Module title	**Optimisation Methods**
Code	BECS4
Degree Programme	Master of Science in Life Sciences
Group	BECS (Biomedical Engineering and Computational Science)
Workload	3 ECTS (90 student working hours: 42 lessons contact = 32 h; 58 h self-study)
Module Coordinator	**Name**: Erik Schkommodau **Phone**: +41 (0)61 228 54 19 **Email**: erik.schkommodau@fhnw.ch **Address**: FHNW, HLS, Gründenstrasse 40, 4132 Muttenz
Lecturers	• Prof. Dr. Simone Hemm, FHNW • Prof. Dr. Erik Schkommodau, FHNW
Entry requirements	Bachelor level of analysis, linear algebra, statistics; **Matlab programming skills** There is an online tutorial available for students without Matlab skills
Learning outcomes and competences	After completing the module, students will be able to: • able to explain and validate different optimization methods • apply them appropriately to problems in their field (e.g. medical measurement data).
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 • getting overview about linear, non-linear, deterministic and stochastic optimization methods including necessary mathematical methods • implementation of examples from various fields with Matlab
Teaching / learning methods	lecture, exercises, seminar-style, project work, self-study, Matlab programming
Assessment of learning outcome	1. final exam, closed book (40%) 2. individual project work (40%) 3. individual presentation (20%)
Format	7-weeks
Timing of the module	Spring semester, CW 15-21
Venue	Olten
Bibliography	Additional course material: Practical Methods of Optimization Paperback, by R. Fletcher, 2009 Applied Dynamic Programming (Princeton Legacy Library), by Richard E. Bellman (Author), Stuart E Dreyfus, 2015 Numerical Recipes: The Art of Scientific Computing, by William H. Press, Saul A. Teukolsky, William T. Vetterling, Brian P. Flannery, 3rd Edition
Language	English
Links to other modules	
Comments	
Last Update	09.03.2018