Course Syllabus

SIE 557 Database System Applications

Course Description
Covers object-relational database systems and using them in programming and in web applications. Topics include: Object-relational database systems. The relational data model. The SQL language. SQL queries. Installing and using database systems. Using graphical user interfaces for database management. Programming database systems using database middleware. Programming web-based database application using middleware. Cr. 3. Prerequisite: SIE 507 or Java programming

Course texts
Database Management Systems (3rd Ed), Raghu Ramakrishnan, Johannes Gehrke, McGraw Hill..

PowerPoint slides of lecture material will be available on a course web page.

Course Goals and Objectives
- Introduce students to concepts of modern database systems
- Develop an understanding of using, designing, and programming database systems
- Expose students to practical work with database systems through a series of labs

Faculty Information
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Office Hours
Office hours for this course will be announced at the beginning of the semester. Alternatively, contact me by email to arrange a time to meet.

Grading, Class Policies and Course Expectations
Grades in this course will be based on the quality and completion of the four course projects (80%) and 20% percent of the course grade is dependent on attendance and participation in class. As a graduate level course, you are expected to exhibit high quality work that demonstrates sound understanding of the concepts and their use. Earning an “A” represents oral and written work that is of exceptionally high quality and demonstrates superb understanding of the course material. A “B” grade represents oral and written work that is of good quality and demonstrates a sound understanding of course material. A “C” grade represents a minimally adequate completion of assignments and participation demonstrating a limited understanding of course material. A “C+” grade or lower is typically unacceptable at the graduate level.

ACADEMIC INTEGRITY: Academic dishonesty includes cheating, plagiarism and all forms of misrepresentation in academic work, and is unacceptable at The University of Maine. As indicated in the University of Maine’s on-line “Student Handbook,” plagiarism (the submission of another’s work without appropriate attribution) and cheating are violations of The University of Maine Student Conduct Code. An instructor who has probable cause or
reason to believe a student has cheated may act upon such evidence, and should report the
case to the supervising faculty member or the Department Chair for appropriate action.

DISABILITIES (ADA) STATEMENT: Students with disabilities who may need services or
accommodations to fully participate in this class should contact Ann Smith, Director of
Disability Services in 121 East Annex, (voice) 581-2319, (TTY) 581-2325 as early as possible
in the semester.

CLASS DISRUPTION: In the event of an extended disruption of normal class activities, the
format for this course may be modified to enable its completion within its programmed time
frame. In that event, you will be provided an addendum to the syllabus that will supersede this
version.

E-Learning Approach

Live Broadcast: Available at http://connect.maine.edu/sie557. Online students may view and
participate in the live sessions but are not required to do so. It is recommended that you view
the videos at your own leisure.

Archived Broadcasts: Links to the class broadcasts are made available at the end of each day
through the Lectures and Assignments web page.

End of Week Live Audio Chat: Distance students view the lectures at times of their own
choosing during the week and attempt the assignments posted on the course web site prior to
the end of week evening live discussion session. The audio technology used for these sessions
is through ConnectPro and/or through use of a Skype Conference call. The optional end-of-
the-week late afternoon discussion session runs from 6:00-7:30 pm unless another mutually
agreed upon time is arranged. (Note: Set up a personal world clock at
http://www.timeanddate.com to track the equivalent time in your time zone.)

Distance Student Live Audio Chat Process: Simply go to the ConnectPro web site
established for the course and use the audio facilities or the written chat to ask questions. This
session is voluntary and is intended to allow students to ask questions about the reading
assignments, written assignments, and video lectures. Assignments for the past week are then
due Sunday evening. If no students join in the first half hour of the session the instructor may
sign off and you may want to later consider contacting him/her by Skype for a one-on-one
conversation if desired.

Skype Requirement: Distance students must also have a Skype account for this course (see
http://www.skype.com). Please forward your Skype username to the instructor after enrolling
in the course. If the ConnectPro technology fails for an evening discussion session, the
instructor may initiate a conference call on Skype.

Communications

All students must have a FirstClass account for this course. If you do not yet have an account,
see http://it.umaine.edu/support/firstclass/index.php. You will communicate with other
classmates and the instructor through the SIE 557 FirstClass folder and deliver all out-of-class
assignments to the FirstClass assignment folder for the course. I recommend that you
download the FirstClass client software to your computer if you have not already done so.
You should always be able to deliver your materials and access the materials of others by
logging on to the FirstClass website or by using the client software.

Course topics:

Week 1 Start Module 1
Introduction to database systems
The relational data model

Week 2
Installing a database system
Installing a graphical user interface for database maintenance
The SQL language

Week 3
The SQL language
Creating tables and managing data

Week 4
Querying data using SQL and the database system

Week 5
Creating views
Creating and using integrity constraints

Week 6
Small db project; design and implementation

Week 7: Start Module 2:
Installing a programming language, programing environment and database middleware
Programming and testing a database connection

Week 8
Programming database queries in a program
Programming database update commands in a program

Week 9
Small project programming an application which uses a database system

Week 10 Start of Module 3:
Installing a webserver and middleware
Preparing the web interface

Week 11
Programming a simple application
Linking the application with the database system

Week 12
Small web/database application project

Week 13 Start Module 4:
Project discussion with specialization on time, spatial, or OLAP types
Project design

Week 14
Project programming
Week 15
Presentation class projects
Course Wrap-up