

Master in Life Sciences

A cooperation between
BFH, FHNW, HES-SO, ZFH

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| 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 | <ul style="list-style-type: none">• 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: <ul style="list-style-type: none">• 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: <ul style="list-style-type: none">• 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 (50%) 2. written exam (50%) |
| 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 | |
| Comments | |
| Last Update | 01.06.2022 |