# CIS 612 - IMPORTANT MESSAGES - Fall 2011

## Recent

<table>
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<th>Syllabus</th>
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<tr>
<td>Click here for a pdf version of the FALL-2011 syllabus</td>
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</table>

**Homework 1 (Due on 15-Sep-2011)**

- Setting up the Example Database

**Homework 2 (Due on 29-Sep-2011)**

- PLSQL Programming - Simple Payroll application

- See a very good solution to this problem by Chris Pokorny

**Exam 1 – A Solution**

- Copy of the exam’s solution.

**List of Articles from Last Semester**

- Click here for a list of topics

**Fall 2011 – Technical Talks – Schedule** (Deadline: Tuesday Oct. 25th) ***

- Click here for schedule

**Homework 3 (Due on 27-Oct) ** **

- Oracle Server- Side Programming [Enforcing Business Rules Using Triggers]

**Exam 2 – Tuesday Nov 1st <<<

## Previously Posted

<table>
<thead>
<tr>
<th>OPTIONAL Homework 7 (Due on 9-Dec-2009)</th>
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<tbody>
<tr>
<td>Exploring the MS-SQL Server</td>
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**Tech Topics - Schedule**

- Tentative schedule - Current Issues on DBMS Technology Series

**Lecture Notes**

- Microsoft Classic Active Database Object (ADO) Control
- Java Database Connectivity JDBC

**Homework 6 (Due on 18-Nov-2009)**

Homework 5 (Due on 4-Nov-2009)

Homework 4 (Due on 28-Oct-2009)
Oracle Object-Oriented Databases - Part 2. The EMPLOYEE Class

Homework 3 (Due on 21-Oct-2009)
An Object-Oriented Database Rendition of the Company Database

Homework 2 (Due on 7-Oct-2009)
A Simplified PL/SQL Payroll Application

Homework 1 (Due on 23-Sep-2009)
Setting up the Example Database

Lecture Notes:

1. A Taxonomy of SQL Queries.
2-1. An introduction to Oracle environment and programming.
2-2. Data set to create the DEMO database used by Scott/Tiger.

3. The Oracle Process Architecture (Notes taken from: Oracle® Database Concepts 10g Release 1 (10.1))


(Click here for additional notes)

Click here for a pdf version of the syllabus

CIS 612 Advanced Topics in Database Systems (3 credits)
OBJECTIVES

The contents of this class change very often to reflect current trends in the field of database systems. The class has a strong practical component in which the student must demonstrate superior handling of the skills required for constructing large scale enterprise database systems. Students are expected to undertake a research topic and present their findings at the end of the semester.

The specific issues of this offering of the course include:

- **Server-Side Database Programming:** The ORACLE and MS-SQL Environment. Study of T-SQL, .NET, and PL/SQL programming languages including: data types, flow-control, packages, functions, procedures, parameters, blocks, exceptions, constraints, constraints and business rules. Stored procedures, libraries, and triggers.

- **Client-Side Database Programming:** Development of Windows-based transactional database applications using Visual Basic.NET, C#.NET, and MS-Access. VBA. Oracle (and Microsoft) .NET Data Provider for Oracle.

- **Web-based databases:** Exposing databases in the Internet. Development of Active Server Page (ASP.NET) applications. Web services in the .NET environment. JDBC classes: connections, statements and result sets.

- Study of commercial relational database management systems (DBMS) emphasizing the aspects of **transaction processing, security, concurrency, and recovery** management.

- **Independent Study: Current Issues on DBMS Technology**
  Students will select, prepare, and discuss in class a relevant DBMS topic. Topic list changes every semester to reflect current subjects. Subjects could include formal concepts, applied technologies, best practices.

PREREQUISITE

CIS-530 Introduction to Database Systems.

INSTRUCTOR

Victor Matos.

Office: BU342.
Phone: 687-3911 (or 687-4760)
Email: matos@cis.csuohio.edu
Email: (EMAIL IS MY PREFERRED METHOD OF COMMUNICATION)
Internet page: http://grail.cba.csuohio.edu/~matos
Office hours: Office: BU342. Tue, Thu 3:30-6:00 PM, Wed. 10:30-11:30 AM (or by appointment)
Classroom: BU 305 - 6:00 - 7:15 PM
Calendar: [Important Dates according to the CSU Official Calendar]

<table>
<thead>
<tr>
<th>TEXTBOOK</th>
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<table>
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<tr>
<th>REFERENCES (Highly recommended)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Oracle Database 11g PL/SQL Programming (Osborne ORACLE Press Series) by D.CS. Michael McLaughlin</td>
</tr>
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<tr>
<th>Software</th>
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<tr>
<td>- <a href="https://www.microsoft.com">Microsoft Visual Studio 2008 or 2010</a> available through the University License Agreement (Read instructions).</td>
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<tr>
<td>- <a href="https://www.oracle.com">Oracle 11g or 10g DBMS</a> is available for evaluation at no charge. Follow the appropriate links from the <a href="https://www.oracle.com">www.oracle.com</a> web-page. It will be sufficient to install a copy of the Standard Edition: &quot;Oracle Database 11g Release R1 for Microsoft Windows&quot;.</td>
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<tr>
<th>Method of Instruction:</th>
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<tr>
<td>This course will use (a) traditional lectures based on recitation of the material, (b) live presentation of the software in the classroom, and (b) directed tutorials. During those supervised tutorials students will implement small pieces of code related to the topics discussed in class. Students are encouraged to actively participate in the class discussions. Students may be asked to make a class presentation of their computer projects. Your instructor will try to reduce the amount of documents handed to you on paper. Check the course webpage for items such as important messages, lecture notes, assignments, examples of previous coursework, code samples, etc.</td>
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<tr>
<th>Course Policies:</th>
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<tr>
<td>- Class participation and regular attendance is expected. Students are responsible for bringing themselves up-to-date on class material and assignments.</td>
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<tr>
<td>- All students are expected to read the assigned chapters before attending classes.</td>
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<tr>
<td>- Exams will be a combination of material presented in lectures, covered in the textbook and additional notes, homework problems, and lab experiences.</td>
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<tr>
<td>- Homeworks and lab assignments should be completed and</td>
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• If I have to cancel a class, I will try to place a message on the course web page as early as possible. I will make efforts in recuperating any lost time.

• All grading mistakes must be corrected no later than a week after receiving your papers. It is your responsibility that your exam/assignments have been graded correctly.

<table>
<thead>
<tr>
<th>TENTATIVE SCHEDULE</th>
<th>Topics</th>
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<tr>
<td><strong>Week 2</strong></td>
<td>Case 1: Enterprise DBMS. Oracle Architecture. Server configuration, options, database dictionary, physical/logical organization, memory and transactions, user and system processes.</td>
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<tr>
<td></td>
<td>Exam-1. Week 3. &lt;&lt;&lt;</td>
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<td></td>
<td>Current Issues on DBMS Technology Students will select, prepare, and discuss in class a current DBMS topic. What to do? 1. Prepare a 15-minute PowerPoint presentation to share the contents and results of your selected paper. 2. (Using your own words) Make a one-page summary (no cut/paste from paper) and email it to the class on week 14.</td>
</tr>
<tr>
<td><strong>Week 3-7</strong></td>
<td>Server Side Programming Distributed computing. Constructing software solution on PL/SQL. In addition to the material provided in the lecture-notes the student should follow the reading of the text from J.Casteel as follows: 1. Introduction to PL/SQL 2. Basic PL/SQL Block Structures 3. Handling Data in PL/SQL Blocks 4. Cursors and Exception Handling 5. Procedures 6. Functions 7. PL/SQL Packages</td>
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Week 8-11

Client Side Programming

Windows Database Development. Using the MS-Windows platform to develop visually rich Oracle database solutions. Technologies will include:

- **JDBC Classes.** Using the JDBC classes to develop Java-based database applications. Connections, Statements, Result Sets.
- **Oracle and Microsoft Data Provider for .NET.** Exploring the Microsoft native .NET components to manipulate relational databases. Extensive use of the Visual Basic .NET programming platform. Review of the .NET classes: Connection, Command, DataAdapter, and DataSet objects. ([Click here for additional notes](#))
- **Oracle Objects for OLE (OO4O).** This approach is designed to allow easy access to data stored in Oracle databases with any programming or scripting language that supports the Microsoft COM Automation and ActiveX technology. This includes Visual Basic, Visual C++, Visual Basic For Applications (VBA), IIS Active Server Pages (VBScript and JavaScript), and others.

Exam-4. Week 11. <<<

Week 12

- **WEB DATABASE.** Active Server Page Technology (ASP.NET) and its support for database applications. Datasets and Web services.

Exam-5. Week 12. <<<

Week 13-14

**Case 2: Enterprise DBMS.** MS-SQL Server architecture. T-SQL programming. Stored procedures and functions. Triggers. Using the Common Language Runtime component to execute SQL Server .NET stored procedures. Developing Windows applications using the
SQL-Server. Developing Windows applications for the SQL-Server.

Week 15

Student Presentations.

Exam-6. Final Week. <<<

The following additional material will be covered as time permits.

A1


A2


A3


Evaluations

Exams will include multiple-choice, true/false, short answer, as well as problem solving/coding. Use pencil instead of ink. A deduction will be made if the code is hard to read and/or poorly organized. Illegible answers will receive no credits.

Missing Exams: No makeup exams will be given unless notified and agreed to in advance, and only in case of exceptional demonstrated need.

Missing Quizzes and Homework: No makeup possible.

Students are allowed to bring to exams a single summary page (letter size) containing their personal notes.

Late Assignments All lab assignments are due at the beginning of class on the date specified. Laboratory Assignments handed in after the class has begun will be accepted with a 20% grade penalty for a period of two weeks and then not accepted at all. All laboratory assignments must be completed. Failure to do so will lower your course grade one additional letter grade.

Any project, exam, homework which is considered -by the instructor- to be a non-original
and/or not-individual contribution of the student will be given an "F" grade on that activity.

**Academic Misconduct.** Academic misconduct refers to any fraudulent actions or behaviors that affect the evaluation of a student's academic performance or record of academic progress. Those forms of dishonest behavior include cheating, plagiarism, and tampering. Major infractions automatically result in an entry on the student's permanent record that the student has engaged in academic misconduct (see CSU code 3.1.2.A(2)(b)).

===> Completion of Homeworks/Labs is required for obtaining a passing grade.

**EVALUATION**

1. **Exams** - 60% (about 6 exams each worth 10%)
2. **Computer Projects** - 30% (about 6 assignments)
3. **Topic Presentation:** 10%

Click for an old sample  
View sample homework assignments  
View more sample projects

<table>
<thead>
<tr>
<th><strong>Letter Grade</strong></th>
<th><strong>Percentage</strong></th>
<th><strong>Description</strong></th>
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<tbody>
<tr>
<td>A</td>
<td>94% +</td>
<td>A: Outstanding (student's performance is genuinely excellent)</td>
</tr>
<tr>
<td>A-</td>
<td>90% - 93%</td>
<td>B: Very Good (student's performance is clearly commendable but not necessarily outstanding)</td>
</tr>
<tr>
<td>B+</td>
<td>88% - 89%</td>
<td>B: Very Good (student's performance is clearly commendable but not necessarily outstanding)</td>
</tr>
<tr>
<td>B</td>
<td>82% - 87%</td>
<td>B: Below Average (student's performance meets every course requirement and is acceptable; not distinguished)</td>
</tr>
<tr>
<td>B-</td>
<td>80% - 82%</td>
<td>C: Good (student's performance meets every course requirement and is acceptable; not distinguished)</td>
</tr>
<tr>
<td>C</td>
<td>75% - 80%</td>
<td>D: Below Average (student's performance fails to meet course objectives and standards)</td>
</tr>
<tr>
<td>D</td>
<td>65% - 75%</td>
<td>F: Failure (student's performance is unacceptable)</td>
</tr>
<tr>
<td>F</td>
<td>&lt;65%</td>
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*This is a tentative scale and it could be changed*

**Lab Assignments:** Weekly assignments - To be announced via classroom/web.

**CSU Official Academic Calendar** Important Dates:  
Click here for detailed deadlines (including registration and course withdrawal and final exams)

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<td><strong>Fall Semester 2011</strong></td>
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<tr>
<td>First Saturday Class</td>
<td>Aug 27</td>
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<tr>
<td>First Weekday Class</td>
<td>Aug 29</td>
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<tr>
<td>Event</td>
<td>Date</td>
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<td>--------------------------------------------</td>
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<tr>
<td>Last Day to Add</td>
<td>Sep 2</td>
</tr>
<tr>
<td>Labor Day (University Holiday)</td>
<td>Sep 5</td>
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<tr>
<td>Last Day to Drop</td>
<td>Sep 9</td>
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<tr>
<td>Columbus Day (University Holiday)</td>
<td>Oct 10</td>
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<tr>
<td>Midterm Grades</td>
<td>Oct 10-16</td>
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<tr>
<td>Last Day to Withdraw</td>
<td>Nov 4</td>
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<tr>
<td>Veterans Day (no classes - offices open)</td>
<td>Nov 11</td>
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<tr>
<td>Thanksgiving Recess (no classes on Saturday)</td>
<td>Nov 24-27</td>
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<tr>
<td>Last Day of Classes</td>
<td>Dec 9</td>
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<td>Final Exams</td>
<td>Dec 12-17</td>
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<tr>
<td>Commencement</td>
<td>Dec 18</td>
</tr>
<tr>
<td>Fall Incomplete Deadline</td>
<td>May 4</td>
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**Programming standards**

- Every program must include your name, CSU ID number, the words 'Homework # ...', and a short description of the assignment. For example:

  ```
  -- Name: Maria Macarena
  -- ID: 1234567
  -- Homework #1
  -- Description: Computing the average life of a light bulb
  ```

- Every variable should have a meaningful name (this includes function/procedure/subprogram names).
- Every portion of the program should be as cohesive (single purposed) as possible. This leads to a large number of small functions.
- Every function (including the main function) should be preceded by a comment indicating its arguments and a description of the transformation it performs.
- Non-obvious code within a function should be explained.
- Code should not be over commented.

**ADA Compliance**

If you need course adaptations or accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the
building must be evacuated, please make an appointment with me as soon as possible. My office location and hours are listed on top this syllabus. If you need further information, please contact the ACCESS Office, phone number 687-5106.

OLD - OLD - OLD Material from previous semesters (From Summer 2007 and before)

Homework-6: Developing .NET applications.


Homework-4: Advanced data representation using non-atomic relations, << due We. June 28.

Term Project - Part 1: "I am OK - A Conceptual Model for a Global Emergency System". By V. Matos & B. Blake


Homework-2: Formulating SQL queries << due We. June 6.

Homework-1: Setting up the COMPANY database << due We. May 30.

Lecture Notes: SQL Server 2005. Server side development using T-SQL and CLR managed code

Lecture Notes: Web databases. Using ADO.Classic and ADO.NET to develop .NET solutions

Technology Discussion: Select and prepare a topic to be presented in class during last week of classes Nov. 13 & 15.

Lecture Notes: Classic ADO control. Using MS-Office tools for database applications, ADO.NET.

Developing Database Apps Using ADO.NET and Visual Studio .NET

Lecture Notes: Review. Diagrams for Database Design (ERDs, UML-Association Charts). SQL taxonomy, examples.

Lecture Notes: The Oracle Process Architecture (Notes taken from: Oracle® Database Concepts 10g Release 1 (10.1)), An introduction to Oracle environment and programming.

Homework-8: Database solutions using the .NET platform

Homework-7: Developing database solutions using VBA and MS-Office

Homework-6: Triggers
Homework-5: Packages

Homework-4: Collections - Cursor manipulation

Homework-3: Using Oracle-JDeveloper to create a PL/SQL function

Homework-2: Writing a PL/SQL function

Homework-1: Setting up the COMPANY database

Final Project: A VB.NET + Oracle database solution using ASP.NET + ADO.NET (Due: Tu. 10-May)

Lecture Notes: Designing reports with the BusinessObjects< (c) Crystal Report tool

Lecture Notes: Designing an ASP.NET + Oracle database application

Homework-6: A VB.NET + Oracle database solution using ADO.NET (Due: Th. 6-May)

Lecture Notes: Developing database solutions using ADO.NET and VB.NET (Part 2)

Lecture Notes: Developing database solutions using ADO.NET and VB.NET (Part 1)

Exam 2. Thursday, April 14. Database Programming using ADO.NET and VBA

Homework-5: Developing a MS-Access application for an Oracle database using ADO.classic (Due: Th. 31-March)

Lecture Notes: VB, ADO, and Oracle databases. Notes from Microsoft Knowledge Base. (24-March).

Lecture Notes: Using MS-Access and VBA as a development tool for Oracle databases (29-March).

Lecture Notes: VB.NET Introduction (3-March).

Lecture Notes: Using the Microsoft ADO control (3-March).

Lecture Notes: Using the Microsoft Access as a development tool. (3-March).

Lecture Notes: Using the Oracle Objects for OLE OO4O. (24-Feb).

Homework-4: A trigger-driven enforcement of business rules (Due: Th. 10-March)

Download: Oracle - JDeveloper 10g Release 2 (10.1.3) Jan 2005
Supplements: Extended Relational Algebra for Nested Relations

Supplements: Summary-Table-By-Example (STBE) /p>

Supplements: Some useful SQL-Plus scripts

Homework-3: A PL/SQL function to find employee affiliations (Due: Th. 17-Feb)

Homework-2: PL/SQL function to work on the COMPANY database (Due: Th. 10-Feb)

Lecture Notes: Classic ASP Databases - Five demos

Lecture Notes: Oracle programming using Visual-Basic & the ADO control.

Lecture Notes: The reading material on "ORACLE Stored Procedures" begins on page 58 of our lecture notes. Click here for a copy of the package (it is the same set of notes that was in this site before!)

Project: Project Part III - Implementing Oracle server-side procedures

Exam: Click here for a copy of the exam and a PL/SQL solution.