Module MA-INF 4218	**Lab Modeling and Simulation**		
Workload 270 h	**Credit points** 9 CP	**Duration** 1 semester	**Frequency** every year
Module coordinator	Prof. Dr. Andreas Weber		
Lecturer(s)	Prof. Dr. Andreas Weber, Prof. Dr. Holger Fröhlich		
Classification	**Programme** M. Sc. Computer Science	**Mode** Optional	**Semester** 2.
Technical skills	- ability to describe a system via a model - ability to conduct a simulation study, visualize and interpret its results - ability to implement self-written program modules in MATLAB, R or via usage of some other software		
Soft skills	- ability to communicate effectively in order to implement learned methods together with a team of other students - ability to present and explain results and to defend design decisions		
Contents	Simulation and analysis of complex systems that arise, for example, in systems biology. Covered modelling approaches are: - Boolean Networks - ODEs		
Prerequisites	**Recommended:** MA-INF 4217 – Seminar Machine Learning Methods in Systems Biology		

Format	**Teaching format**	**Group size**	**h/week**	**Workload[h]**	**CP**
	Lab	8	4	60 T / 210 S	9
	T = face-to-face teaching; S = independent study				

Exam achievements	Oral presentation, written report	(graded)
Study achievements	none	(not graded)
Forms of media	powerpoint	
Literature	- U. Alon, An Introduction to Systems Biology, CRC Press, 2007 - E.S. Allman & J.A. Rhodes “Mathematical Models in Biology” Cambr.Univ.Press 2004	