COURSE SYLLABUS

**CISS 430 Database Systems**

Spring 2012

# **INSTRUCTOR INFORMATION**

Instructor: Youlong Zhuang

Office: St. Clair 226, Columbia Campus

Phone: (573) 875-7531 phonemail,

E-Mail: [yzhuang@ccis.edu](mailto:yzhuang@ccis.edu) Always start your email subject line with CISS 430

Office Hours: MWF 10:00-10:50, TTh 3:20 -4:20, or by appointment

## **COURSE INFORMATION**

Course: CISS 430 Database Systems

Sections TTh 2:00-3:20pm

Credit hours: 3

Prerequisite(s): CISS 285/280

Texts: Database Systems, Design, Implementation, and Management, 9th Edition, by Coronel, Morris, and Rob, published by Course Technology. ISBN 0538469684

Murach’s Oracle SQL and PL/SQL, by Joel Murach, published by Mike Murach & Associates. ISBN 9781890774509

### COURSE OBJECTIVES

* To develop a strong foundation in database concepts.
* To learn theory and practice of designing and using databases.

#### EXPECTED LEARNING OUTCOMES/ PERFORMANCE CRITERIA

**Upon Complete of this course students will be able to**:

* Understand and explain data modeling including constructing entity-relationship diagrams.
* Understand and explain database design and normalization including functional dependencies, first through third normal forms, Boyce-Codd normal form, lossless join and dependency-preserving design trade-offs.
* Understand and explain the issues involved in designing and supporting object-oriented databases.
* Understand and explain SQL and how to use SQL to create, maintain, and inquire of database systems.

**COURSE POLICIES AND PROCEDURES**

**Attendance:** Students are expected to attend all lecture classes. Five points will be deducted for each unexcused absence. Students with excused absence should sign the attendance sheet as soon as they are back to class. Students with 4 or more absences may be dropped from the course. Students with excused absences only will be allowed to make up quizzes and exams and turn in assignments by the next class session without penalty. Students late to class more than 5 minutes (after role is taken) will be charged with 5 points also. Students may initiate a withdrawal at any time before the deadline date specified in the College catalog.

**Make-up tests:** Make up quizzes and tests will not be given for unexcused absences. If you miss a scheduled test for an excused reason, a substitute project, essay test, or oral exam may be given. Missed tests or assignments for unexcused absences will not be made up.

**Late Assignments:** No late individual assignments will be accepted. Late team assignments will be accepted with a minimum of 10% penalty.

**Academic Dishonesty/Misconduct:** The College expects students to fulfill their academic obligations through honest and independent effort. Example violations are listed in the Academic Dishonesty/Misconduct section of the College catalog. Conduct violations will be dealt with according to the guidelines set forth in the section on Conduct, in the College catalog. Plagiarism will result in an "F" for the course.

**Disabilities:** Students with documented disabilities who may need classroom academic adjustments or auxiliary aids or services are required to register with the ADA Coordinator located in Atkins-Holman Student Commons, room 215 (AHSC 215). Columbia College prohibits unlawful discrimination against qualified students with disabilities and encourages their full participation within the College Community. All faculty, staff and administrators will actively support students with disabilities in all educational programs, services, and activities, in cases where such support is readily achievable and is not an undue burden. Columbia College policy, in accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act, defines a qualified student with a disability as "any person who is regarded as having such an impairment, and (a) who meets the academic and technical standards requisite for admission to or participation in the College's programs, and (b) who has a documented physical or mental impairment that substantially limits one or more major life activities."

**Online Databases** are available at <http://www.ccis.edu/offices/library/resources.asp>. You may access them from off-campus using your eServices login and password when prompted."

**Cell phone** is not allowed in the classroom.

**GROUP PROJECT**

Students form teams to develop an application that solve a business problem for a local business. The project should include the design and implement of Oracle database. Requirements and grading for the project are in a separate handout.

###### GRADING SCALE

**Individual weekly Assignment**

There will be a total of 12 dropbox assignments. . All assignments are due at 9am on Mondays. Each assignment will count for 10 points for a total of 120 points. Assignments should be zipped and uploaded to D2L dropboxes.

**Team Project**

There will be a team project for the semester. Team project will worth 180 points with the following breakdown:

12 weekly report (5 points each for a total of 60 points)

User test/client feedback (20 points)

Database/application (40 points)

Final report (50 points)

Final presentation/peer evaluation (10 points)

**Exams**

We will have four exams and one SQL test for the semester. Each exam will count for 100 points for a total of 400 points.

**SQL Programming Test**

We will have one SQL test during the final week. It will be worth 200 points.

The maximum number of points for the semester is 900. Your grade will be assigned as follow:

A (810-900)

B (720-809)

C (630-719)

D (540-629)

F (below 540)

###### TENTATIVE CLASS SCHEDULE

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| --- | --- | --- | --- |
| Week | Date-start | Date-end | Schedule |
| WEEK 1 | 1/9/2012 | 1/13/2012 | Introduction & Orientation  Read Chapter 1: Database Systems (Coronel)  Read Appendix A: How to install the software and source code for this book (Murach)  Assignment 1: Problems 5-8 on Page 27 (Coronel) |
| WEEK 2 | 1/16/2012 | 1/20/2012 | Read Chapter 2: Data models (Coronel)  Read Chapter 1: An introduction to relational database and SQL (Murach)  Read Chapter 2: How to use Oracle SQL Developer and other tools (Murach)  Assignment 2: Problem 14 on Page 54 (Coronel)  Assignment 1 due  Client agreement due |
| WEEK 3 | 1/23/2012 | 1/27/2012 | Read Chapter 3: The relational database model (Coronel)  Read Chapter 3: How to retrieve data from a single table (Murach)  Assignment 3 Part 1: Problems 1-9 on Pages 92 and 93 (Coronel)  Assignment 3 Part 2: Exercises 5 – 10 on Pages 117 and 118 (Murach)  Assignment 2 due  Weekly report 1 due |
| WEEK 4 | 1/30/2012 | 2/3/2012 | Exam 1 on Tuesday  Read Chapter 4: How to retrieve data from two or more tables (Murach)  Assignment 4: Exercises 1 – 7 on Pages 156 and 157 (Murach)  Assignment 3 due |
| WEEK 5 | 2/6/2012 | 2/10/2012 | Read Chapter 4: Entity relationship (ER) modeling (Coronel)  Read Chapter 5: How to code summary queries (Murach)  Assignment 5 Part 1: Problem 1 on Page 137 (Coronel)  Assignment 5 Part 2: Exercises 1 – 7 on Pages 176 and 177 (Murach)  Weekly report 2 due  Assignment 4 due |
| WEEK 6 | 2/13/2012 | 2/17/2012 | Read Chapter 5: Advanced data modeling (Coronel)  Read Chapter 6: How to code subqueries (Murach)  Assignment 6 Part 1: Problem 2 on Page 167 (Coronel)  Assignment 6 Part 2: Exercises 1 – 9 on Pages 208 and 209 (Murach)  Assignment 5 due  Weekly report 3 due |
| WEEK 7 | 2/20/2012 | 2/24/2012 | Read Chapter 6: Normalization of database tables (Coronel)  Read Chapter 7: How to insert, update, and delete data (Murach)  Assignment 7 Part 1: Problems 1 & 2 on Page 208 (Coronel)  Assignment 7 Part 2: Exercises 1-5 on Page 228 (Murach)  Assignment 6 due  Weekly report 4 due |
| WEEK 8 | 2/27/2012 | 3/2/2012 | Exam 2 on Tuesday  Read Chapter 8: How to work with data types and functions (Murach)  Assignment 8: Exercises 1-5 on Pages 278 and 279 (Murach)  Assignment 7 due  Weekly report 5 due |
| WEEK 9 | 3/5/2012 | 3/9/2012 | Read Chapter 7: Introduction to SQL (Coronel)  Read Chapter 9: How to design a database (Murach)  Read Chapter 10: How to create tables, indexes, and sequences (Murach)  Read Chapter 11: How to create views (Murach)  Assignment 9: Problems 1-15 on Pages 278-281 (Coronel)  Assignment 8 due  Weekly report 6 due |
| WEEK10 | 3/12/2012 | 3/16/2012 | Read Chapter 8: Advanced SQL (Coronel)  Read Chapter 11: How to create views (Murach)  Assignment 10: Problems 16 – 25 on Pages 281&282 (Coronel)  Weekly report 7 due on Monday  Assignment 9 due |
| WEEK11 | 3/19/2012 | 3/23/2012 | Read Chapter 9: Database design (Coronel)  Read Chapter 13: How to write PL/SQL code (Murach)  Assignment 11: Problems 1-9 on Page 366 (Coronel)  Weekly report 8 due  Assignment 10 due |
| WEEK12 | 3/26/2012 | 3/30/2012 | Spring Break |
| WEEK13 | 4/2/2012 | 4/6/2012 | Exam 3 on Tuesday  Read Chapter 15: How to create stored procedures (Murach)  Read Chapter 16: How to create triggers (Murach)  Assignment 12: Problems 10-18 on Page 366 (Coronel)  Assignment 11 due  Weekly report 9 due |
| WEEK14 | 4/9/2012 | 4/13/2012 | Read Chapter 10: Transaction management and concurrent control (Coronel)  Read Chapter 14: How to manage transactions and locking (Murach)  Weekly report 10 due  Assignment 12 due |
| WEEK15 | 4/16/2012 | 4/20/2012 | Read Chapter 11: Database performance tuning and query optimization (Coronel)  Weekly report 11 due |
| WEEK16 | 4/23/2012 | 4/27/2012 | Weekly report 12 due  Exam 4 on Tuesday  Project due on Thursday  Presentation on Thursday |
| Final Week | May 1 Tuesday | 12:30-2:30 | SQL Programming Test |