國立東華大學

課　　綱　Course Outline
應用數學系學士班

中文課程名稱 Course Name in Chinese	基礎機率				
英文課程名稱 Course Name in English	Introduction to Probability				
科目代碼 Course Code	AM__20800	班　別 Degree	學士班 Bachelor's		
修別 Type	學程 Program	學分數 Credit(s)	3.0	時　數 Hour(s)	3.0
先修課程 Prerequisite	Calculus（I、II）、（或經授課教師同意）(適合二或三年級研修)				

課程目標
Course Objectives

本課程之目標在幫助應數系同學能熟悉機率論之基本概念及理論發展，以奠定修讀機率論及統計學之基礎。課程內容以介紹基礎機率論為主，包括機率的公設、條件機率與獨立性、隨機變數、期望值、變異數、離散型的隨機變數及機率分布、連續型的隨機變數及機率分布等重要主題。
The objective of this course is to help students learn the basic concepts and the theoretical development in probability theory, and get necessary background to take further courses in probabilities and statistics. The contents focus on basic materials, including following important topics: axioms of probability, conditional probability and independence, random variables, expectation, variance, discrete random variables and probability distributions, continuous random variables and probability distributions.

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	數學科學組： 具備基本數學知識及邏輯推理能力。 Have well-founded background in mathematics and be capable of logical reasoning, 統計組： 具備基本數學知識及邏輯推理能力。 Have well-founded background in mathematics and be capable of logical reasoning	
B	數學科學組： 具備學習數學相關領域的預備知識。 Be knowledgeable about fields related to mathematics, 統計組： 具備機率、統計及相關領域的知識與應用能力。 Have the knowledge of probability and statistics and the related field, and the corresponding application ability,	
C	數學科學組: 具備軟體應用與科學計算能力。 Be able to use mathematics software and scientific computation skill in problem-solving. 統計組： 具備軟體應用與統計計算能力。 Be able to use computer software for statistical computation in real applications.	

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

課程大綱
Course Outline

1. 機率的公設　Axioms of Probability
2. 條件機率與獨立性　Conditional Probability and Independence
3. 隨機變數　Random Variables
4. 期望值與變異數　Expectation and Variance
5. 離散型的隨機變數及機率分布　Discrete Random Variables and Probability Distributions
6. 連續型的隨機變數及機率分布　Continuous Random Variables and Probability Distributions

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.)

Preferably an expert in probability.

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

1. 課前預習　2. 教師講解　3. 演練習題　4. 學習評量
1. Preview before class　2. Lectures　3. Exercises　4. Exams

其他
Miscellaneous

撰寫人：應用數學系 張子貴
撰寫日：100年4月