Syllabus for HIMT425
Data Warehousing and Mining

NOTE: This syllabus document contains the basic information of this course. The most current syllabus is available in the full course.

Course Description

The course introduces the elements of the data warehouse development methodology (design, acquisition, management, analysis, query, mining, and visualization), focusing on serving the informational and analytical needs of an enterprise. It examines the concepts of the data warehouse and the data-mart from various points of view (purpose, architecture, utilization, and security) and addresses the process of creating a data warehouse/data-mart solution from identifying an enterprise's informational and analytical needs to producing business intelligence (BI) by extracting useful information from the data warehouse using data mining methods and models. The course also examines the issues of data warehousing effectiveness in supporting strategic decision making. Topics include:

- Decision support systems
- Data warehouse architecture and design
- Data acquisition
- Data-marting
- Software and hardware requirements
- Security and performance
- Data analysis
- Data mining

Prerequisite(s)

HIMT 375 Database Structures and Management Systems

Course Outcomes

At the conclusion of this course, you will able to:

- Identify the most important informational and analytical needs of an enterprise, and develop a data warehouse solution that serves these needs.
- Use the data warehouse solution to perform simple data mining tasks.

- Re-engineer the operational database(s) of a given enterprise and provide a data warehouse design focused on addressing the most important informational and analytical needs of the enterprise.
- Apply specific design techniques (data partitioning; denormalization; multidimensional, star, and snow-flake design models) to address the data structuring challenges of the data warehouse development process.
- Address the challenges of data acquisition and the ETL (Extract/Transform/Load) process.
- Provide BI by extracting useful information from the data warehouse.
- Use analysis and data mining tools: Online Analytical Processing (OLAP), Relational OLAP (ROLAP), Multidimensional OLAP (MOLAP), Hybrid OLAP, Decision Support Systems (DSS), Executive Information Systems (EIS), and others.
- Assess the effectiveness and usability of data warehousing solutions.
- Apply one or more basic data mining techniques to identify frequent patterns, associations, and correlations in the data.
- Apply one or more basic data mining techniques to make categorical predictions on new incoming data.
- Create, populate with data, and extract useful information from a data warehouse.
- Address the challenges of using data warehousing in strategic decision making, calculate the costs, and name the benefits and limitations of such an approach.

Course Requirements/Components

Quizzes

The quizzes account for half of your grade in this course and can be quite challenging to work through. Please let your instructor know if you need help, by using the Discussions to post your questions and reach out to the other students in the class for help and feedback.

Lecture Quizzes

Some of the commentaries include quizzes to assess your understanding of the material.

Discussions

Share questions or ideas about the readings in your textbook, the course materials, or quizzes. Reply to your classmates' posts.

Exams

There will be one comprehensive final exam. No make-up exams will be given.

Extra Credit Assignments

You can earn as much as 10% applied to your final grade by working on extra credit assignments. The extra credit assignments will be individualized and offered upon request. The first extra credit assignment is worth 4%; the second is worth 6%. Please let your instructor know if you are interested in working on an extra credit assignment.

Grading

The following grading scale will be used to evaluate all course requirements and to determine your final grade:

Grade	Percentage Range
A	90% - 100%
B	80% - 89%
C	70% - 79%
D	60% - 69%
F	0 - 59%

Assignment	% of Course Grade
Quizzes	50
Discussion Participation	10
Final Exam	40
Extra Credit Assignments (upon request)	10
Total	**110%**