



## General Information:

Exercises (1 SWS): Mo 12:15 – 13:30 (H10 lecture hall building) and Tue 08:45 – 10 (0.151-113)  
Certificate: Oral exam at the end of the semester  
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## Optimization

- Exercise 1** Download the file *optimization.m* from the website. It contains the implementation of a quadratic bivariate function. Optimize the function (find the minimum) with the following strategy:
- Optimize with Normalized Steepest Descent (try both L1 and L2 norm )
  - Perform a Backtracking Line Search, using the Armijo Goldstein condition.
  - Try also the  $L_P$  norm to adjust the gradient direction
  - Start at  $(x_1, x_2) = (-1, -1)$
  - Track your convergence, and stop at a sufficiently small value (e.g.,  $1e - 5$ )