

Business Analytics (商管統計資料分析)

108-1 / MBA5045 / 741 U9880

Audience: Department of BA, junior above, MBA, and doctoral students

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Office hour: *by appointment*

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Introduction:

The core of this course is the concepts and methods of analytics, or statistical data analysis, and their applications to business and management studies. Two major topics to be discussed are (1) Linear Models (Regression Analysis) and (2) Generalized Linear Models (Categorical Data Analysis). The aim of this course is to help students appreciate the strength and usefulness of business analytics. Statistical software, R, is to be used in the class. To ensure the teaching and learning qualities, students are suggested to require prior knowledge in calculus and statistics.

Grading policy:

Assignments: 30%

Midterm exam: 20%

Final exam: 20%

Presentation & Report: 30%

Course outline:

			<u>Reading</u>	<u>Assignment</u>
1	10-Sep-19	Course Overview and Introduction		
<u>Topic One : Linear Models</u>				
2	17-Sep-19	Exploratory Data Analysis, R, & Simple Regression	Marques 2 (Everitt: 2)	
3	24-Sep-19	Multiple Linear Regression	Ramsey/Schafer: 7 ~ 10	
4	01-Oct-19	Regression Model Building	Ramsey/Schafer: 11, 12	#1
	08-Oct-19	NO LECTURE		
5	15-Oct-19	Analysis of Covariance (ANCOVA)	Wu: 2.9 (JF: 13; S/F: 25)	
6	22-Oct-19	Linear Model: Case Studies & In-Class Practical (1)	Handouts	#2
7	29-Oct-19	Analysis of Variance (ANOVA)	Wu: 1.3, 1.6 ~ 8	
8	05-Nov-19	Design of Experiments	Wu: 2.2, 2.3, 2.6 ~ 8, 3.1 ~ 4	
9	12-Nov-19	In-Class Practical (2)	Handouts	#3
10	19-Nov-19	Midterm		
<u>Topic Two : Generalized Linear Models (Categorical Data Analysis)</u>				
11	26-Nov-19	Odds and Contingency Tables	Ramsey/Schafer: 18, 19	
12	03-Dec-19	GLM: Logistic Regression for Binary Responses	Ramsey/Schafer: 20	
13	10-Dec-19	GLM: Logistic Regression for Binomial Counts	Ramsey/Schafer: 21	#4
14	17-Dec-19	GLM: Log-Linear Regression for Poisson Counts	Ramsey/Schafer: 22	
15	24-Dec-19	GLM: Case Studies & In-Class Practical (3)	Handouts	#5
16	31-Dec-19	Final Presentation	Handouts	
	07-Jan-20	Final Exam		Report

Textbooks:

1. Ramsey & Schafer, *The Statistical Sleuth – A Course in Methods of Data Analysis*, 2nd ed., Brooks/Cole, 2002. (滄海代理)
2. Marques, *Applied Statistics: Using SPSS, STATISTICA, MATLAB and R*, 2nd ed., Springer, 2007. (NTUL e-books)
3. Wu, *Experiments – Planning, Analysis, and Parameter Design Optimization*, Wiley, 2000.

Reference:

1. Agresti, *An Introduction to Categorical Data Analysis*, Wiley, 1996.
2. Stine & Foster, *Statistics for Business – Decision Making and Analysis*, Pearson, 2011.
3. Everitt & Hothorn, *A Handbook of Statistical Analyses using R*, Chapman & Hall/CRC, 2006. (NTUL e-books)

Note:

1. No late, no food, no mobile/cellular phone. THANK YOU.
2. Assignment and term report must be handed in by the HARD DEADLINE specified. Late work is NOT accepted.
3. Details about term report will be announced in due course.

Prerequisite:

(Elementary) Statistics, Calculus