

# COURSE DETAIL

## NUMERICAL OPTIMIZATION

**Country**

Denmark

**Host Institution**

University of Copenhagen

**Program(s)**

University of Copenhagen

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Mathematics Computer Science

**UCEAP Course Number**

167

**UCEAP Course Suffix****UCEAP Official Title**

NUMERICAL OPTIMIZATION

**UCEAP Transcript Title**

NUM OPTIMIZATION

**UCEAP Quarter Units**

6.00

**UCEAP Semester Units**

4.00

## Course Description

This course builds up a toolbox of numerical optimization methods for building solutions in future studies, thereby making it an ideal supplement for students from many different fields in science. The course is taught both at a theoretical level that goes into deriving the math, and also on an implementation level with focus on computer science and good programming practice. Students participate in weekly programming exercises where they implement the algorithms and methods introduced from theory, and apply their own implementations to case-study problems like computing the motion of a robot hand or fitting a model to highly non-linear data. Topics include: first order optimality conditions, Karush-Kuhn-Tucker conditions, Taylors theorem, mean value theorem, nonlinear equation solving, linear search methods, trust region methods, linear least-squares fitting, regression problems, and normal equations.

### Language(s) of Instruction

English

### Host Institution Course Number

NDAA09009U

### Host Institution Course Title

NUMERICAL OPTIMIZATION

### Host Institution Campus

### Host Institution Faculty

Faculty of Science

### Host Institution Degree

Master

### Host Institution Department

Department of Computer Science

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