Introduction to Python

Introduktion till Python
3 credits

Single subject and programme course

732A70

Valid from: 2022 Spring semester

Determined by	**Main field of study**	
Course and Programme Syllabus Board at the Faculty of Arts and Sciences	Computer Science	
Date determined	**Course level**	**Progressive specialisation**
2021-10-15	Second cycle	A1N
Revised by	**Disciplinary domain**	
	Technology	
Revision date	**Subject group**	
	Statistics	
Offered first time	**Offered for the last time**	
Spring semester 2022		
Department	**Replaced by**	
Institutionen för datavetenskap		

Course offered for

- Master's Programme in Statistics and Machine Learning

Entry requirements

- Bachelor's degree equivalent to a Swedish Kandidatexamen within statistics, mathematics, applied mathematics, computer science, engineering or a similar degree.
- Completed courses with passing grade in following subjects:
  - calculus
  - linear algebra
  - statistics
  - programming
- English corresponding to the level of English in Swedish upper secondary education (Engelska 6/B)
  (Exemption from Swedish)

Intended learning outcomes

After completion of the course the student should at an advanced level be able to:
- Write a computer code for scientific computing using basic Python language elements
- Use simple and advanced data structures for problem solving
- Apply tools available in some commonly used Python packages
- Correct mistakes in own codes by means of debugging tools

Course content

- Python basics: programming environment and documentation, program flow, variables, comments, numerical operators, loops, conditional statements.
- Data structures: simple data types, tuples, lists, dictionaries, sets, iterators and generators.
- Functions and functional programming, anonymous lambda functions, comprehensions.
- Classes and object oriented programming, objects and message passing
- The standard library and essential third-party packages for graphics, scientific computing and data manipulation.
- Debugging.

Teaching and working methods

The teaching comprises lectures and computer exercises. Homework and independent study are a necessary complement to the course.

Examination

Written reports on computer exercises. Detailed information about the examination can be found in the course's study guide.

If special circumstances prevail, and if it is possible with consideration of the nature of the compulsory component, the examiner may decide to replace the compulsory component with another equivalent component.

If the LiU coordinator for students with disabilities has granted a student the right to an adapted examination for a written examination in an examination hall, the student has the right to it.

If the coordinator has recommended for the student an adapted examination or alternative form of examination, the examiner may grant this if the examiner assesses that it is possible, based on consideration of the course objectives.

An examiner may also decide that an adapted examination or alternative form of examination if the examiner assessed that special circumstances prevail, and the examiner assesses that it is possible while maintaining the objectives of the course.

Students failing an exam covering either the entire course or part of the course twice are entitled to have a new examiner appointed for the reexamination.

Students who have passed an examination may not retake it in order to improve their grades.

Grades

ECTS, EC

Other information

Planning and implementation of a course must take its starting point in the wording of the syllabus. The course evaluation included in each course must therefore take up the question how well the course agrees with the syllabus.

The course is carried out in such a way that both men´s and women´s experience and knowledge is made visible and developed.

If special circumstances prevail, the vice-chancellor may in a special decision specify the preconditions for temporary deviations from this course syllabus, and delegate the right to take such decisions.