

Course Syllabus

2026 Spring

Course	Statistical Consulting	Instructor	Dr. Mi-Chia Ma Phone: (06)2757575 ext. 53639 Office: 62439(4th Fl.) Dept. of Statistics Email: mcma@ncku.edu.tw
Objectives	<ol style="list-style-type: none"> 1. Review the statistical analysis methods 2. Communicate with clients 3. Apply the statistical methods and package to complete the analysis report of real data 		
Class	Institute of Statistics	Level	Master
Credits	3 hours/week	Prerequisite	Multivariate Analysis, Experimental Design, Regression Analysis, Time series
Contents	<ol style="list-style-type: none"> 1. 無母數分析; MCMC演算法; 分析階層方法(AHP) 2. 巢狀設計、交叉試驗設計的分析方法; 多變量迴歸分析; 非線性迴歸分析 3. 關聯規則; 決策樹&隨機森林; 類神經網路(neural network)& 支持向量機(SVM) 4. 主成分分析&因素分析; 信度與效度; 多元尺度分析 5. 區別分析; 群集分析; 典型相關分析 6. 類別資料分析(含多類別logistic regression model); 廣義估計方程(GEE); 7. 廣義線性模型(GLM); 混和效應模型&重複測量; 多變量變異數分析(MANOVA) 8. 時間序列(AR(P), MA(q)); ARIMA(p,q); 時間序列相關檢定方法 9. 結構方程模型(SEM); 對應分析(correspondence); 因果推論(Causal Inference) 10. 存活分析(Kaplan Meier Estimator, Log Rank test); Cox regression Model; 傾向性評分(propensity score) 		
Reference	<ol style="list-style-type: none"> 1. Heiberger R.M. and Holland, B. (2015) Statistical Analysis and Data Display-An Intermediate Course with Examples in R, Springer. 2. Applied Linear Regression Models by Neter et al. 3. Applied Nonparameter Statistics by Daniel. 4. Applied Multivariate Statistical Analysis by Johnson & Wichern. 		
Grading policy	<ol style="list-style-type: none"> 1. Midterm Report (期中上台報告+書面報告) 30% 2. Final Report (參賽+期末分組上台報告+書面報告) 40% 3. Homework and Class Participation (作業及出席狀況) 30% 		