the highest standards of academic integrity in the student's own work, (2) to refuse to tolerate violations of academic integrity in the university community, and (3) to foster a high sense of integrity and social responsibility on the part of the university community.

Please see the following web site for a complete explanation of the Academic Honor Code.

<http://www.fsu.edu/Books/Student-Handbook/codes/honor.html>

<http://www.fsu.edu/Books/Student-Handbook/>

Americans With Disabilities Act: Students with disabilities needing academic accommodation should: (1) register with and provide documentation to the Student Disability Resource Center; (2) bring a letter to the instructor indicating the need for accommodation and what type. This should be done during the first week of class.

For more information about services available to FSU students with disabilities, contact:

Student Disability Resource Center

97 Woodward Avenue, South

Florida State University

Tallahassee, FL 32306-4167

(850) 644-9566 (voice)

(850) 644-8504 (TDD)

sdrc@admin.fsu.edu

Mail code: 4167

<http://www.fsu.edu/~staffair/dean/StudentDisability/>