Master in Life Sciences

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

| Module title | Optimisation and Bio-Inspired Algorithms |
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| 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 | Name: Thomas Ott |
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| Lecturers | Thomas Ott, ZHAW |
| | Ahmad Aghaebrahimian, ZHAW |
| 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 | After completing the module, students will be able to: |
| and competences | understand and analyze different optimization problems |
| | understand, explain and validate a variety of linear, nonlinear, deterministic and |
| | stochastic ontimization 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 |
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| 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 | lecture, exercises, seminar-style, project work, self-study, python programming |
| methods | |
| Assessment of | 1. individual project work including a short presentation (60%) |
| learning outcome | 2. written exam (closed book) (40%) |
| Format | 7-weeks |
| Timing of the | Spring semester, CW 8-14 |
| module | |
| Venue | Blended learning format. Presence sequences take place in Olten |
| Bibliography | |
| Language | English |
| Links to other | Coordinated with the module Machine Learning and Pattern Recognition |
| modules | |
| Comments | |
| Last Update | 19.08.2024 |