

DSC1704 Decision Analytics Using Spreadsheet

Lecturers : Dr. Liu Qizhang (Co-ordinator)

Session: Semester 2, 2017/2018

Description

We are now at the era of *big data*. Companies are able to collect tremendous amount of data, very often more than necessary, with ease. “Information is Power” is no longer valid if companies are not able to make correct decision timely out of the data. The use of business analytics for modeling and decisions represents the future of best practices for tomorrow’s success companies.

This module prepares students with theory and skills to capture business insights from data for decision making using spreadsheets. Practical examples and cases with rich data are used to stimulate students’ interest and foster understanding of the use of Business Analytics in management.

Objectives

Students are expected to become proficient in the extensive use of spreadsheet in the business environment. The module will enable students to consider the data dimension in making decisions at all levels in the corporate setting.

Course Outline

1) Understanding Data

- a) Data management and visualization with Pivot Table
- b) Laws of Probability, Bayes Theorem, Covariance
- c) Probability Distributions

2) Managerial Decision Analysis

- a) Decision Tree Model and Analysis
- b) General Method Decision Analysis

3) Simulation Modeling: Concepts and Practice

- a) Random Number Generators
- b) Using the Sample Data for Analysis
- c) Computer Software for Simulation Modeling

4) Optimization Models and Their Applications

- a) Formulating Management Problems
 - i) Linear Optimization Model
 - ii) Nonlinear Optimization Model
 - iii) Discrete Optimization Model

b) Computer Software for Optimization Modeling

Reading List

Compulsory reading:

“Data Analysis, Optimization, and Simulation Modeling” 6th Edition by Albright and Winston

Supplementary reading:

“The Analytics Edge” by Allison K. O’Hair, Dimitris Bertsimas, and William R. Pulleyblank

Course Package

Prerequisites

Fundamental skills in Excel.

Weightage of Assessment

Continuous Assessment :

Class Discussion	20%
Group Project	15%
Quiz	10%
Assignments	15%

Final Examination 40%