開 授 課 程 大 綱

開課單位系所		清華大學 統計所				
課　　號	STAT 3875		班 次		學 分	3
名　　稱	數理統計 (Mathematical Statistics)					
授 課 教 師	鄭少為 (清華大學 統計所)					

一.內容：

STAT 3875 is a continuing course of MATH 2820 (Statistics). This is an advanced course on the theory and application of statistical methods. Based on the probability, estimation, testing, and Bayesian theory presented in MATH 2820, we will now focus on some common statistical methods for various types of data, and develop these methods in a probabilistic and mathematical framework. Topics to be covered include

- survey sampling,
- two-sample comparison,
- analysis of variance,
- analysis of categorical data, and
- linear regression.

For each topic, we will explore aspects of statistical modeling, problem formulation, theoretical statistical inference, and data analysis.

二.教科書及參考書：

Textbook: Rice, John A. (2007), *Mathematical Statistics and Data Analysis*, 3rd Edition. Duxbury Press.

References:
1. Rice, John A. (1995), *Mathematical Statistics and Data Analysis*, 2nd Edition. Duxbury Press.
2. Roussas, G.. G. (1997), *A Course in Mathematical Statistics*, 2nd Edition. Academic Press.
3. Hogg, R. V., McKean, J. W., and Craig, A. T. (2012), *Introduction to Mathematical Statistics*, 7th Edition. Pearson Prentice Hall.
4. Wackerly, D.D., Mendenhall, W., and Scheaffer, R.L. (2007), *Mathematical Statistics with Applications*, 7th Edition. Duxbury Press.

三.成績評量方式：

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

四.Course webpage: TBA

五.Prerequisites：

Calculus, Probability, Theory of estimation and hypotheses testing