



# 課 綱 Course Outline

## 應用數學系博士班

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__73700	班 別 Degree	博士班 Ph. D.		
修別 Type	選修 Elective	學分數 Credit(s)	3.0	時 數 Hour(s)	3.0
先修課程 Prerequisite	無。				
課程目標 Course Objectives					
<p>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</p> <p>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.</p>					
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	具備專業知識及邏輯推理能力 Have well-founded expertise and be capable of logical reasoning.			●	
B	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.			●	

C	具備獨立思考與解決問題的能力。 Be capable of independent thinking and have the problem-solving skills.	●
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 algorithm 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		
撰寫人：應用數學系 謝思民 撰寫日：100年4月		