# Introduction to Computer Programming

Programmering, grundkurs
8 credits

Programme course

TDDE44

Valid from: 2025 Spring semester

| Determined by | Main field of study | |
|---|---|---|
| Board of Studies for Electrical Engineering, Physics and Mathematics | Computer Science and Engineering, Computer Science | |
| **Date determined** | **Course level** | **Progressive specialisation** |
| 2024-08-28 | First cycle | G1N |
| **Revised by** | **Disciplinary domain** | |
| | Technology | |
| **Revision date** | **Subject group** | |
| | Computer Technology | |
| **Offered first time** | **Offered for the last time** | |
| Spring semester 2019 | | |
| **Department** | **Replaced by** | |
| Institutionen för datavetenskap | | |

## Course offered for

- Bachelor's Programme in Mathematics
- Master of Science in Applied Physics and Electrical Engineering
- Master of Science in Biomedical Engineering
- Master of Science in Engineering Mathematics

## Prerequisites

Basic computer skills.

## Intended learning outcomes

The intended purpose of this course is to facilitate and provide students with fundamental skills and knowledge pertaining to computer programming and an introduction to Computer Science. After having completed the course, the student should be able to:

- Make use of the computing environment for tasks related to programming and building basic programs
- Explain fundamental concepts related to computer science, programming, and programming languages
- Solve programming related problems by applying an interactive approach to implementation, testing and troubleshooting
- Construct abstractions using varying degree of support provided by the programming language
- Solve programming problems by breaking them down into smaller sub-problems
- Construct recursive and iterative algorithms

## Course content

- A general introduction to Computer Science
- Programming fundamentals: expressions, basic datatypes, variables, functions, control structures, file management, file formats, modules
- The Python programming language
- Use of open data resources from the web
- Interactive and incremental program development
- Testing and troubleshooting
- Programming paradigms: functional, imperative and object-oriented programming
- Abstraction: Data and program abstraction

# Teaching and working methods

The course consists of lectures, tutorials and laboratory sessions. Concepts and their applications are treated during lectures and tutorials. Practical skills and abilities are practiced during laboratory sessions by solving programming exercises. The course setup requires a high degree of student activity and that students engage in private studies outside of the scheduled classes.

# Examination

| | | | |
|------|-----------------------------------------------------------------|-----------|------------|
| LAB2 | Data and program abstraction/intro to object-oriented programming | 3 credits | U, G |
| LAB1 | Fundamentals in programming and computer system | 3 credits | U, G |
| DAT1 | Computer examination | 2 credits | U, 3, 4, 5 |

Grades for examination modules are decided in accordance with the assessment criteria presented at the start of the course.

# Grades

Four-grade scale, LiU, U, 3, 4, 5

# Other information

Supplementary courses: Programming - data structures and algorithms. Data and program structures.

## About teaching and examination language

The teaching language is presented in the Overview tab for each course. The examination language relates to the teaching language as follows:

- If teaching language is "Swedish", the course as a whole could be given in Swedish, or partly in English. Examination language is Swedish, but parts of the examination can be in English.
- If teaching language is "English", the course as a whole is taught in English. Examination language is English.
- If teaching language is "Swedish/English", the course as a whole will be taught in English if students without prior knowledge of the Swedish language participate. Examination language is Swedish or English depending on teaching language.

## Other

The course is conducted in such a way that there are equal opportunities with regard to sex, transgender identity or expression, ethnicity, religion or other belief, disability, sexual orientation and age.

The planning and implementation of a course should correspond to the course syllabus. The course evaluation should therefore be conducted with the course syllabus as a starting point.

The course is campus-based at the location specified for the course, unless otherwise stated under "Teaching and working methods". Please note, in a campus-based course occasional remote sessions could be included.