國立東華大學

課　　綱　Course Outline

應用數學系統計碩士班

中文課程名稱 Course Name in Chinese	存活分析				
英文課程名稱 Course Name in English	Survival Analysis				
科目代碼 Course Code	AM__53100	班 別 Degree	碩士班 Master’s		
修別 Type	選修 Elective	學分數 Credit(s)	3.0	時 數 Hour(s)	3.0
先修課程 Prerequisite					

課程目標
Course Objectives

應用統計學者常常面臨「到事件發生所需時間」的問題 這類數據出現在許多不同領域裡 如醫學 生物 公共衛生 工程 與經濟等 其中主要的一個關鍵是反應變數有可觀擴散與右檢機制 本課程目標是對存活分析做一精確的敘述
A problem frequently faced by applied statisticians is the analysis of time-to-event data. Examples of this data arise in diverse fields, such as medicine, biology, public health, engineering economics, etc. The essential element is the presence of a response with appreciable dispersion and often with right censoring. The object of this course is to give a concise account of the analysis of survival data.

系教育目標
Dept.’s Education Objectives

1	訓練嚴謹思考與推理能力。 To provide a solid training in rigorous thinking and reasoning ability.
2	奠定理論與應用數學的基礎知識。 To establish well-founded background knowledge in pure and applied mathematics.
3	具備跨領域學習能力。 To prepare the students for interdisciplinary study in the future.

系專業能力 Basic Learning Outcomes		課程目標與系專業能力相關性 Correlation between Course Objectives and Dept.’s Education Objectives
A	具備專業機率、統計知識與應用分析能力。 Have well-founded expertise in probability and statistics, and good analytical ability in solving real problems.	●
B	具備程式設計與統計計算能力。 Have the computer programming and statistical computing skills.	○

C	具備學習其它學科的能力，以期能邁向跨領域研究。 Be able to study other fields of science so as to conduct interdisciplinary research in the future.	●

圖示說明Illustration ：● 高度相關 Highly correlated ○中度相關 Moderately correlated

課程大綱
Course Outline

一 存活分析的範疇
二 折損時間之分佈
三 參數統計分析
四 無母數方法
五 對解釋變數之倚賴
六 自我一致性與EM alogorithm
1.The scope of survival analysis.
2.Distributions of failure time.
3.Parametric statistical analysis.
4.Non-parametric methods.
5.Dependence on explanatory variables.
6.Self-consistency and the EM algorithm.

資源需求評估（師資專長之聘任、儀器設備的配合・・・等）
Resources Required (e.g. qualifications and expertise, instrument and equipment, etc.)

由本系專任教師任教
Taught by department’s faculty member.

課程要求和教學方式之建議
Course Requirements and Suggested Teaching Methods

講課、習題、考試
Lecture, problem sets and examinations.

其他
Miscellaneous

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撰寫日：100年4月