Remarks on Doctoral Theses

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This document contains a few remarks regarding preparation of doctoral theses under my supervision. I would appreciate if you could read the document and take the remarks into account before contacting me. *Thank you!*

1. **General:** Overall, I am very happy to mentor students writing a thesis. It is one core competence of university education to bring students to work independently on open/unsolved problems. A doctoral thesis project must aim at *very deep understanding* of an open problem and contribute to its solution.

2. **Topics:** My research lies at the *interface between several fields*. Therefore, I can supervise quite a wide range of topics. However, you should have a significant amount of specialized coursework consisting of multiple (six or more) master-level courses, and potentially also a master thesis, in at least *one* (preferably two or more) of the following areas:

   - differential equations / dynamical systems (ODE, PDE, and/or dynamical systems)
   - probability / stochastic processes
   - geometry (differential and/or algebraic)
   - scientific computing / numerical analysis
   - modelling (network science, mathematical biology, and/or mathematical physics)

3. **Other Requirements:** Good programming skills should be very helpful. Similarly, other mathematical software tools are helpful, particularly some experience with LaTeX is necessary for typing the thesis.

4. **First Contact:** Please send me an email with some basic information about you. If there is mutual interest, I am going to contact you, whether it would make sense to talk about whether you could do a thesis under my supervision.

5. **Further Meetings:** There will be *regular group meetings* with other researchers. These meetings take place weekly. Although listening to other students progress, problems, and topics every week may not sound immediately appealing to you, there is a long-term benefit of this type of format.

6. **Language:** You are strongly encouraged to write the thesis in English.