

Module: OPM 803 Selected Topics in Nonlinear Optimization**Contents:**

Many optimization problems in practice are nonlinear. This course introduces PhD students of information systems, business administration, and computer science to the fundamentals of nonlinear optimization theory and solution methods. The course is partly taught in a seminar-style format. Topics will be assigned in class based on student preferences and needs with regard to their thesis.

Learning outcomes:

Students will get a fundamental understanding of problems, theory and solution methods in nonlinear optimization. This includes to learn how to formulate a nonlinear optimization problem mathematically, how to analyze its structure to detect e.g. convexities, how to implement and solve a problem with state-of-the-art modeling environments and solvers. Students can bring in and work on their own problems of interest, e.g. a specific one that they might face in their thesis or an actual standard problem often encountered in practice.

Prerequisites:**Formal:** -**Recommended:** Fundamentals in mathematics (including linear programming)**Obligatory registration:** yes**Further Information on the registration:**

Website of the CDSB

Courses	Hours per week	Self-study
Lecture, Exercises & Lab	2	8
ECTS in total		8

Form of assessment	Term paper 40 %, presentations 40 %, class participation 20 %
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Preliminary course work	-
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Lecturer/Person in charge	Prof. Dr. Cornelia Schön
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Duration of module	1 semester
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Offering	Fall term
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Language	English
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Learning Goals / Learning Objectives	LG1/LO1, LG1/LO2, LG2/LO3, LG3/LO1, LG3/LO2
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Range of application	MMBR, Doctoral Program
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