

## Exercise 0: General Information

Prof. Dr. Moritz Diehl and Dimitris Kouzoupis

---

The course's aim is to give an introduction into numerical methods for the solution of optimization problems in science and engineering. It is intended for students from two faculties, mathematics and physics on the one hand, and engineering and computer science on the other hand. The focus is on continuous nonlinear optimization in finite dimensions, covering both convex and nonconvex problems.

### Organization of the Course

The course during the first two parts of the semester is based on two pillars, lectures and exercises, accompanied by written material for self-study. Course language is English and all communication is made via the course homepage:

[www.syscop.de/teaching/ws2015/numopt](http://www.syscop.de/teaching/ws2015/numopt)

The last third of the semester is reserved for project work, obligatory for students of mathematics but optional for students of engineering (additional 3 ECTS).

**Lectures:** Lectures take place Tuesdays and Fridays from 14:00 to 16:00 at Albertstrasse 23b, HS 2. Their content will be recorded (voice and computer screen) and be made available to the students afterwards. The first lecture is on Friday the 23rd of October.

**Exercises:** The exercise sessions take place on Wednesdays 16:00 to 18:00 only during the first two thirds of the semester. The location is Georges-Koehler-Allee 101, SR 01-016. Individual laptops with MATLAB software installed are required to work on the exercises. The reserved room is *not* a computer pool. Each Friday a new exercise sheet is distributed and some hints may be given. Students can then prepare themselves for the exercise session, where they can complete the tasks in teams of 1 to 4 people and show the results to the teaching assistant. Groups that require more time or cannot make it to the exercise session may send their solutions by email ([dimitris.kouzoupis@imtek.uni-freiburg.de](mailto:dimitris.kouzoupis@imtek.uni-freiburg.de)) until the upcoming Friday at 12:00. Note that groups that complete the tasks during the exercise session *do not need to send a report by email*.

**Final Evaluation:** The final grade of the lecture part of the course (6 ECTS) is based solely on a final written exam at the end of the semester. For students from the faculty of mathematics, the final course grade (9 ECTS) is a weighted sum of the final exam and the project. The final exam is a closed book exam. Only pencil, paper, a calculator and four single A4 pages of self-chosen formulas are allowed. In order to be eligible for the course, one has to have obtained a minimum of 40% of the total points in the exercise sheets that are distributed each week.

**Projects:** The project (3 ECTS), which is obligatory for students of mathematics but optional for students of engineering, consists in the formulation and implementation of a self-chosen optimization problem and numerical solution method, resulting in documented computer code, a project report, and a public presentation. Project work starts in the last third of the semester and participants can work either individually or in groups of two people.