FCA3004 Computational Python 7.5 credits

Python för beräkningsvetenskaper

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for FCA3004 valid from Autumn 2022

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Eligiblefor studies at the third-cycle level.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After completion of the course the doctoral student should have the knowledge and ability to

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- Write programs in Python to solve problems in computational science.
- Apply best practices in programming with respect to version control and testing.
- Choose and apply data-science libraries relevant for their problem domain.
- Account for and apply established programming ethical guidelines.

Course contents

- Python and its relationship to other programming languages
- Programming environments for Python
- Version control with git
- Software testing with pytest
- Data science libraries: numpy, scipy, pandas, matplotlib
- Interfaces to compiled languages
- Relational and document-oriented databases with Python
- ·Methods in Python for concurrent programming: threading, multiprocessing, and asynchronous methods

Examination

- PRO1 - Project, 5.0 credits, grading scale: P, F
- DAT1 - Computer assignment, 2.5 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Additional information about the course and grade criteria are found in the course memo.

Other requirements for final grade

For final grade the following are required: Passed assignments, active participation in group discussions and passed written project report (PRO1). Participation in computer exercise with passed report (DAT1).

Ethical approach

- All members of a group are responsible for the group's work.

- In any assessment, every student shall honestly disclose any help received and sources used.

- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.

Additional regulations

Equipment: Own laptop computer.