



## CORE FACILITIES

### SC00036 Unix applied to genomic data, 2 credits

Unix tillämpat för genomikdata, 2 högskolepoäng

*Third-cycle level / Forskarnivå*

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### Confirmation

This syllabus was confirmed by the Council for PhD Education at Sahlgrenska Academy on 2020-09-23, and is valid from Spring semester 2021.

#### *Responsible Department*

Core Facilities, Sahlgrenska Academy

### Entry requirements

The course is open for PhD students accepted by a Swedish or international university, in need to process and manage biological data.

In order to apply for the course, you should have:

A background in genetics, cell biology, biomedicine, biochemistry, bioinformatics or similar.

### Learning outcomes

After completing the course, the student is expected to be able to:

#### *Knowledge and understanding*

- Describe the UNIX system
- List the most common commands used for data manipulation
- Explain suitable algorithms for data analysis
- Identify repetitive tasks that can be automated
- Define a plausible workflow for data

#### *Competence and skills*

- Navigate through the file structure
- Extract and process information with filters and pipes
- Develop custom workflows for data managing

- Develop shell script to simplify and automate frequent tasks
- Use biological tools

### ***Judgement and approach***

- Design and establish custom approaches to analyze and manage biological data
- Interpret others' scripts
- Understand the techniques introduced and be able to pick out the methods suitable for their own data

## **Course content**

The course covers:

- The shell
- File system and permissions
- Text editors
- Handling files
- Regular expressions
- Piping
- For loops
- File compression
- Program installation
- Bash scripting

## **Types of instruction**

The course includes a combination of lectures, practical sessions and home assignments

### ***Language of instruction***

The course is given in English.

## **Grades**

The grade Pass (G) or Fail (U) is given in this course.

To receive a passing grade, the student must complete all practical exercises with approved results.

## **Types of assessment**

Assessment will be done through the practical sessions; these are design to test the understanding of the different applications, so completion of all of them is mandatory for a passing grade. Active participation during group sessions and attendance for at least 80% is also mandatory.

Student has the right to change examiner after having failed twice on the same examination, unless special reasons speak against it. (HF 6 Chapter 22 §). Such a request is made to the institution and must be in writing.

## **Course evaluation**

The course evaluation will be done through a written questionnaire, available at the virtual learning environment, where students are asked to describe their opinions on the various stages of the course for future development.

The results of and possible changes to the course will be shared with students who participated in the course and students who are starting the course next term.

## **Other information**

Computer access with administration rights as well as internet access is required since all communication concerning the course and relevant documents, such as lectures, exercises and literature, will be posted at the virtual learning environment.