
ERE 596
DATA MANAGEMENT
COURSE SYLLABUS

INSTRUCTOR

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COURSE DESCRIPTION

This course will consider a variety of issues in data management. The class will review alternative methods for managing data with a focus on relational databases. Topics will include fundamental concepts in database design, querying and programming. The class will also consider integration of spatial concepts into traditional database management techniques including discussion of issues such as metadata organization and distribution.

COURSE OBJECTIVES

At the conclusion of the course, students should understand:

1. Alternative systems for data management
2. The fundamental principles in relational database management systems
3. Concepts in database design
4. Issues in database querying
5. Issues in spatial data management

REQUIRED TEXT

Steven Roman, *Access Database Design and Programming* (3rd Edition), O'Reilly, 2002
(available at Orange Bookstore)

OTHER SUGGESTED RESOURCES

Paul Lomax, *VB & VBA In a Nutshell*, O'Reilly, 1998

(Not available through ESF/SU library, but sells for \$29.95. This is a handy little reference guide for VB programming – Lomax provides lots of useful tips and examples beyond the programming specifics. I would strongly recommend this book if you want to get more into VB programming beyond this class.)

Shashi Shekhar and Sanjay Chawla, *Spatial Databases: A Tour*, Prentice Hall, 2003

(Also not available through ESF/SU library and a little more expensive. This book provides more in the way of technical details.)

COURSE REQUIREMENTS

Lecture: Two hours of lecture per week: Monday 5:10 – 6:05 PM; Wednesday 3 – 3:55 PM, Bray Hall Room 313.

Laboratory: Two hours of laboratory per week: 4 PM – 6 PM Wednesday, Baker Lab Room 156 (starting 4 September).

Grading:

Individual project	30 %
Laboratory exercises	45 %
Mid-term examination	10 %
Final examination	10 %
Class participation	5 %

INDIVIDUAL PROJECT

The individual project provides an opportunity for students to work with a dataset of their choosing to explore concepts in database design, querying and programming. The project assignment with further details will be distributed in class the week of 4 October, with the lab period on 20 October reserved for discussion. Submissions for the project will be in stages throughout the remainder of the semester.

COMPUTER USAGE

Word processing and spreadsheet software packages are considered basic tools in modern life. Lab exercises will often require submissions that use these fundamental packages. E-mail will be used as a common means of communicating outside class times. Students should provide Lindi Quackenbush with an e-mail address. Lab exercises will primarily be performed in the Mapping Science Laboratory. Students will be assigned server space but are responsible for independently backing up work.

CLASS ABSENCE

If you encounter a situation beyond your control in which you will be missing 3 or more days of classes, you can contact the Office of Student Life (110 Bray, 315-470-6660) and they will contact all your instructors for you. Supportive documentation may be required.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

If you have an identified disability and will need accommodations, you should contact Tom Slocum in the Office of Student Life in 110 Bray Hall. He will discuss the ESF process and work with you to access supportive services. If you have a learning disability, the College will require you to provide supportive documentation and will develop an approved accommodation sheet for you. Accommodations cannot be provided until the accommodation sheet is established and we meet to discuss its applicability to this course. Accommodations cannot be established retroactively.

PRELIMINARY LECTURE/LAB SCHEDULE

DATE	LECTURE TOPIC	READINGS*	LAB TOPIC
30 August	General Introduction	Chapter 1	<i>No lab</i>
31 August	DBMS	Chapter 2	
6 September	<i>No Lecture – Labor day</i>		
8 September	DBMS and Relational DBMS	Chapter 3	Introduction to Access
13 September	Relational DBMS		
15 September	Relational DBMS and GIS		Introduction to Access II
20 September	Database design – Normalization	Chapter 4	
22 September	Database design – Normalization cont.		Normalization
27 September	Querying – Relational algebra	Chapter 5	
29 September	Querying – Joins		Relational Algebra
4 October			
6 October	Querying – Query languages: SQL and Access SQL	Chapter 6	SQL Queries
11 October	Querying – SQL DML and DDL		
13 October	Spatial Querying		SQL Queries II
18 October	Mid-Term Examination		
20 October	Guest lecture		Project discussion
25 October	Visual Basic programming	Chapter 7, (8), 9	
27 October	Programming in Access	Chapters 10 – 13	GIS database development
1 November	Programming in Access – DAO	Chapters 14 – 16	
3 November	Programming in Access – DAO		Introduction to VB
8 November	Programming in Access – DAO		
10 November	Programming in Access – ADO	Chapters 17-18	Introduction to VB II
15 November	Programming in ArcGIS		
17 November	Indexing		Project time
22 November	Metadata		
24 November	<i>No Lecture – Thanksgiving recess</i>		<i>No Lab – Thanksgiving</i>
29 November	Data standards		
1 December	Data issues		Project time
6 December	Overview		
8 December	Final project presentations		Project presentations

*Readings refer to specified chapters in Roman text