ISM 610: Enterprise Information Systems and Data Warehousing
Fall 2005 Syllabus

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Catalog Description:
Enterprise Information Systems provide an infrastructure to extract, cleanse, and store vast amounts of data. Data warehousing as the core technology is introduced and its basic concepts and architecture are discussed.

Detailed Course Description:
The ability to analyze, plan and react to ever-changing business conditions in a much more rapid fashion is vital to survival of organizations today. To do this, enterprises need more and better information. During the past few years, a set of significant new concepts and tools have evolved into a new technology that make it possible to provide all the key people within the enterprise with access to needed information. These new concepts, technologies and tools are collectively referred to as Enterprise Information Systems. Data Warehousing, an integral part of this, provides an infrastructure that enables businesses to extract, cleanse, and store vast amounts of enterprise data. Once this repository of enterprise wide data is available, the knowledge workers within the organization are able to use it to support their decision-making activities. Among the enabling technologies that allow a data warehouse to provide decision support capabilities are Data Mining and On-Line Analytical Processing (OLAP). In this course, the basic concepts and architecture of data warehouses are discussed and the essential role that they play in providing informational and decision support needs is discussed.

Student Learning Outcome:
On completion of the class, students will be able to:

1. Describe Enterprise Information Systems and evaluate the role they play in gaining competitive advantage.
2. Demonstrate an understanding of the basic concepts and architecture of a data warehouse as an integral part of Enterprise Information Systems.
3. Assess the important architectural and developmental differences between a data warehouse and a traditional operational system.
4. Evaluate hardware and software products available to help develop, maintain, and use a data warehouse.
5. Evaluate techniques for extracting data from operational sources and populating the data warehouse.
6. Describe and define the iterative steps involved in implementing and managing a data warehouse.
7. Define and analyze the advantages and disadvantages of star schema modeling for dimensional analysis.

Prerequisites:
ISM 602 or permission of the MSITM Program Director

Recommended Supplemental Readings Sources:
All the reading material, projects, handouts and other learning resources needed for this course are available at the course BlackBoard site (http://blackboard.uncg.edu). It is your responsibility to have
read the readings assigned to you prior to coming to class.

**Evaluation Method and Guidelines For Assignments:**

Examination (20%), Case Analyses (10%), Projects (40%), Final Research Project and Presentation (25%), Participation in Course discussions (5%).

The letter grade is based upon points earned on each item mentioned above and is calculated using a standard 10 point scale. Grades will be based on the following scale: A (93-100), A- (90-92), B+ (87-89), B (83-86), B- (80-82), C+ (77-79), C (73-76), C- (70-72), F (below 70).

**Exam:**

We will have one comprehensive final exam. The exam is open books and open notes. Portions of the exam may require the use of a computer. More details will be discussed in class.

**Case Analyses:**

We will discuss three real life case studies dealing with topics discussed in class. You are required to submit a short case analysis for each of the cases that we discuss. Each written case analysis is due at the beginning of the class on the scheduled due date. I will ask a student to lead a class discussion of each case where we examine the implications of the case in details and We will spend a few minutes of each class period discussing the case and its implications. Your participation of the class discussions is encouraged and counts toward the grade assigned the case. More details to come.

**Projects:**

Students are expected to complete 2 projects. The first project SQL based project for querying and analyzing a data warehouse. The second project deals with the planning, requirement assessment and design of a data warehouse.

**Research Project and Presentation:**

Each student group will be assigned a topic from the subject matter covered by this course to analyze further and to prepare a research paper, and to make a presentation to the class. The topics of the presentation fall under three broad categories: Case Study, Technology Analysis and Teaching and Research. Depending on which track you and your groups choose, you will search the IS literature, access the Internet and its varied resources for additional background information, exchange with experts in the domain of the project, visit companies and interview experts, etc. The different sources/sites contacted and referenced should be documented in your final report. A presentation will be made at the specific date during the semester. I will provide presentation guidelines and a presentation grade sheet to you. I may ask outside people to attend the presentations and evaluate the final product as well as your presentation skills. More on the details of the projects will be provided to you during lecture.

**Instructional Methods:**

This course will be delivered by mixing lectures with hands-on computer exercises. In most classes a conceptual/theoretical lecture will be given on some selected topic in the textbook, then followed by a case presentation on some topics related to enterprise data systems. To enhance learning both elementary and advanced topics, issues, techniques and concepts covered in this course, we will rely on the textbooks, class lectures, class discussions, in-class exercises, and lab exercises. Lab exercises are intended to reinforce the topics covered in the lectures. The lab sessions are designed for students to work on concepts presented during the class and lab tutorial assigned during the lab time. Lab sessions will normally be held in Bryan 211.
Attendance Policy:
Each student is responsible for all the information and announcements that are made in class. Poor performance in this course is directly related to poor attendance. Students are expected to conduct themselves in a professional manner. A professional shows up for scheduled meetings prepared and on time. Any student missing the first two classes without notifying me will be administratively dropped from the course. All students are expected to attend class. Students with excess un-excused absences will be subject to a grading penalty. Excess absences are defined to be more than 10% of the class time. Any student missing more than three classes (excused or not) may have their grade dropped by a letter grade.

Technology Applications:
Technological advances in computing are addressed throughout the course. Specifically, we will discuss a number of them in State of the Technology presentation and success story case portions of the course.

Ethical Perspectives:
Computing is a tool to more effectively manage information in decision-making. The importance of ethical decisions will be addressed throughout the course.

Global Perspectives:
Globalization is a primary objective of the Bryan Business School. Although we will discuss a number of specific international issues, the discussion of globalization is beyond the scope of this course.

Demographic Diversity Perspectives:
This course will not specifically address the issue of demographic diversity.

Political, Social, Legal, Regulatory, and Environmental Perspectives:
The legal issues surrounding the ownership and use of software, and the users’ rights as they pertain to the computing environment will be discussed in the software and hardware sections of the course.

Library or Research Requirements:
Students are expected to familiarize themselves with utilization of the Jackson Library Online systems and the Internet in the beginning of the course. Students are required to use the library for their research projects, homework projects and case presentation.

Ethical Issues and the Academic Honor Code Policies:
University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such illicit possession of examinations or examination materials, forgery, or plagiarism. Students will NOT make, borrow, or “share” copies of their lab assignments or files with other students. Plagiarism is defined as “presenting as one’s own work that work which is, in whole or in part, the work of another person or persons without giving proper credit to the appropriate source.” This includes submitting work done by another, as one’s own work. It is understood that what you turn in to me for grade represents your own effort. Plagiarism will be immediately punished with a grade of zero for the assignment in question. Further disciplinary action will be pursued, as I deem appropriate. Helping one another is allowed, but copying is cheating. This practice is against the UNCG Honor Code and defeats the purpose of this course. No credit will be received for shared work, and other penalties may be imposed. I will pursue cheating as far as the university allows me. Students are encouraged to review the University’s Academic Integrity Policy in the student handbook or on-line at http://studentconduct.uncg.edu/policy/academicintegrity/.
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<th>Week</th>
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| Week 1 | Introduction to the Course  
Introduction Enterprise Information Systems  
An introduction to Data warehouse  
Data Warehousing Fundamentals |
| Week 2 | Review of SQL  
Get Oracle Accounts  
Access Grocery Store date warehouse example  
Meet in Lab 211.  
**Data warehouse analysis using SQL Project is given out today.** |
| Week 3 | Data Warehousing Components and Characteristics  
Building a Data Warehouse  
Exploration Data Warehouse  
Organizational and Political Considerations  
Data Warehousing Implementation and Outsourcing Challenges |
| Week 4 | Building a data warehouse using a Dimensional Model  
Multidimensional Data Modeling  
Kimball vs. Immon  
Star Schema  
Dimensional Modeling Project Document and Checklist  
Dimensional Modeling Design and Data Source Check lists  
**Data warehouse design and dimensional modeling Project is given out today.** |
| Week 5 | Case studies discussions and presentations  
Discussion of final project topics  
**Data warehouse analysis using SQL Project is Due today.** |
| Week 6 | Data Extraction, Clean up and Transformation  
Data Transportation  
Converting Data for Data Warehouse  
Evaluating ETL Tools and techniques |
| Week 7 | Data Warehouse Quality  
Dealing with Dirty Data  
Metadata in Data Warehouse  
Standardizing Metadata  
**Data warehouse design and dimensional modeling Project Due today** |
| Week 8 | Students’ Presentation of their final project and Final exam |

* (Please note: This course outline is a tentative outline, we will make every attempt to follow this outline. However, deviations from this outline may become necessary)