Module title	**Optimisation and Bio-Inspired Algorithms**
Code	CO3
Degree Programme	Master of Science in Life Sciences
Group	Computation
Workload	3 ECTS (90 student working hours: 42 lessons contact = 32 h; 58 h self-study)
Module Coordinator	**Name**: Thomas Ott **Phone**: +41 (0)58 934 56 84 **Email**: thomas.ott@zhaw.ch **Address**: ZHAW Life Sciences und Facility Management, Schloss 1, 8820 Wädenswil
Lecturers	• Thomas Ott, ZHAW • N.N.
Entry requirements	Bachelor level of analysis, linear algebra, statistics; **basic python programming skills** There is an online tutorial available for students without python skills
Learning outcomes and competences	After completing the module, students will be able to: • understand and analyze different optimization problems • understand, explain and validate a variety of linear, nonlinear, deterministic and stochastic optimization methods (a special focus will be on nature-and bio-inspired methods such as simulated annealing, genetic algorithms or swarm intelligence) • apply the algorithms to problems in their field
Module contents	The major topics covered in the module are: • identification of problems solvable with optimization methods • abstraction and modelling of task description • coding of optimization tasks • bio-inspired algorithms • implementation of examples from various fields with python
Teaching / learning methods	lecture, exercises, seminar-style, project work, self-study, python programming
Assessment of learning outcome	1. individual project work including a short presentation (60%) 2. written exam (closed book) (40%)
Format	7-weeks
Timing of the module	Spring semester, CW 8-14
Venue	Blended learning format. Presence sequences take place in Olten
Bibliography	
Language	English
Links to other modules	Coordinated with the module Machine Learning and Pattern Recognition
Comments	
Last Update	12.09.2023