開 授 課 程 大 綱

開課單位系所		清華大學/數學系				
課　　號	MATH 2810		班　次		學　分	3
名　　稱	機率論 (Probability Theory)					
授 課 教 師	鄭少為 (清華大學/統計所)					

一. 內容：

This course introduces students to useful and interesting ideas of the mathematical theory of probability, and to a number of applications of probability to a variety of fields including genetics, economics, geology, business, and engineering. The theory developed together with other mathematical tools such as combinatorics and calculus are applied to everyday problems. Concepts, calculations, and derivations are emphasized. Topics include the basic results and methods of both discrete and continuous probability theory: conditional probability, independent events, random variables, jointly distributed random variables, expectation, variance, covariance, and limit theorems.

二. 教科書及參考書：

Textbook: Ross, S. (2014), *A First Course in Probability*, 9th edition, Pearson Prentice Hall.

Reference books:

1. Ross, S. and Pekoz E. (2007), *A Second Course in Probability*, ProbabilityBookstore.com.

2. Feller, W. (1967), *An Introduction to Probability Theory and Its Applications*, Volume I, 3rd edition, John Wiley & Sons.

3. Feller, W. (1971), *An Introduction to Probability Theory and Its Applications*, Volume II, 2nd edition, John Wiley & Sons.

三. 成績評量方式：

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

四. Course homepage: http://www.stat.nthu.edu.tw/~swcheng/Teaching/math2810/

五. Prerequistes：

Knowledge of Calculus