



教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	高等統計學			學年/學期 Academic Year/Semester	112/1
課程名稱(英文) Course Name in English	Advanced Statistics				
科目代碼 Course Code	AM__74600	系級 Department & Year	博士	開課單位 Course-Offering Department	應用數學系
修別 Type	選修 Elective	學分數/時間 Credit(s)/Hour(s)		3.0/3.0	
授課教師 Instructor	/謝思民				
先修課程 Prerequisite					

課程描述 Course Description

統計推論之基礎課程 以測度論的數學語言發展理論架構 處理點估計問題相關各層面

Basic course for statistical reasoning. Develops the theoretical framework in terms of measure theory. Treats various aspects of the point estimation problem

課程目標 Course Objectives

點估計理論
Theory of point estimation

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

授課進度表 Teaching Schedule & Content

週次 Week	內容 Subject/Topics	備註 Remarks
1	介紹測度論 積分論 及收斂定理 Introducing measure theory, integration theory and convergence theorems	
2	與機率論之關係 Relating to probability theory	
3	指數家族分佈 Exponential families of distributions	
4	充分性與最少充分性 Sufficiency and minimal sufficiency	
5	延續上週 Continuation	
6	輔助性 完備性 與充分性 Ancillarity, completeness and sufficiency	

7	凸損失函數 Convex loss functions	
8	UMVU 估計量 UMVU estimators	
9	期中考試週 Midterm Exam	
10	UMVU 估計量 UMVU estimators	
11	信息不等式 Information inequality	
12	機率收斂性 與分佈收斂性 Convergence in probability and in distribution	
13	延續上週 Continuation	
14	漸進效率性 Asymptotic efficiency	
15	最大概似估計量 與效率性 Maximum likelihood estimators and efficiency	
16	asymptotic confidence intervals	
17	EM algorithms.	
18	期末考試週 Final Exam	

教學策略 Teaching Strategies

- ☐ 課堂講授 Lecture
 ☐ 分組討論 Group Discussion
 ☐ 參觀實習 Field Trip
 ☐ 其他 Miscellaneous: 講課 習題 考試 Lectures, problem sets and examinations

教學創新自評 Teaching Self-Evaluation

創新教學(Innovative Teaching)

- ☐ 問題導向學習(PBL)
 ☐ 團體合作學習(TBL)
 ☐ 解決導向學習(SBL)
 ☐ 翻轉教室 Flipped Classroom
 ☐ 磨課師 Moocs

社會責任(Social Responsibility)

- ☐ 在地實踐 Community Practice
 ☐ 產學合作 Industry-Academia Cooperation

跨域合作(Transdisciplinary Projects)

- ☐ 跨界教學 Transdisciplinary Teaching
 ☐ 跨院系教學 Inter-collegiate Teaching
 ☐ 業師合授 Courses Co-taught with Industry Practitioners

其它 other:

學期成績計算及多元評量方式 Grading & Assessments									
配分項目 Items	配分比例 Percentage	多元評量方式 Assessments							
		測驗 會考	實作 觀察	口頭 發表	專題 研究	創作 展演	卷宗 評量	證照 檢定	其他
平時成績 General Performance									
期中考成績 Midterm Exam	30%								
期末考成績 Final Exam	30%								
作業成績 Homework and/or Assignments	40%								
其他 Miscellaneous (_____)									
評量方式補充說明 Grading & Assessments Supplemental instructions									
教科書與參考書目 (書名、作者、書局、代理商、說明) Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)									
Textbook : Lehmann and Casella, "Theory of point estimation".									
Reference: Casella and Berger, "Statistical inference".									
課程教材網址(含線上教學資訊,教師個人網址請列位於本校內之網址) Teaching Aids & Teacher's Website(Including online teaching information. Personal website can be listed here.)									
其他補充說明 (Supplemental instructions)									