

# ISQA 8410

## DATABASE MANAGEMENT

### General

#### **Course and instructor identification**

Instructor:	Dr. Peter Wolcott
Office:	PKI 177E
Office hours:	Anytime I'm in my office. Or, by arrangement
Telephone:	402.554.3158
E-mail:	<a href="mailto:pwolcott@mail.unomaha.edu">pwolcott@mail.unomaha.edu</a>
Section:	ISQA 8410-001 (in-class section) ISQA 8410-850 (on-line section)
Meeting time:	Mondays 5:30-8:10 PM (in-class section)
Meeting location:	PKI 160 (in-class section)

#### **Course description**

The course builds on students' prior exposure to database systems to provide in-depth coverage of such areas as: the relational model, SQL, data modeling, data quality management, database design, database administration & security, data warehousing, and XML databases. The course offers a mix of theoretical treatment and hands-on application. Current DBMS (Microsoft Access and Oracle in this semester) and data modeling software will be used to supplement the course.

#### **Course objectives**

After taking this course you will, among other things, be able to

- formulate SQL queries better than anyone in your neighborhood
- create data models that are actually useful and accurately reflect the business context
- create well-designed databases
- understand the elements of a data quality program
- make intelligent decisions about the physical design of a database
- apply sound principles to the design of a data warehouse
- understand the importance of information for business intelligence and use OLAP tools and principles to support decision-making
- work with XML data in a database context
- identify the issues of data governance from an enterprise perspective

#### **Course prerequisites**

I am assuming that this course is not your first exposure to databases and database management systems. The prerequisites may be satisfied by having one or more of the following:

- ISQA 3310, Managing the Database Environment, or comparable undergraduate database course

- ISQA 8050, Data Organization and Storage, our foundation course
- CSCI 4850, Database Management Systems
- Work experience that has given you a comparable grounding in database concepts and technologies. Come talk to me.

## **Textbook**

Connolly, Thomas M. and Carolyn E. Begg, **Database Systems: A Practical Approach to Design, Implementation, and Management**, Fourth Edition, Addison-Wesley, 2005. ISBN: 0-321-21025-5

This book is starting to show its age a bit, but a new edition has not yet been issued, and I haven't found a text I like better for this course. I'll supplement with current topics.

## **Policies**

### **Attendance & Participation**

There is no attendance policy in the traditional sense. However, participation and keeping up with the reading is important. Certainly you can earn participation credit by participating in the in-class discussions. For those who are taking the on-line version of the course or don't like to speak during class or who miss a class, I will have a discussion forum on Blackboard through which you may earn participation credit. You may earn participation credit by, for example, posting the URL of some web resource that is relevant to the unit we are covering together with your comments on the resource, posting a thoughtful question & providing a thoughtful answer to another's question, and so forth. Note: you earn no participation credit by simply attending class and warming a seat. Participation is not a passive term.

### **Cheating**

Assignments typically are individual. Although you may discuss your individual assignments with classmates (indeed, you are encouraged to do so), you must turn in work that is your own. The distinction I make is similar to that made by traditional copyright law: **A copyright is the expression of an idea (like your solution to homework) in a fixed media susceptible to perception (like a file or hard-copy). Copying of a physical (electronic) manifestation of a person's work is not permitted; sharing of ideas is. If you copy another person's work, either manually or electronically, you will receive no credit for the assignment. If you allow your work to be copied by another person, you also will receive no credit for the assignment. Two such infractions can result in a failing grade for the course.**

### **Late assignments**

I understand that many of you have outside jobs that may involve crises, stiff deadlines, or business trips that will take away from the time you choose to devote to course work and may interfere with the specific timetable laid out below. Consequently, you will be assessed a 2% assignment grade penalty for each day an assignment is late, up to a maximum of one week. This will reward students who do get their assignments in on time, but not penalize excessively those who due to work- or family- related

circumstances are unable to meet the due date. No assignments more than a week late will be accepted, since I want to be able to return graded assignments in a timely manner.

### **ADA notice**

The Americans with Disabilities Act (ADA) requires universities to affirmatively notify students of their right to request accommodations. Accommodations are provided for students with verified disabilities. For more information contact Services for Students with disABILITIES (SSd) in EAB 117 or 554-2872, TTY 554-3799.

## **Internet Section**

### **Overview**

This semester an in-class section and an Internet section are both offered. It is my intention to conduct these two sections as parts of the same class, to the extent possible. In this regard, both sections will have the same syllabus and an integrated Blackboard site. Both have the same assignments and comparable exams. All students will have the opportunity to earn participation credit on-line. All students will submit assignments and receive feedback via Blackboard. The in-class lectures will be recorded and then made available for all students via links in Blackboard.<sup>1</sup> Students who are registered for the in-class section are welcome to view the lectures on-line instead of attending class, and students who are registered for the on-line section are welcome to attend the in-class lectures if they can and wish to do so.

### **Technology requirements**

To view the on-line lectures and complete the assignments at home, you will need a number of pieces of software. Information about each of these pieces of software, including download URLs, will be posted in Blackboard before the time when each is needed in the course.

1. To view the online lectures, you will need to have RealPlayer installed.
2. An Oracle Client (optional).
3. Standard Office applications including MS Access
4. ERwin or other data modeling tool.

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<sup>1</sup> A note of apology in advance: The quality of video in PKI 160 is not what you are used to. I can't say when the problem will be fixed. I will try to supplement the live recordings with alternatives that clarify what I do in class.

## Course Deliverables and Grading

The deliverables for the semester will include six assignments and two exams.

### **Grading**

Your grade will be computed as follows:

GRADE COMPONENT	POINTS POSSIBLE
Exams (2)	2 x 200 = 400
Assignments (6)	6 x 90 = 540
Participation	60
TOTAL	1000

### **Grade scale**

Grading will be done on a curve, if necessary, but typically:

POINTS	LETTER GRADE
960-1000	A+
920-969	A
890-919	A-
860-889	B+
820-859	B
790-819	B-
760-789	C+
720-759	C
690-719	C-
660-689	D+
620-659	D
590-619	D-
<590	F

## Tentative Course Outline & Schedule

DATE	TOPIC	READINGS	DELIVERABLES
Jan 14	Introduction & review of basic concepts	Chs 1, 2.1-2.4, 3, 4.1	
Jan 21	<b>No in-class meeting (MLK Day Holiday).</b> SQL lecture available on-line.	Chs 5,6	
Jan 28	SQL	Chs 5,6	
Feb 4	Data modeling	Chs 11,12	Assignment 1
Feb 11	Data modeling	Chs 11,12	
Feb 18	Database design	Chs 13,14	
Feb 25	Database design	Chs 13,14	Assignment 2
<b>Mar 3</b>	<b>Midterm exam</b>		
Mar 10	Transaction Management	Ch 20	Assignment 3
<b>March 17-24 Spring Break</b>			
Mar 24	Data warehousing	Ch 31	
Mar 31	Data warehousing	Ch 32	Assignment 4
Apr 7	OLAP	Ch 33	
Apr 14	Semistructured Data and XML	Ch 30	Assignment 5
Apr 21	Data management and governance		
Apr 28	Geographic Information Systems (GIS)		Assignment 6
<b>May 5</b>	<b>Final Exam</b>		