

22C:296 – Advanced Database Seminar Fall 2001

Instructor: Dr. Ramon Lawrence
Class Schedule: 3:55 – 5:10 p.m. Tuesday/Thursday
Location: B11 MacLean Hall (originally 203 English-Philosophy Bldg.)
Office Hours: 201L MacLean Hall - 1:00 – 3:00 Tuesday/Thursday or by appointment
Phone: 335-0561
E-mail: ramon-lawrence@uiowa.edu (preferred contact method)
Course URL: TBA

Course Description

Expands on 22C:144 to cover advanced database topics in the areas of database design, implementation, mobility/distribution, and integration. Topics covered may include object oriented and relational models, implementation of transaction management and query processing systems, data distribution, fragmentation, and mobile databases, and integration using XML, wrappers/mediators, and multidatabase and Web-based query architectures.

Prerequisite

- 21:124/22C:144 Database Management Systems is recommended but not required

Marking and Evaluation

Participation and Class Discussions		10 %
Programming Project		40 %
Proposal	5 %	
Prototype	5 %	
Final Program	25 %	
Documentation	5 %	
Research/Survey Paper Project		50 %
Proposal	5 %	
Initial Outline/Draft	10 %	
Presentation	10 %	
Final Paper	25 %	

This course will use +/- grading. No late projects will be accepted.

Textbooks and Reference Material

- A. Silberschatz, H.F. Korth and S. Sudarshan, *Database Systems Concepts (3rd edition)*, McGraw-Hill, 1997, ISBN: 0-07-044756-X.
- R. Elmasri and S. Navathe, *Fundamentals of Database Systems (3rd edition)*, Addison-Wesley, 2000, ISBN: 0-8053-1755-4.
- Both textbooks are **optional** and will be augmented by selected articles distributed in class.

Expectations

- I expect students to attend **all** classes and prepare before attending class. This includes reading relevant sections of the textbook (if available) and reviewing notes from previous lectures.
- I expect all students to learn the material in the course and undertake sufficient effort to produce advanced projects associated with a class of this level.
- I want all students to enjoy attending class and feel free to participate according to their own personalities. The discussions are typically informal, so you may raise your hand to participate in a conversation or simply speak out at appropriate moments.
- **I want all students to pass the course, receive a good grade, and feel the course was beneficial.**

Students with Disabilities

I would like to hear from anyone who has a disability which may require some modification of seating, testing, or other class requirements so that appropriate arrangements can be made. Please see me after class or during my office hours.

Grievances and Complaints Procedures

If you have any grievance or complaint about course direction, your treatment during class, your assigned marks, or any other problem, please first talk to your professor about the situation. I am very approachable and will work hard to ensure the course is enjoyable for you.

If there is a situation that cannot be resolved in this manner, please contact the Chair of the Department of Computer Science, Professor Steve Bruell, at 14D MacLean Hall, 335-1713.

Academic Dishonesty

A student must submit original work of his or her own construction. Academic dishonesty in the form of copying assignments, projects, or exams from other students or sources is not permitted. If you have any questions about what constitutes academic dishonesty, please contact your professor or consult the printed policy in the *Schedule of Courses* and the *CLAS Bulletin*.

Course Outline

The course is structured as a seminar topics course. This implies that the topics covered are highly variable depending on time and interest of both the professor and students. Students may request different material be covered or materials be covered in more depth. Similarly, the professor is not bound to the topics, timelines, and outline provided as they only serve as a general reference.

Date	Topics Covered and Description
August 28 (T)	First day of classes. Introduction to course, discuss syllabus
August 30 (Th)	Database motivation; Review relational model, ER model, SQL
September 4 (T)	Data Modeling I: hierarchical, relational, object-relational
September 6 (Th)	Data Modeling II: object-oriented databases
September 11 (T)	Data Modeling III: semi-structured data and XML
September 13 (Th)	Modeling discussion and project discussion
September 18 (T)	Database Components I: Storage/Indexing
September 20 (Th)	Database Components II: Query processing
September 25 (T)	Database Components II: Query processing (cont.)
September 27 (Th)	Database Components III: Transaction Management/Serializability
October 2 (T)	Database Components III: Transaction Management/Serializability (cont.)
October 4 (Th)	Programming & Paper Proposals Due (Project/components discussion)
October 9 (T)	Database Components IV: Concurrency Control
October 11 (Th)	Database Components IV: Concurrency Control (cont.)
October 16 (T)	Database Components V: Recovery
October 18 (Th)	Database Architectures I: Distributed Databases
October 23 (T)	Database Architectures I: Distributed Databases (cont.)
October 25 (Th)	Database Architectures II: Multidatabases
October 30 (T)	Database Architectures II: Multidatabases (cont.)
November 1 (Th)	Database Architectures III: Data Warehouses
November 6 (T)	Database Architectures III: Data Warehouses (cont.)
November 8 (Th)	Draft research papers due. (Project discussion)
November 13 (T)	The Integration Problem and Related Research
November 15 (Th)	Database Architectures IV: Mobile databases
November 20 (T)	Software prototype due. (Project discussion)
November 22 (Th)	No classes for Thanksgiving.
November 27 (T)	Class chosen topics
November 29 (Th)	Class chosen topics
December 4 (T)	Paper presentations and software demonstrations
December 6 (Th)	Paper presentations and software demonstrations
December 11 (T)	Paper presentations and software demonstrations
December 13 (Th)	Final research paper and programming project due. Paper presentations and software demonstrations