CORE FACILITIES

UNIVERSITY OF GOTHENBURG

SC00033   Proteomics sample preparation and applications, 1.5 credits

Proteomik, provpreparation och applikationer, 1,5 högskolepoäng

Third-cycle level / Forskarnivå

Confirmation

This syllabus was confirmed by the Council for PhD Education at Sahlgrenska Academy on 2019-01-31, and is valid from Spring semester 2019.

Responsible Department
Core Facilities, Sahlgrenska Academy

Entry requirements

Admitted to PhD studies.

Learning outcomes

On successful completion of the course, the PhD studemt is expected to be able to:

Knowledge and understanding

- become familiar with and to give examples of separation methods and enrichment techniques that can be used in sample preparation
- describe and discuss the design of proteomic study in terms of a simple or a more complex sample
- explain the difficulties and suggest metods for quantification of protein expression

Skills and abillity

- the use of results from data base matching for protein identfication
- planning of the procedure from protein extraction in a cell lysate to the analysis of the difference in protein expression

Judgement andapproach

- judge and criticise the sensitivity and variation in quantitative proteomic analysis
- compare results from different aquisition methods of mass spectrometry.

Course content

The aim of the course is the basic topics of proteomics, applications and the methods used in proteomics. The course will cover separation of proteins and peptides, sample preparation techniques, including immunoprecipitation, basic theory of biological mass spectrometry (MS) and liquid-chromatography-MS instruments, data analysis and bioinformatics of MS data.

Teaching will be performed through lectures, instrument demos and practical use of the mass spectrometry results.

This course includes more applications and focus on sample preparation prior to mass spectrometry analysis. No practical experiments and less MS theory

Types of instruction

The course consists of lectures, instrument demos and and workshop for the use of the results from mass spectrometry analysis.

Language of instruction
The course is given in English.

Grades

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

Types of assessment

At least 75% attendance at instrument demo and use of results, written exam with 70% correct answers. Absence or failure from these tasks can be compensated by a written report. The written examination/assessment will be web-based and using multiple choice as well as free text questions.

A doctoral student who has failed a test twice has the right to change examiners, if it is possible. A written application should be sent to the Institute.

Course evaluation

There will be a written web-based course evaluation at GUL after the course. The teacher, responsible for the course, will make a summary of the evaluation. This will point out directions for the next course and will also be reported to the students as well as published on GUL

Other information

This syllabus was confirmed by the Council for PhD Education at Sahlgrenska Academy on 28-08-2018, and is valid from the spring semester 2019 (reg.nr.: U 2018/457). It was entered into FUBAS on 31-01-2019.