開 授 課 程 大 綱

開課單位系所		清華大學/統計所				
課　　　號	STAT 5040		班　次		學　分	3
名　　　稱	迴歸分析					
授 課 教 師	鄭少為					

一. 內容：

Regression is one of the most fundamental and powerful data analysis methods in Statistics. This course will include various topics about linear models from an applied viewpoint, such as definition, fitting, inference, interpretation of results, meaning of regression coefficients, identifiablity, Gauss-Markov theorem, lack of fit, multi-collinearity, transformations of response and predictors, variable selection, ridge regression, principal components regression, partial least squares, regression splines, diagnostics, influential observations, robust procedures, ANOVA and analysis of covariance, randomized block, factorial designs, missing data.

二. 教科書及參考書：

Textbooks:

1. Faraway, J.J. (2005), *Linear Models with R*, Chapman & Hall/CRC.

References:

1. Draper N.R., and Smith, H. (1998), *Applied Regression Analysis, 3rd edition*, Wiley.
2. Faraway, J.J. (2006), *Extending the Linear Model with R*, Chapman & Hall/CRC.

三. 成績評量方式：

Homework 30%； Midterm Exam 30%； Final Exam 40%

四. Course webpage：

http://www.stat.nthu.edu.tw/~swcheng/Teaching/stat5040/index.html

五. Prerequistes：

Knowledge of matrix algebra. Knowledge of basic probability and mathematical statistics. Computing will be required, but no specific prior experience is necessary.