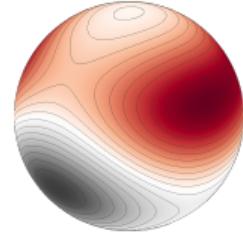




UNIVERSITÄT  
HEIDELBERG  
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SEIT 1386



# Organizational Meeting

## Seminar: Selected topics in optimization

Summer Semester 2024

# Introduction



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# General information

- Language: English
- Intended for Bachelor and Master students
- Please register in MÜSLI and HeiCo

# Concept of the seminar

- Independent study of scientific text — analyze + present
- Presentations should be based on contents of text and tailored to audience
- Presentations should be in your own words (i.e., not a replica of the text)
- Feel free to supplement text with your own examples

# Grading

- Grades will be based on the presentation + discussion
- All presentations will be **45 minutes** long followed by questions
- **Master students** are required to provide a short handout

# Timeline

- Meeting times (starting 16.05.24)

**Mondays:** 16:00, 18:00.

**Tuesdays:** 14:00, 16:00.

**Thursdays:** 14:00, 18:00.

# Topics

**Text:** Boyd, Stephen and Vandenberghe, Lieven. Convex Optimization. Cambridge University Press (*available online*)

- Conjugate functions (3.3)
- Quasiconvex functions (3.4)
- Log-convexity (3.5)
- Convexity with respect to generalized inequalities (2.4, 3.6)
- Norm approximation (6.1)
- Least-norm problems (6.2)
- Regularized approximation (6.3)
- Robust approximation (6.4)
- Function fitting and interpolation (6.5)
- Introduction to semidefinite programming (4.6)
- Parametric distribution estimation (7.1)

# What's next?

- Resources are online:  
<https://scoop.iwr.uni-heidelberg.de/teaching/2024ss/seminar-ausgewahlte-kapitel-der-optimierung>
- Slides will be on the website

# Questions?