

Topics of the seminar
Random Graphs
SS 2024

1. Reversible Markov chains (G 1.1, Lecture notes on Markov chains, Bachelor)
2. Electrical networks (G 1.2-1.3, Bachelor]
3. Electrical networks and recurrence of Markov chains [G 1.4-1.5, Bachelor]
4. Random spanning trees (G 2.1-2.2, Bachelor/Master)
5. Percolation (G 3.1-3.3, Bachelor/Master)
6. Correlation inequalities (G 4.1-4.3, Bachelor/Master)
7. The Hoeffding inequality for martingales (G 4.4, Master)
8. Association and influence (G 4.5-4.6, Master)
9. Markov chains in continuous time and contact processes (G 6.1-6.2, Lecture notes on Markov chains, Master)
10. Contact processes (G 6.3-6.4, Master)
11. Markovian and Gibbsian random fields (G 7.1-7.3, Master)
12. The random cluster model (G 8.1-8.3, Master)
13. The Erdős–Renyi graph (G 11.1-11.2] Master)
14. The Erdős–Renyi graph (G 11.3, Master)

Literature: [G] Geoffrey Grimmett, Probability on Graphs, Cambridge University Press, 2010.