

**COP 4932 – Special Topics in Computer Science
Enterprise Database Systems**

Instructor: Dr. Margaret Bernard, University of West Indies, CS Visiting Professor

Pre/Co-reqs: CGS 2545 or ISM 4212 or COP 4710.

Time: Mon, Tue, Thr, Fri 10:00am – 11:50am, Summer B-term

Course Description: The course covers the design, implementation and management of Enterprise Database Systems. It is an advanced database course; we assume knowledge of the fundamental concepts of Relational Databases. The course covers data modeling tools such as extended ER modeling and UML modeling. We examine the Database Life Cycle and work through a case study from Planning stage to Implementation and Deployment. Query Optimization concepts are introduced in the context of database performance tuning. We explore several current database environments and applications including Distributed Databases and Web-enabled Databases. Data Warehouses are covered with emphasis on multidimensional modeling.

Objectives:

- Students will gain an understanding of the activities of the Database Life Cycle and be able to use data modeling tools.
- Students will be able to design Distributed Database Systems and have a full understanding of the performance, availability and integrity issues involved.
- Students will understand the architecture of a database driven web site and how the middleware components facilitate dynamic web pages. They will distinguish between the XML hierarchical data model and the Relational data model and learn of the approaches for mapping XML data to Relational and Object-Relational databases.
- Students will understand the role of Data Warehousing in Decision Support Systems. Students will be able to design the conceptual model of a Data Warehouse and use it for multidimensional data analysis.

Practical: There will be a guided 2-hour lab session each week. These hands-on sessions will give students exposure to Oracle 9i, the most widely used database management system for enterprise databases. The labs will be structured to cover the full range of SQL (using Oracle SQLPlus) and some PL/SQL (triggers and stored procedures). Lab sessions will also cover object-relational support in Oracle 9i, such as XMLType.

Assessment:

- Individual Assignments (2): 30%
- Group project: 20%
- Practical exam: 10%
- Final exam: 40%

Main Text:

Rob,P & Coronel,C. *Database Systems Design, Implementation and Management*, (5th Edition), International Thompson Publishing, 2002, ISBN0-619-06269-X