

Course content for International Master program „Mathematical modeling, computation and optimization“

Course name	Infinite-Dimensional Optimization
Contents and Objectives	<p><u>Content:</u></p> <ul style="list-style-type: none"> • Existence of minimizers • Necessary optimality conditions of first-order • Second-order conditions • Two-norms discrepancy and basic error estimates <p><u>Objectives of the course:</u> In this lecture, we consider optimization problems in arbitrary Banach spaces. First, we discuss the existence of solutions. Then, we provide optimality conditions. These can be used for numerical methods as well as for stability and error estimates.</p>
Teaching	<p>This course consists of lectures and exercise classes.</p> <ul style="list-style-type: none"> • Lecture: Infinite-dimensional optimization (3 h/week) • Exercise class: Infinite-dim. optimization (1 h/week)
Prerequisites	Functional analysis, optimization
Examination	Oral exam (30 minutes)
Credits	6 ECTS points
Frequency	This course is given at least once in four years.
Workload	The estimated total working time for this course is 180 hours.
Duration	This course is given during one semester.