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# ②图玄束華大學

# 教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	隨機模型AA			學年/學期 Academic Year/Semester		113/2	
課程名稱(英文) Course Name in English	Stochastic Models						
科目代碼 Course Code	AM4020AA	系級 Department 學三 & Year		開課單位 Course-Offering Department	應用數學系		
修別 Type	學程 Program	學分數/時 Credit(s)/Hou		3.0/3.0			
授課教師 Instructor	/王家禮						
先修課程 Prerequisite	/#基礎機率						

### 課程描述 Course Description

This is the first course in applied probability of operations research.

We will review basic applied probability tools, such as conditioning technique, and introduce a few common

stochastic models that include Markov chains and Poisson processes.

My approach to teach this course is always to motivate the student by examples, whereas theory and proofs will be kept to a minimum. The approach is, thought, heuristic and non-rigorous, it attempts to develop students' intuition, which, hopefully, will enable students to think probabilistically and enhance their ability of modeling.

#### 課程目標 Course Objectives

介紹Poisson 過程,連續時間馬可夫過程、重要例子、

基本理論等。

Poisson process, continuous time Markov Chains. Theory

And examples.

		課程目標與系專業能
		力相關性
	系專業能力	Correlation between
		Course Objectives
	Basic Learning Outcomes	and Dept.'s
		Education
		Objectives
A	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.	
В	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	_
С	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

## 授課進度表 Teaching Schedule & Content

週次Week	內容 Subject/Topics	備註Remarks
1	Review of Elementary Probability	
2	Review of Conditional Probability	
3	Review of Conditional Probability	
4	Discrete-Time Markov Chains	

5	Discrete-Time Markov Chains					
6	Discrete-Time Markov Chains					
7	Discrete-Time Markov Chains					
8	Discrete-Time Markov Chains					
9	期中考試週 Midterm Exam					
10	Review of Exponential Distribution					
11	Review of Exponential Distribution					
12	Poisson Process					
13	Poisson Process					
14	Poisson Process					
15	Continuous-Time Markov Chains					
16	Continuous-Time Markov Chains					
17	期末考試週 Final Exam					
18	Optional Topics					
	教學策略 Teaching Strategies					
✓ 課堂講	授 Lecture					
其他Mis	scellaneous:					
	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						
社會責任(Social Responsibility)						
在地實踐Community Practice						
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	多元評量方式 Assessments								
Items	配分比例 Percentage	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(含出缺席) General Performance (Attendance Record)									
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.)

Introduction to Probability Models, 12th Ed., Sheldon Ross

## 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)

Pre-requisite Course: Calculus and fundamental probability course