國立台灣科技大學 114學年 第2學期 課程大綱

Spring 2026 NTUST Course Outline

授課教師：郭伯勳

Instructor:Po-Hsun Kuo

課程名稱：隨機過程

Course Title：Stochastic Processes

2026/11/3

課程代號： IM7102701 Course Code 學分數： 3 Credits	必選修：選修/半學年 Required/Electve:Elective/Half Yr. 先修課程： Prerequisites
節次教室： Time/Location	W2(MA-417) W3(MA-417) W4(MA-417)
專業核心能力： Core Professional Competencies	
課程網址： Course Website	
課程宗旨： Course Objectives	Introduction to stochastic models and their applications: (a) Discrete-time and continuous-time Markov chains. (b) Application of Markov chains to queueing theory. (c) Poisson and renewal processes.
課程大綱： Outline of Lectures	Introduction, Random Variables Probability Distributions & Expectation Markov Chains Markov Chains Poisson Processes Poisson Processes Continuous-Time Markov Chains Midterm Exam Continuous-Time Markov Chains Renewal Processes Renewal Processes Queueing Theory Queueing Theory Queueing Network Queueing Network Final Exam"
授課方式： Method of Instruction	講授 Lecture：100% 分組討論 Group discussion：0% 案例研討 Case study：0% 操做練習 Practical exercises：0% 講授 Lecture：%
教科書： Textbooks	Ross, S.M. Introduction to Probability Models, 13th edition, Academic Press, 2023.
參考書目： References	

	Ross, S. M. A First Course in Probability, 7th edition, Prentice Hall, 2005. Bertsekas, D. P., Tsitsiklis, J. N., Introduction to Probability, Athena Scientific, 2002. Winston, W. L., Introduction to Probability Models—Operations Research: Volume Two, 4th Ed., Duxbury Press, 2004. Hillier, F. S., Lieberman, G. J., Introduction to Operations Research, 8th Ed., McGraw-Hill, 2005. Karlin, S., Taylor, H. M., Introduction to Stochastic Modeling, 3rd Ed., Academic Press, 1998.
修課須知： Notice	Homework will be assigned once every two weeks. You are encouraged to discuss homework and learn from each other, but each person must submit his/her own work.
評量方式： Grading	Homework 30% Midterm Exam 35% Final Exam 35%
備註說明： Notes	You should be comfortable with basic probability theory at the level of chapters 1-3 of Ross.