

**THE CHINESE UNIVERSITY OF HONG KONG**  
**Department of Mathematics**  
**MATH4240 Stochastic Processes, 2024/25 Term 2**

**Textbook:** Introduction to Stochastic Processes by Hoel, Port and Stone.  
 (Chapter 1, Chapter 2, and Chapter 3 ONLY)

**Schedule for Lecture:**

	Monday (10:30-11:15, Science Centre L5)	Thursday (10:30-12:15, Lady Shaw Bldg LT2)	Tentative contents
W1	Jan 6	Jan 9	<b>Chapter 0 Review on Probability</b> -Probability space -Radom variables and distributions -Expectation and variance -Sequence of rv
W2	Jan 13	Jan 16	
W3	Jan 20	Jan 23	
W4	Jan 27	Jan 30 (No class, Lunar New Year)	
W5	Feb 3 (No class, Lunar New Year)	Feb 6	
W6	Feb 10	Feb 13	
W7	Feb 17	Feb 20	<b>Chapter 1 Markov Chains</b> -Definitions and examples -Computations with transition prob -More examples
W8	Feb 24	Feb 27	
W9	Mar 3 (No class, Reading Week)	Mar 6 (No class, Reading Week)	
W10	Mar 10	Mar 13	
W11	Mar 17	Mar 20	
W12	Mar 24	Mar 27	<b>Chapter 2 Stationary Distributions</b> -Definition and examples -Computations of SD -Average number of visits -Waiting time and existence of SD -Periodicity
W13	Mar 31	Apr 3	
W14	Apr 7	Apr 10	
W15	Apr 14	Apr 17	
			<b>Chapter 3 Markov Jump Processes</b> -Jump process -Poisson process -Basic properties of MJP -Birth and death processes -Limiting properties of MJP

**Note:**

- Assessment type: Homework (10%, about 7 times), Midterm Test (40%) and Final Exam (50%).
- Midterm Test (Time and date: **18:30-20:00 March 12 Wed**; Venue: LSB LT6).
- Tutorial: Monday 11:30 - 12:15, Science Centre L5.