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Topics for Bachelor Theses

Prerequisites

The courses *Stochastics 1* and *Stochastics 2* are needed (passed) for the topics that involve stochastic processes. The thesis has to be written in LaTeX in the following language:

- Bachelor theses: German or English.
- Master theses: English.

Programming and Simulation: If you have good programming skills, there are several topics available that involve simulations (Python, R, or whatever you want) of random processes. More details can be given in an informal personal meeting.

An overview on some topics (some may be given)

1. Stochastic epidemic models
2. Coupon collector's problem (Not available anymore!)
3. Galton-Watson processes and population models (Not available anymore!)
4. Birth and death chains
5. Shuffling of cards (Not available anymore!)
6. Markov chains and electrical networks
7. Simple random walks on integer lattices (Not available anymore!)
8. Erdős-Renyi random graphs
9. Expander graphs, zig-zag products of graphs
10. Stochastic games: the game of Hex, Hunter and Rabbit (Not available anymore!)