

淡江大學 108 學年度第 2 學期課程教學計畫表

課程名稱	機率論	授課 教師	吳碩傑 WU SHUO-JYE
	INTRODUCTION TO PROBABILITY THEORY		
開課系級	統計二A	開課 資料	實體課程 必修 下學期 3學分
	TLSXB2A		
系 ( 所 ) 教育目標			
<p>一、培育學生具基本的統計理論能力。</p> <p>二、培育學生具數據分析的能力。</p> <p>三、培育學生成為具管理素養的統計專才。</p>			
本課程對應院、系(所)核心能力之項目與比重			
A. 基本統計理論能力。(比重：100.00)			
本課程對應校級基本素養之項目與比重			
<p>1. 全球視野。(比重：5.00)</p> <p>5. 獨立思考。(比重：95.00)</p>			
課程簡介	<p>本課程介紹機率之基本概念及其運算，內容包括機率空間、條件機率、獨立性、貝氏定理、隨機變數及其分配、動差母函數、多變量機率分配、共變異數、隨機變數函數之分配、抽樣分配、順序統計量和極限理論。</p>		
	<p>This course is an introduction to the theory of probability. Topics include probability space, conditional probability, independence, Bayes rule, random variables and their distributions, moment generating functions, multivariate probability distributions, covariance, distributions of functions of random variables, sampling distributions, order statistics, and limiting theorems.</p>		
本課程教學目標與認知、情意、技能目標之對應			
<p>將課程教學目標分別對應「認知 (Cognitive)」、「情意 (Affective)」與「技能(Psychomotor)」的各目標類型。</p> <p>一、認知(Cognitive)：著重在該科目的事實、概念、程序、後設認知等各類知識之學習。</p> <p>二、情意(Affective)：著重在該科目的興趣、倫理、態度、信念、價值觀等之學習。</p> <p>三、技能(Psychomotor)：著重在該科目的肢體動作或技術操作之學習。</p>			
序號	教學目標(中文)	教學目標(英文)	

1	學生能了解機率的基本概念，並能應用機率空間和機率公設。	Students are able to understand and to apply the basic concepts of probability space and probability axioms.
2	學生有能力計算條件機率和使用貝式定理並判斷事件獨立。	Students are able to compute conditional probabilities and to use Bayes' theorem, and also be able to determine the independence of events.
3	學生能了解隨機變數的觀念及常用的分配。	Students are able to understand the concepts of random variables and some frequently used distributions.
4	學生能推導出期望值、變異數和動差母函數。	Students are able to derive the mathematical expectation, the variance, and the moment generating function of a random variable.
5	學生能了解聯合機率分配和隨機變數之獨立性及其應用。	Students are able to understand the jointly probability distribution and the independence of random variables.
6	學生能了解並有能力推導出隨機變數函數的分配。	Students are able to derive the distributions of functions of random variables.
7	學生能了解並有能力應用順序統計量及其機率分配。	Students are able to apply the order statistics and their distributions in many applications.
8	學生能了解大數法則、中央極限定理及重要的基本極限理論。	Students are able to understand the Laws of Large Numbers, the Central Limit Theorem and some important basic limit theorems.

教學目標之目標類型、核心能力、基本素養教學方法與評量方式

序號	目標類型	院、系(所)核心能力	校級基本素養	教學方法	評量方式
1	認知	A	15	講述	測驗、助教實習課
2	認知	A	15	講述	測驗、助教實習課
3	認知	A	15	講述	測驗、助教實習課
4	認知	A	15	講述	測驗、助教實習課
5	認知	A	15	講述	測驗、助教實習課
6	認知	A	15	講述	測驗、助教實習課
7	認知	A	15	講述	測驗、助教實習課
8	認知	A	15	講述	測驗、助教實習課

授課進度表

週次	日期起訖	內容 (Subject/Topics)	備註
1	109/03/02~ 109/03/08	Joint p.d.f. and d.f. of two random variables	
2	109/03/09~ 109/03/15	Joint p.d.f. and d.f. of two random variables	
3	109/03/16~ 109/03/22	Marginal and conditional p.d.f.	
4	109/03/23~ 109/03/29	Marginal and conditional p.d.f.	

5	109/03/30~ 109/04/05	Expectation of two random variables, covariance, and correlation coefficient	
6	109/04/06~ 109/04/12	Generalizations to k random variables, Multinomial, bivariate normal, and multivariate normal distributions	
7	109/04/13~ 109/04/19	Independence of random variables and some applications	
8	109/04/20~ 109/04/26	Independence of random variables and some applications	
9	109/04/27~ 109/05/03	期中考試週	
10	109/05/04~ 109/05/10	Independence of random variables and some applications	
11	109/05/11~ 109/05/17	Transformation of random variables	
12	109/05/18~ 109/05/24	Transformation of random variables	
13	109/05/25~ 109/05/31	Transformation of random variables	
14	109/06/01~ 109/06/07	Transformation of random variables; Order Statistics	
15	109/06/08~ 109/06/14	Order statistics	
16	109/06/15~ 109/06/21	Order statistics, Linear transformations if time permitting	
17	109/06/22~ 109/06/28	期末考試週(本學期期末考試日期為:109/6/18-109/6/24)	
18	109/06/29~ 109/07/05	教師彈性補充教學：iClass上公告之相關學習影片	
修課應注意事項	1. 詳見 <a href="http://www1.stat.tku.edu.tw/~shuo/class/prob108.html">http://www1.stat.tku.edu.tw/~shuo/class/prob108.html</a> 2. 於期末考前且政府未宣布COVID-19疫情結束而出國者，一律扣學期總成績60分。		
教學設備	其它(黑板)		
教科書與教材	Roussas, G. G. (2015). An Introduction to Probability and Statistical Inference, 2nd edition, Academic Press.		
參考文獻	1. Hogg, R. V., McKean, J. W. and Craig, A. T. (2005). Introduction to Mathematical Statistics, 6th edition, Prentice Hall. 2. Ross, S. (2009). A First Course in Probability, 8th edition, Prentice Hall. 3. Roussas, G. G. (1997). A Course in Mathematical Statistics, 2nd ed., Academic Press. 4. Hoel, P. G., Port, S. C. and Stone, C. J. (1971). Introduction to Probability Theory, Houghton Mifflin Company. 5. Hogg, R. V. and Craig, A. T. (1995). Introduction to Mathematical Statistics, 5th ed., Prentice Hall. 6. Mood, A. M., Graybill, F. A. and Boes, D. C. (1974). Introduction to the Theory of Statistics, 3rd ed., McGraw-Hill.		

批改作業 篇數	篇（本欄位僅適用於所授課程需批改作業之課程教師填寫）
學期成績 計算方式	<p>◆出席率：            %   ◆平時評量：25.0 %   ◆期中評量：30.0 %</p> <p>◆期末評量：35.0 %</p> <p>◆其他〈複習考〉：10.0 %</p>
備 考	<p>「教學計畫表管理系統」網址：<a href="https://info.ais.tku.edu.tw/csp">https://info.ais.tku.edu.tw/csp</a> 或由教務處 首頁→教務資訊「教學計畫表管理系統」進入。</p> <p><b>※不法影印是違法的行為。請使用正版教科書，勿不法影印他人著作，以免觸法。</b></p>