



Applied Stochastic Process

Introduction

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- ▶ Course title: Applied Stochastic Process
- ▶ Course code: 152062B
- ▶ Course website: <https://cheungyinglun.github.io/teaching/2020-09-applied-stochastic-process>
- ▶ Language of instruction: English
- ▶ Class venue and time: Fri 08:00-10:00 慎思楼216室

- ▶ No exam
- ▶ Grade decomposition:
 - ▶ Class participation: 10%
 - ▶ Assignments: 25%
 - ▶ Group project: 25%
 - ▶ Thesis: 40%

1. Primer of statistics and probabilities
 - 1.1 Introduction to probability theory
 - 1.2 Random variables, expectations and conditioning
 - 1.3 Simulations
2. Markov chains
 - 2.1 Discrete-time Markov chains
 - 2.2 Poisson process
 - 2.3 Continuous-time Markov chains
3. Brownian motion
 - 3.1 Random walks
 - 3.2 Brownian motions
 - 3.3 Introduction to stochastic calculus (*tentative*)

Main reference:

- ▶ Ross, Sheldon M. (2019). *Introduction to Probability Models*. Academic Press.

Supplementary reference:

- ▶ Durrett, Richard. (2016). *Essentials in Stochastic Processes*. Springer.
- ▶ Hassler, Uwe. (2016). *Stochastic Processes and Calculus: An Elementary Introduction with Applications*. Springer.