Faculty of Science

KEMA92, Python for Chemists, 3 credits
Python för kemister, 3 högskolepoäng
First Cycle / Grundnivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2022-12-14 to be valid from 2022-12-14, spring semester 2023.

General Information

The course is a free standing first-cycle course in chemistry and provides an introduction to computational programming with Python.

Language of instruction: Swedish

Main field of studies	Depth of study relative to the degree requirements
-	G1F, First cycle, has less than 60 credits in first-cycle course/s as entry requirements

Learning outcomes

The aim of the course is that the student, on completion of the course, should have acquired theoretical and practical knowledge of the programming language Python and be able to apply this knowledge on various chemistry related issues.

Knowledge and understanding
On completion of the course, the students shall be able to

- explain the outcome of some of the most common syntaxes in Python
- identify problems that can be solved with a simple Python programme
- account for some of the larger Python libraries and their fields of use.

Competence and skills
On completion of the course, the students shall be able to

- read and understand simple Python code
- write simple Python programmes/scripts

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- troubleshoot Python code
- suggest improvements and supplementations to existing code
- apply Python on chemistry related problems
- visualise experimental data.

Judgement and approach
On completion of the course, the students shall be able to

- assess if Python can be used to solve a specific chemistry issue
- critically review and assess the usability of existing code.

Course content

The course covers basic programming in Python with a specialisation towards chemistry and goes through basic syntax and the most common Python libraries. Furthermore, examples of how to use Python to study various chemistry related problems and issues, and professionally visualise chemistry data are given.

Course design

The teaching consists of lectures, programming exercises and a project work. Compulsory participation is required in the seminar and associated elements.

The course is offered as a distance learning course using an online learning platform and digital tools. Students are required to participate under these conditions, and to have access to a computer with an internet connection as well as functioning speakers, microphone and web camera. The department will provide information about the technical requirements.

Assessment

Assessment takes place orally in the form of a project presentation in groups at the end of the course.

Students who do not pass the regular assessment will be offered another opportunity for assessement soon thereafter.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass.
For a Pass grade on the whole course, the student must have Pass grade in the oral presentation.

Entry requirements

To be admitted to the course, student must have passed 30 credits in natural science studies, including:

- KEMA20 General Chemistry, 15 credits
- MATA03 Mathematics for Scientists 1, 15 credits.

Further information

The course is offered at the Department of Chemistry, Lund University.

Subcourses in KEMA92, Python for Chemists

Applies from V23

2301   Project presentation, 3,0 hp
         Grading scale: Fail, Pass