

Decision Analytics

ISOM 3900: Spring 2017

Professor	NG Shu Ming
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Office hours	TBA
Class venue	LSK G021
Class schedules	Mon: 13:30-14:50; Fri: 9:00-10:20
Course webpage	CANVAS
Teaching Assistant	JIA Jing
TA office hours	10:30—11:30 Friday

Course description

Many of us have read from newspapers or magazines about the buzz words big data, business analytics, business intelligence, machine learning, Some of these best known applications are in operations, marketing, finance, money laundry, security checks, You name it! Companies, large or small, are now considering the use of analytics as a competitive strategy. The basic ideas in analytics is to use quantitative tools to identify the patterns in the data sets. Then use predictive analytics to identify useful patterns and model those patterns using quantitative tools to create competitive strategies or policies for the company.

We will introduce some of those basic tools in this course and apply them to identify useful patterns from data sets coming from various applications. We will use The Excel and R throughout this course.

Textbook

Decision Analytics: Microsoft Excel by Conrad Carlberg. Copyright © 2014 by Pearson Education.

Supplemental readings and cases: TBA (cases, news articles etc.)

Grading criteria:

Class participations	10%
Homeworks	20%
Case analysis and presentation	20%
Final exam	50%

Course schedules: Decision Analytics (DA)

Weeks	Chapter and topics	
1	Course administration and introduction	
2	Ch 1 Components of DA: Classifications-existing categories versus naturally occurring categories	
3	Ch 3 Univariate Analysis of Variance (ANOVA), its uses and implications; different approaches; the F-ratio	
4	Ch 2 Logistic Regression: The rationale, maximum likelihood, the applications	
5	Ch 2 continued and Ch 4, Multivariate Analysis of variance (MANOVA); the rationale, relationship with ANOVA, Wilks' Lambda and the F-ratio	
6	Ch 4 continued	
7	Ch 5&6 Discriminant Function Analysis	
8	Ch 5&6 (continued)	
9	Ch 7 Principle Component Analysis: the correlation matrix, inverse of R matrix, factors and its identifications, eigenvalues and eigenvectors, rotating factors	
10	Ch 7 continued and Ch 8&9	
11	Ch 8&9 Cluster Analysis	
12	Practical case analysis and presentations	
13	Practical case analysis and presentations	