Business Intelligence Techniques and Applications

Title of the course: Business Intelligence Techniques and Applications

Analysis Instructor: Honggang HU

Course code:

Teaching Language: English	**Targeted students:** Master
Contact Hours: 36	**Self-learning Hours:** 72

Prerequisites: Introduction to Operations Management

Number of learners: Less than 55

Academic Year: Spring	**Credits:** 2

Profile of Teaching Staff

Honggang HU

Honggang Hu is an Assistant professor of Management Science and Engineering in the School of Economics and Management at Tongji University. He received his Ph.D. in operations management from University of Florida. Dr. Hu's research interest lies in retail operations, supply chain management, OM-Marketing/IS/Accounting Interface, and Corporate Social Responsibility. Dr. Hu's research goal is to utilize his expertise in both theoretical and empirical methodologies to provide firms with recommendations on how to improve their operational and marketing strategies, and help policymakers improve social values in the evolving landscape of modern industry.

1. Course Description

The primary objective of this course is to introduce students some widely used business intelligence techniques, both from conceptual and application perspectives. Selected topics covered in the course includes ***Data Analytics***, ***Decision Theory***, as well as ***Project Management***. In this course, students will also have hands-on experience with current, cutting-edge tools such as MySQL and Microsoft Excel.

➢ **Data Analytics:** Students will learn the basic concepts of modern database systems and are able to apply these concepts effectively in planning, designing and querying a database.

➢ **Decision Theory:** Students will learn the modeling techniques that can help gain insight and understanding about decision problems. Then, some basic approaches that can be used to tackle such problems will be introduced as well.

➢ **Project Management:** Students will learn two key techniques that were developed to help managers plan, organize, and control business projects: the Critical Path Method (CPM) and the Program Evaluation and Review Technique (PERT).

2. Course Objectives

➢ Gaining a solid understanding of fundamental business intelligence concepts and methodologies.

➢ Being familiar with cutting-edge business intelligence tools.

➢ Bridging the gap between theory and practice.

➢ Integrating data analytics, decision theory, and project management techniques to solve real-world business problems.

➢ Developing the ability to use these techniques cohesively to improve business decision-making and project outcomes.

3. Course Requirements and Assessment

Assessment	Ratio	Requirements
Individual Assignments	30%	There will be **three** individual assignments (one for each topic), and each will be worth 100 points. The assignments include calculations questions that reinforce your

		skills, as well as a case that help your understanding of the idea. Late homework submissions will be accepted with a penalty of **20% per day (including weeks)**. I have zero tolerance when it comes to plagiarism. If some submitted homework assignments are identical or suspected to be identical, all involved parties will get **a grade of 0** on the particular assignment. Homework policy is nonnegotiable.
Course project	20%	A course project will be assigned and you will have around two-week preparation for presentation. You will complete it in self-selected groups of **three** to **four** people. You are expected to conduct research on the real-life applications of the techniques we learn in class. Collaboration is key to learning and doing well on this project. Group members can evaluate each other's performance by providing comments on the peer evaluation form. Those who under-contribute may be penalized (up to **100% grade deduction**).
Exam	30%	There is a written exam after this course. The exam will be a closed book, closed notes test, and the maximum number of points will be 100. No cell phones, PDAs or laptops are allowed during the test. The final exam will comprehend all topics but will emphasize the theoretical aspects of the course materials.

Class participation	20%	10%: attendance
		10%: active participation

4. Course Arrangement

Course Name		Business Intelligence Techniques and Applications	Contact Hours	36
Unit	**Credit hours**	**Contents**	**Assignments**	
1	12	**Data Analytics** 1. Data Modeling (E-R diagram) 2. SQL: DDL and DML 3. SQL: Table Queries 4. SQL Practice	Individual Assignment 1	
2	12	**Decision Theory** 1. Decision Rules 2. Decision Tree Analysis: Multistage Decision Problems 3. Utility Theory 4. Multi-Criteria Decision Problems	Individual Assignment 2	
3	9	**Project Management** 1. Critical Path Method (CPM) 2. Project Crashing 3. Program Evaluation and Review Technique (PERT)	Individual Assignment 3	
4	3	**Conclusion** 1. Exam Review 2. Course project presentation	Course Project	

4. Textbook and References

Textbook:

- *Modern Database Management*, 13th Edition (2019), Pearson Publishing.
  Authors: Jeffrey A. Hoffer, V. Ramesh, Heikki Topi

- *Spreadsheet Modeling & Decision Analysis: A Practical Introduction to Business Analytics* (8th Edition), Cengage Learning.
  Authors: Cliff T. Ragsdale

Supplementary materials:

- *Managerial Decision Modeling with Spreadsheets* (3rd edition), Prentice Hall.
  Authors: N Balakrishnan, B. Render and R. Stair

- *MySQL Cookbook*, 3rd Edition (2014), O'Reilly Media.
  Authors: Paul DuBois