香港科技大學
THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

ISOM2600 – Introduction to Business Analytics

Fall 2020

Instructor Lilun DU, Assistant Professor of ISOM
Room: LSK4068
Phone: 2358-7730
Email: dulilun@ust.hk
Office Hour: by appointment

Instructional Assistant Anson TONG, Room LSK4049C, Email: imchtong@ust.hk

Prerequisites

ISOM2500 Business Statistics
ISOM2020 Coding for Business

Course Description

This course presents classical approaches for analyzing complex data from business domain, including multiple regression, data transformation, classification methods, and clustering analysis. All of these approaches will be analyzed in the context of Marketing, Finance and other important business domains. Python is the programming tool for computation.

Course Objectives

On successful completion of the course, students will be able to:

- Use the concepts underlying the quantitative tools which deal with complex data from business domain, and put those tools together with data to draw meaningful conclusions.
- Use Python in a more effective way for analyzing data

Syllabus

0. Introduction to Business Analytics and Review of Simple Linear Regression
1. Introduction to Multiple Regression
   - Multiple regression
   - Inference, Prediction, and Model checking
2. Fitting Nonlinear Pattern
   - Log-transformation
   - Use Indicator and Interaction variables in regression
3. Model Selection

- Best subset
- Model evaluation: Adjusted R-squares, C_p, AIC, BIC; Training set and Validation set, Cross-Validation

4. Classification
    - Evaluation Criterion for Classification : Accuracy Score and Area Under the Curve (AUC)
    - Logistic Regression
5. Clustering Analysis
    - Hierarchical Clustering
    - K-means Clustering

Course Materials

Reference Books: Jack Vanderplas (2016), Python Data Science Handbook, 1st Edition, O'Reilly Media.

Evaluation

Assignment 1 (3 students/group)	15%
Assignment 2 (3 students/group)	15%
Assignment 3 (3 students/group)	15%
Final Exam (Individual)	50%
Class Participation	5%

Final Grade

Your final grade will be given based on the distribution of the students' total scores in ISOM2600.