



Seminar: Modeling and Analysis of dynamical systems

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Time & Place: The seminar will be organized as a block course (probably: September 1 – 10, without Saturday and Sunday). There will also be a preparation meeting in June.

Usability: Master of Mathematics

Prerequisites:

- Bachelor in mathematics, bioinformatics, statistics or related fields.
- Introductory courses to ordinary differential equations and numerical analysis.
- Basic MATLAB programming skills.

ECTS: 3 (SWS 2)

Number of participants: < 12

Language: english

Topic: This seminar will provide hands-on experiences with the modeling and the analysis of dynamic (biological) systems. Small groups of students will develop/implement models for dynamical process and analyze them. The practical side will be backed up by lectures introducing different analysis tools for dynamical systems, e.g., stability, sensitivity and bifurcation analysis.

Aims:

After the course, the participants can:

1. model and implement biochemical reaction networks based on verbal descriptions and literature data.
2. perform stability, sensitivity and bifurcation analysis for ODE models.

