**Course Goals**

Efficient solving of optimization problems

- **Algorithms**
  - Basic algorithms analysis (complexity)
  - Abstract Data Types: abstract formulation of commonly used data-processing operations
  - Data structures: commonly used techniques of representing data in computer memory
  - Standard solutions for commonly used problems: sorting, searching, selection

- **Optimization**
  - Combinatorial optimization problems
  - Their complexity analysis
  - Classification of such problems and efficient algorithms for their solution

**The components**

- **Algorithms**
  - 7 Lectures
  - 1 Lab IDA; register in WebReg this week

- **Optimization**
  - 14 Sessions including lectures and problem solving
  - 2 Labs MAI

- **Own studies**: 202 hours!
  - Base groups
  - Scenarios (Vinjetter)
  - **Integration Lab**: Data Structures in Optimization techniques, solved in base groups

**Exams**

- **Written exam**
  - problems on algorithms and on optimization
  - allowed material: the books at home page

- **Oral exam**
  - An optimization problem distributed in advance
  - An algorithm is to be developed (pseudocode)
  - Individual oral presentation of the solution to 3 teachers; 15 min + discussion

Register today for **December** or **January**

**Scenarios/Vinjetter**

Published at the homepage

- describe situations for using techniques taught in this course
- are to be used for discussions in base groups
- Scenario 3 is the base for the **Integration Lab** addressing both algorithms and optimization.
Selected Literature

**Algorithms**
- Lewis, Denenberg: *Data Structures & Their Algorithms*, 1991 (out of print)
- On-line collection of problems and solutions (TDDB57) linked at home page

**Optimization**
- Kaj Holmberg: *Kombinatorisk optimiering med linjärprogrammering (kompendium 2005)*