

開授課程大綱

開課單位系所	清華大學 數學系				
課 號	MATH 2820	班 次		學 分	3
名 稱	統計學 (Statistics)				
授 課 教 師	鄭少為 (清華大學 統計所)				

一. 內容：

This course is an introduction to the theory and application of statistical methods. We will particularly focus on probability models and modern statistical concepts, and methods developed in a mathematical framework. Topics to be covered include random variables and their various properties, statistical inference, point and interval estimation, hypothesis testing, statistical modeling for experimental and observational data, survey sampling, Bayesian analysis, decision theory, aspects of experimental design, and a variety of real applications such as two-sample comparison and analysis of variance.

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. (2018), *Introduction to Mathematical Statistics*, 8th 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: <http://www.stat.nthu.edu.tw/~swcheng/Teaching/math2820/>

五. Prerequisites：

Calculus & Probability