



Standard Course Outline

I. General Information

- ♦ Course number: IS 581
- ♦ Title: Advanced Database Management
- ♦ Units: 3
- ♦ Prerequisites: Graduate Standing, IS 580
- ♦ Course Coordinator: Sophie Lee
- ♦ SCO Prepared by: Sophie Lee
- ♦ Date prepared/revised: October 8, 2012

II. Catalog Description

Advanced topics in database management. Enterprise data needs, analysis and design. Development and management of complete database management system applications. Administration of large scale enterprise database. Latest issues and trends in database technologies.
Letter grade only (A-F).

III. Curriculum Justification(s)

This class equips the graduate students with advanced and in-depth skills and knowledge into the development and administration of a large scale database. It extends students' skills and knowledge to beyond the introductory concepts of database management, and provides an advanced and in-depth understanding of how to create and manage an enterprise database application. The power of a complete database management system lies in its ability to capture and process complex organizational rules, and to deliver useful information for end users. This goal cannot be achieved without integrating the third generation language, fourth generation language, and user interface design available in a DBMS. To that end, this class is designed to introduce the third generation language and user interface design aspects of database management systems to students, and seek ways to master all three tools. Issues in latest database technology trends will also be covered.

IV. CBA Graduate Program Learning Goals:

This course meets the following CBA graduate learning goals:

Learning Goal #4 – Business Functions

Students will have advanced understanding of business functions in Information Systems, and how an database systems works in the entire organization

Learning Goal #5 – Quantitative and Technical Skills

Students will have enhanced knowledge in quantitative and technical skills in database management systems.



V. Course Objectives, Measurable Student Learning Outcomes, Evaluation Instruments, and Instructional Strategies for Skill Development

Upon completion, students will be able to

1. understand issues in advanced database management
2. conceptualize enterprise data needs and information processing
3. have working knowledge of database back-end operation of a leading commercial DBMS, such as Oracle's PL/Sql.
3. understand advanced database operations such as stored procedure, function, and package.
4. understand advanced database operations such as cursor, trigger, and exception handling.
5. understand the administration and management of a complete 3-tier Database Management Systems (DBMS) application.
6. understand and explore evolving standards and platforms of current database technology

VI. Outline of Subject Matter

1. Database management for the enterprise
2. Advanced SQL ad-hoc queries
3. PL/SQL stored procedure, function, and package
4. SQL in PL/SQL
5. Advanced backend package such as cursor, trigger, and exception handling
6. User interface design and calling backend procedures
7. Dynamic SQL
8. Data integration issues such as EDI and legacy system integration
9. Administration of database development effort

VII. Methods of Instruction

This course should be taught by lectures, hands-on programming, and real life project. First, the instructor should devote about 3 weeks on a quick review of SQL, and advanced SQL queries, such as the use of NVL, DECODE, string, number, date manipulation, Oracle functions, advanced use of subqueries for I/U/D. Secondly, about half of the semester should be used to cover a database backend language, such as Oracle's PL/SQL (or SQL Server's T-SQL). Students should understand stored procedure, function, package, how to program SQL in the backend language (merge of 3GL and 4GL), cursor processing control, database triggers and exceptions. User interface design that link to the application package and actual database should be taught so students have a solid understanding of 3-tier design. The last few courses should be devoted to issues and implementation of large database development and management.

VIII. Extent and Nature of Technology Use

Instructors must assign homework, exercises, and projects that involves hands-on exercises of a database system.



IX. Textbooks

The following is a short list of textbooks that are most likely to be used for this course. Instructors may assign one or more of these and/or include other relevant texts/readings. Instructors may be asked to justify the use of old textbooks, if updated texts are available.

(Required)

1. Urman, Scott, Oracle 10g PL/SQL Programming, Osborne/McGraw Hill Publishing. ISBN 00722-30665.

(Optional)

1. Koch and Loney, Oracle10g The Complete Reference, Osborne/McGraw Hill Publishing. – If you don't have Oracle background, this is a very complete reference.

X. Instructional Policies Requirements

A. Assessment Criteria

Homework

Students will complete individual homework profiling their competence in various subject matters.

Quizzes and Exams

Students will complete quizzes (optional), mid-term exam (required; at least one), and final exam (required).

Projects

Instructors must assign comprehensive course project that requires problem solving and use of a leading commercial database management system.

Suggested workload and grading:

Homework (10 pt x 10)	100 pt
Exam 1	50 pt
Exam 2	100 pt
Final Exam	100 pt
<u>Project</u>	<u>100 pt</u>
TOTAL	450 pt

B. Required Statement

In compliance with university policy: Final grades will be based on at least three, and preferably four or more, demonstrations of competence. In no case will the grade on any class tests count for more than one-third of the course grade.

C. Attendance, Withdrawal, Late Assignments

Students are expected to attend courses and turn in assignments on time. Specific attendance and late assignment policies are up to each individual instructor's discretion. The withdrawal policy is the same as that of the university.



D. Disabilities

Students with disabilities are responsible for notifying their instructor as early as possible of their needs for an accommodation of a verified disability. A student with a disability is urged to consult with Disabled Student Services as soon as possible in order to identify possible accommodations to enhance academic success.