

Faculty of Medicine

Fastställd av FUN 2018-10-04, gäller från 2018-10-04

Research Programmes Board, FUN

LUND UNIVERSITY

Course title in English: MAXIV/ESS-based imaging for medical and biomedical research, experimental set up.

Course title in Swedish: MAXIV/ESS-baserad bildgivning för medicinsk och biomedicinsk forskning, experimentellt upprättande

1.5 credits

Third cycle

General information

This course is a continuation of cross-disciplinary course "MAXIV/ESS-based imaging for medical and biomedical research, introduction". The course will help to understand how to design an experiment at MAXIV/ESS and how to apply for experimental time at MAXIV/ESS.

Language of instruction: English

Aim

The course aims to provide participants with an opportunity to deepen their understanding how MAXIV/ESS based techniques could be implemented in medical and biomedical research. The course aims to provide a thorough introduction to the main requirements for experimental setup for neutron scattering and x-ray micro and nanoimaging.

Learning outcomes

On completion of the course, participants shall be able to:

- ✓ Explain the main requirements for experimental setup and sample preparation for neutron scattering and x-ray micro and nanoimaging;
- ✓ Write an application for experimental beam time at MAXIV/ESS or other synchrotron/neutron scattering facilities worldwide.

Course content

The course curriculum comprises lectures and seminars, which will deepen the understanding how to immerse MAXIV/ESS based techniques into medical and

biomedical research. An introduction to experimental design, requirements for sample preparation, proposal writing and reviewing, are integral part of the program.

The course contains:

- ✓ Introduction to main requirements for experimental setup for neutron scattering and x-ray micro and nanoimaging;
- ✓ Introduction to sample preparation, data acquisition, and data reduction;
- ✓ Writing of an application for experimental beam time at MAXIV/ESS.

Course design

The course is structured around some course meetings, containing lectures and seminars in a workshop-like manner.

As an individual assignment, each participant writes an application for an experiment at MAXIV/ESS facility. As preparation for the course meetings, participants read assigned literature. Lectures and seminars, writing an essay, final group discussion are compulsory components of the course.

Assessment

Attendance and active participation in all parts of the course is required, as well as an individual course assignment.

Grades

The grades awarded are Pass or Fail.

Admission requirements

Admission to PhD studies.

Reading list

No compulsory reading.