

Ecaterina Sava-Huss  
Assistant Professor of Mathematics  
University of Innsbruck

**Name / Email**

Ecaterina Sava-Huss  
Ecaterina.Sava-Huss@uibk.ac.at

**Phone**

+43 512 507 53871

**Date**

February 8, 2021

**Topics for Master Theses**

## Prerequisites

The courses *Stochastics 1* and *Stochastics 2* are needed for the topics that involve stochastic processes. The thesis can be written 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.

**Possible Topics and Themes**

1. Random graphs with applications to social networks ([Not available anymore!](#))
2. Cover time of random walks
3. Rotor models with simulations
4. Random walks on the Sierpinski gasket
5. Generating uniform spanning trees (Wilson algorithm)
6. Burning bijection and chip firing games
7. Information transmission models (routing of information at random)
8. Branching random walks
9. Random walks on Galton-Watson trees