Pensum/læringskrav

Textbook

Sheldon M. Ross: "Introduction to Probability Models", 11th edition (2014), Academic Press, ISBN: 978-0-12-407948-9

Tentative Curriculum

- Chapters 1-3: Only 2.9 (excluding example 2.53) is formal curriculum, but results from these chapters that we refer to in later chapters are assumed to be known
- Chapter 4:
  - 4.1
  - 4.2, excluding example 4.11. Excluding also pages 193-194 until the Remark on page 194
  - 4.3, excluding the last part of 4.3 from the last 1/3 of page 199, from random-walk in 2 dimensions
  - 4.4, excluding examples 4.24, 4.25 and 4.26
  - 4.5.1: The gambler's ruin problem
  - 4.6: Mean time spent in transient states
  - 4.7: Branching processes
  - 4.8: Time reversible Markov Chains, until Example 4.35
  - 4.9: Markov Chain Monte Carlo Methods, until example 4.39
- Chapter 5:
  - 5.1
  - 5.2: The exponential distribution. Excluding middle of page 282-283, and excluding examples 5.1, 5.5, 5.7, 5.9, 5.10 and 5.11
  - 5.3: The Poisson Process. Excluding Remark (i) on page 301, examples 5.16, 5.17, the rest of 5.3.4, examples 5.19, 5.20, 5.21 and 5.22 and subsection 5.3.6
  - 5:4: Generalizations of the Poisson process. Excluding subsection 5.4.3

- Chapter 6:
  - 6.1
  - 6.2: Continuous-time Markov Chains
  - 6.3: Birth and death processes, excluding the rest after Example 6.7
  - 6.4: The transition probability function $P_{ij}(t)$
  - 6.5 Limiting probabilities, excluding Example 6.16
  - 6.8: Uniformization
  - 6.9: Computing the transition probabilities
- Chapter 7:
  - 7.1: Introduction
  - 7.2: Distribution of N(t)
- Chapter 10:
  - 10.1: Brownian motion
  - 10.2: Hitting times, maximum variable, and the gambler's ruin problem
  - 10.3: Variations on Brownian motion

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