Class Number	**CSC 730.01 Spring 2013** *Monday 3:10-5:45, TH 331* (1-12-13)
Class Title	Advanced Database Systems
Instructor	Professor Marguerite Murphy Office Hours: MWF 11:30-12:00 (by appt), MWF 2:10-3:00 Office: TH 968 email: mmurphy@sfsu.edu Office telephone: 415-338-2261 URL: http://dbsystems.sfsu.edu/~mmurphy
Prerequisites	CSC 413 and CSC 675 with grades of C or better.A good working knowledge of the C/C++ language and UNIX programming environment are prerequisite. You should also be familiar with basic relational database design and implementation techniques (i.e. SQL programming).
Text (required) Copies of the textbooks are available in the Reserved Book Room of the SFSU Library	1. C.J. Date and H. Darwen, "A Guide to the SQL Standard,Fourth Edition", Addison-Wesley, 1997 2. R. Cattell, The Object Data Standard, ODMG 3.0, Morgan-Kaufmann, 2002 (available on-line) 3. Additional required readings will be available through the SFSU Library On-Line ACM/IEEE Digital Library subscriptions.
Text (optional) Copies of most of the reference texts are available in the Reserved Book Room of the SFSU Library	1. Elmasri& Navathe, "Fundamentals of Database Systems, any edition 2. Garcia-Molina, Ullman & Widom, "Database Systems: The Complete Book, any edition 3. Lewis, Bernstein & Kifer, "Databases and Transaction Processing", any edition
Course Web Site	http://dbsystems.sfsu.edu/~csc730 (password required)
Reader (required)	CSC 730 Lecture Notes, Fall 2007, Professor Murphy Printable lecture notes will be available for download from the course web site at the beginning of the semester.
Course Description	**Bulletin Copy:** Standard SQL, query optimization, concurrency control, crash recovery, authorization and integrity enforcement; object-oriented, extensible, deductive, and/or distributed database systems. This will be an advanced course in Database Systems offering in depth coverage of key topics: Standard SQL, ODMG 3.0, XML

	Data Management, query optimization, concurrency control, crash recovery, authorization and integrity enforcement; and an introduction to object oriented, extensible, deductive and/or distributed database systems. Although this course will be taught in lecture format, student questions and limited class discussion are encouraged.
Topics	1. Introduction and Preliminaries 2. The Relational Model & Standard SQL 3. Object Oriented Database Systems 4. XML Data Management 5. No SQL Database Systems 6. Query Optimization and Storage Structures 7. Concurrency Control & Reliability 8. Advanced Architectures & Performance Evaluation (as time permits)
Assignments	During the semester there will be several (6-8) short written assignments exploring material covered in the lectures and texts. There are two options for the term project. First, practical issues in database systems can be investigated by implementing a simple system prototype, investigating its performance and writing a summarizing report. Second, you can read several technical papers on an interesting open problem in Database Systems and then write a 25 page (maximum double spaced) survey research paper defining the problem and summarizing the solutions you reviewed. Projects will be due on the last day of instruction (***Friday May 17***). There will be a short in-class quiz after each major topic has been covered in lecture and a comprehensive final examination at the end of the semester. The final exam will **only** be given **Friday May 24, 1:30-4:00** in the regularly scheduled classroom (TH 331).
Grading	Assignments: 25%, Project: 30%, Quizzes: 20%, Final Exam: 25%