

WEBSTER UNIVERSITY • WEBSTER GROVES, MO • GEORGE HERBERT WALKER SCHOOL OF BUSINESS & TECHNOLOGY • MATHEMATICS/COMPUTER SCIENCE



DISTRIBUTED DATABASE APPLICATIONS

COSC-5050

3 Credits

17/03/2014 to 16/05/2014

Section 11

S2 2014

Modified 02/03/2014

MEETING TIMES

Wednesday, 17:30 to 21:30, EAB 208

CONTACT INFORMATION

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DESCRIPTION

Students will implement the distributed database developed in COSC 5040. Emphasis will be on good design techniques and proper documentation. Students will implement a database project in this course.

Requisites

COSC 5040

OUTCOMES

At the completion of this course students will be able to:

1. Practice the fundamental concepts necessary for designing, using, and implementing database systems.
2. Illustrate the implementation of a Relational Database Management System (RDBMS) using Oracle.
3. Summarize the relational database design model.
4. Practice database query concepts using SQL.
5. Develop stored procedures and triggers using SQL.
6. Describe and apply the principals of data normalization.

7. Develop a distributed database system.
8. Explain and present your completed project.

REQUIRED TEXTBOOK

Oracle PL/SQL Programming

Author: Feurstein
Publisher: O'Reilly
Edition: 5th
ISBN: 978-0-59-651446-4

DELIVERABLES

General

- In this course, you will actively participate in the study of distributed database design principles. As graduate students, your emphasis should be on discovery and implementation and not on simple memorization of facts. You will be expected to read the assigned chapters and to actively participate in the class discussions. Those discussions, as well as the group projects, will provide you a practical means to clearly comprehend distributed database design.
- The homework assignments will be worth very few grade points (this implies low risk). Their main purpose is to help me assess your understanding of the course material and the presentation pace. They also provide you the side benefit of pointing out what the key concepts of the material are.
- We will have two exams, a mid-term in week 5 and a final in week 8. The mid-term exam will cover all of the material from the first Three weeks. Because this course develops the subject material from what's presented earlier in the course, the final exam will be a comprehensive test of all the material from weeks 1 through 7.

Database Development Project

- The database development project provides you the opportunity to experiment with the distributed database design process. You will build the database application that you designed in COSC 5040 in this class. Remember, we are trying to gain competency in the distributed database design development process and some areas, for example, where the problem domain is not constrained and well understood, may not be as productive as others.
- We will develop the initial project requirements early and throughout the course you will conduct, several project design reviews concluding in your final project presentation in week 9. Your project development and interaction with your client (me) are all important components of the complete distributed database design process.
- Your final bound project report is due at our final class session. I will give you A Guide to Project Deliverables at the initial project requirements meeting in Week 2.

EVALUATION

The **GRADUATE** catalog provides these guidelines and grading options:

- **A/A-** Superior graduate work
- **B+/B/B-** Satisfactory graduate work
- **C** Work that is barely adequate as graduate-level performance
- **CR** Work that is performed as satisfactory graduate work (B- or better). A grade of "CR" is reserved for courses designated by a department, involving internships, a thesis, practicums, or specified courses.
- **F** Work that is unsatisfactory
- **I** Incomplete work
- **ZF** An incomplete which was not completed within one year of the end of the course. ZF is treated the same as an F or NC for all cases involving G.P.A., academic warning, probation, and dismissal.
- **IP** In progress
- **NR** Not reported
- **W** Withdrawn from the course

Your grade will be compiled from each of the class evaluation components in the following proportions:

Mid-term Exam	25%
Final Exam	25%
Homework	10%
<u>DB Design Project</u>	<u>40%</u>
Total	100%

The course grading scale is:

93 to 100%	A
90 to 92%	A-
87 to 89%	B+
83 to 86%	B
80 to 82%	B-
77 to 79%	C+
70 to 76%	C
Below 70%	F

COURSE POLICIES

- Attendance and participation are required. Students with 2 absences are advised to withdraw from the course. Please notify the instructor as soon as possible regarding absences.
- It is the student's responsibility to obtain materials for class time missed. It is a good idea to obtain notes from other students for class time missed.
- The last day to drop the course with a full refund is Friday of Week 2. The last day to withdraw from the course, without a refund, is Friday of Week 6.
- All work is due at the beginning of class and becomes the property of the department. Any work turned after that will be considered late and the grade will be reduced by 10 percent per day late.
- Any student caught cheating or committing plagiarism might fail the class and be subject to further disciplinary action.
- This syllabus may be revised at the discretion of the instructor without the prior notification or consent of the student.

INSTITUTIONAL POLICIES

University policies are provided in the current course catalog and course schedules. They are also available on the university website. This class is governed by the university's published policies. The following policies are of particular interest:

Academic Honesty

The university is committed to high standards of academic honesty. Students will be held responsible for violations of these standards. Please refer to the university's academic honesty policies for a definition of academic dishonesty and potential disciplinary actions associated with it.

Drops and Withdrawals

Please be aware that, should you choose to drop or withdraw from this course, the date on which you notify the university of your decision will determine the amount of tuition refund you receive. Please refer to the Add/Drop/Withdraw section of the academic catalog for further information and to find the deadlines for dropping a course with a full refund and for withdrawing from a course with a partial refund.

Special Services

If you have registered as a student with a documented disability and are entitled to classroom or testing accommodations, please inform the instructor at the beginning of the course of the accommodations you will require in this class so that these can be provided.

Disturbances

Since every student is entitled to full participation in class without interruption, disruption of class by inconsiderate behavior is not acceptable. Students are expected to treat the instructor and other students with dignity and respect, especially in cases where a diversity of opinion arises. Students who engage in disruptive behavior are subject to disciplinary action, including removal from the course.

Grading

Please refer to the most recent academic catalog for information on the Webster University grading policy.

Student Assignments Retained

From time to time, student assignments or projects will be retained by The Department for the purpose of academic assessment. In every case, should the assignment or project be shared outside the academic Department, the student's name and all identifying information about that student will be redacted from the assignment or project.

Contact Hours for this Course

It is essential that all classes meet for the full instructional time as scheduled. A class cannot be shortened in length. If a class session is cancelled for any reason, the content must be covered at another time.

SCHEDULE

When	Topic	Notes
Week 1	Introduction & Course overview	Text: <ul style="list-style-type: none"> • Introduction and Terminology • The Oracle Client environment

When	Topic	Notes
		<ul style="list-style-type: none"> • The Development Environment • The Data Dictionary Language Fundamentals • Program Control in PL/SQL <p>Readings: Chapter 1, 2, 3, 4, 5</p> <p>Computer Lab introduction session</p>
Week 2	PL/SQL Datatypes	<p>Text:</p> <ul style="list-style-type: none"> • Data Types and Composite Structures • Working with Program Data • Strings and Numbers • Dates and Timestamps • Records and Collections • Miscellaneous Datatypes <p>Readings: Chapter 7, 8, 9, 10, 11, 12, 13</p> <p>Discussion of individual projects and presentations</p> <p>Project development and lab time</p>
Week 3	<ul style="list-style-type: none"> • Constructing PL/SQL Subprograms and Data Retrieval 	<p>Text:</p> <ul style="list-style-type: none"> • Cursors and Data Retrieval • Constructing PL/SQL Subprograms • Procedures, Functions, and Parameters <p>Readings: Chapter 15, 17</p> <p>Project development and lab time</p>

When	Topic	Notes
Week 4	Procedure Testing & Error Handling	Text: <ul style="list-style-type: none">• Stored Procedure Testing• Exceptions and Error Handling• DML and Transaction Management• Packages Readings: Chapter 20, 6, 14, 18 Project development and lab time
Week 5	Exam 1	Exam Project development and lab time
Week 6	Triggers	Text: <ul style="list-style-type: none">• Triggers• DML Triggers• Mutating Tables• Other Triggers Readings: Chapter 19 Project development and lab time
Week 7	Advanced PL/SQL Topics	Text: <ul style="list-style-type: none">• Dynamic SQL and Dynamic PL/SQL• PL/SQL Applications• Advanced PL/SQL Topics Readings: Chapter 16, 25, 24 Project development and lab time

When	Topic	Notes
Week 8	Exam 2	Exam Project development and lab time
Week 9	Project Presentations	Final presentation of projects