

# Course information SF1811 Optimization 2018/2019

## Teachers

Anders Szepessy (examinator) office hours Mondays 12-13

David Ek, office hours Wednesdays 13-14, (21/11 moved to 17-18)

Isabel Haasler, office hours Thursdays 13-14, ( not 15/11; 22/11: moved to 15-16)

## Course Literature

The main literature for the course is the compendium "*Optimization*" by Amol Sasane and Krister Svanberg (ASKS), which you can buy at the [KTH bookstore](http://ths.kth.se/om-ths/ths-karbokhandeln/) [\\_\(http://ths.kth.se/om-ths/ths-karbokhandeln/\)\\_](http://ths.kth.se/om-ths/ths-karbokhandeln/). ASKS contains some exercises, for which solutions are available here.

Additional exercises are provided here ["Exercises in Optimization" \(EXOPT\)](#).

[\\_\(https://www.math.kth.se/optsys/grundutbildning/kurser/SF1811/optexsamleng2014.pdf\)\\_](https://www.math.kth.se/optsys/grundutbildning/kurser/SF1811/optexsamleng2014.pdf).

We also recommend the book *Linear and Nonlinear Optimization*, second edition, by Griva, Nash and Sofer. We encourage you to buy this book, especially if you consider taking the follow-up courses [SF2812](http://www.math.kth.se/optsys/grundutbildning/kurser/SF2812/info.html) [\\_\(http://www.math.kth.se/optsys/grundutbildning/kurser/SF2812/info.html\)\\_](http://www.math.kth.se/optsys/grundutbildning/kurser/SF2812/info.html) and [SF2822](http://www.math.kth.se/optsys/grundutbildning/kurser/SF2822/info.html) [\\_\(http://www.math.kth.se/optsys/grundutbildning/kurser/SF2822/info.html\)\\_](http://www.math.kth.se/optsys/grundutbildning/kurser/SF2822/info.html), since it is used as course literature in both these courses. [Here you find some information about the book.](https://www.math.kth.se/optsys/grundutbildning/kurser/SF1811/bookinfo.html) [\\_\(https://www.math.kth.se/optsys/grundutbildning/kurser/SF1811/bookinfo.html\)\\_](https://www.math.kth.se/optsys/grundutbildning/kurser/SF1811/bookinfo.html)

## Teaching

Lectures 30 hours

Exercises 16 hours

## Examination

The only compulsory part for the course is the scheduled exam. No aids, except of course pen, pencil, eraser and ruler, are allowed in the exam. E.g. calculators or dictionaries are not allowed. A formula sheet will be included in the exam: [here is a preliminary version](#)

[\\_\(https://canvas.kth.se/courses/6939/files?preview=1392899\)\\_](https://canvas.kth.se/courses/6939/files?preview=1392899). To participate in the exam you need to

register on "Mina sidor", see the link to [Studentexpedition matematik \(https://www.kth.se/sci/institutioner/math/utb/studentexp/studentexpedition-matematik-1.35739\)](https://www.kth.se/sci/institutioner/math/utb/studentexp/studentexpedition-matematik-1.35739) or [Student affairs office \(https://www.kth.se/en/sci/institutioner/math/utb/studentexp/studentexpedition-matematik-1.35739\)](https://www.kth.se/en/sci/institutioner/math/utb/studentexp/studentexpedition-matematik-1.35739) for the dates and additional information. If you are a PhD student you cannot use "Mina sidor" to register for the exam. Instead, you fill in a form and send this by email to [eleveexp\(a\)math.kth.se, \(mailto:eleveexp@math.kth.se\)](mailto:eleveexp@math.kth.se) see [Studentexpedition matematik \(https://www.kth.se/sci/institutioner/math/utb/studentexp/studentexpedition-matematik-1.35739\)](https://www.kth.se/sci/institutioner/math/utb/studentexp/studentexpedition-matematik-1.35739) or [Student affairs office \(https://www.kth.se/en/sci/institutioner/math/utb/studentexp/studentexpedition-matematik-1.35739\)](https://www.kth.se/en/sci/institutioner/math/utb/studentexp/studentexpedition-matematik-1.35739) for the dates and additional information. The exam can only be taken at KTH. The 6.0 hp exam cannot be taken anymore due to change in the course setup.

The voluntary part of the course consists of two homework assignments. Each passed homework assignment yields two bonus credits on the exam. The exam will consist of five or six problems that all together give a maximal score of 50 credits plus bonus credits. You are guaranteed to pass with 25 credits, including bonus credits. The questions in the exam will be in English and you may write your answers in English or Swedish. Typically the grades will be: E at least 25, D 29, C 34, B 39, and A at least 45 credits, including bonus credits.

### **Voluntary Homework assignments**

Each group of at most two students hand in a written report on each homework assignment in Canvas www-page: homework 1 before December 1st and homework 2 before December 15th 2018.

The aim of the homework assignment is to practice using mathematical concepts and methods and to write a good report. This means that a solution with only formulas is not acceptable. The solution should be similar to the presentation of examples in the course literature. The purpose of the report is to well explain the problem, theoretical background and results for a master student who has taken the course SF1811 but not done this home assignment. Write using your own words and include additional explanations for the steps. In the grading, the teacher considers how well the report: explains the problem, describes the theoretical background, and presents the results.

For instance, the teachers takes into account  
is the report correct,  
is the report well written,  
are the figures and derivations well chosen,  
will the reader of the report learn something.

The report does not have to be long, probably shorter than 10 pages. Matlab code should be included, e.g in an appendix. The most important is that what is written in the report is correct and that the reader learns something. The form of the report is not important, e.g. it does not matter if there is table of context or a section "conclusion".

## **Dates**

30/10 2018 The course starts

30/11 2018 Homework 1

14/12 2018 Homework 2

9/1 2018 Exam