Swedish University of Agricultural Sciences

P000049, Applied biomolecular NMR spectroscopy, 3.0 Hp

Syllabus

Finalized by: FFB styrkommittén och FFB Studierektorer, 2023-07-16

Valid from: HT2023

Level within study regulation:

Third cycle

Subject:

- Chemistry

Grading scale:

Pass / Failed

Course language:

Swedish

Entry requirements:

The course is primarily intended for PhD students within the SLU Graduate School Focus on Food and Biomaterials, but will be open for other interested PhD students and researchers if space allows.

The course does not require any previous experience in NMR spectroscopy.

Objectives:

The course gives an overview about NMR strategies that can be performed on biomolecules, such as proteins, peptides, carbohydrates, lipids, and small meta-bolites. The main objective

is to provide the students with knowledge about possibilities and limitations with NMR spectroscopy. The course is focused on the practical performance and outcome of NMR experiments and just gives a very brief introduction to the theoretical principals.

Content:

The course is divided into two modules: A theoretical overview of NMR applica-tions for different biomolecules and then practical exercises in the NMR lab.

The first module includes lectures in NMR applications on proteins, peptides, carbohydrates, nucleic acids, lipids and small metabolites by experts in the different areas. It also contains a brief introduction to semi-solid (HR-MAS) and solid-state (CP-MAS) NMR.

The second module is based on a short NMR project that should be related to a research project where the PhD student is involved. The student defines the project and prepares samples as well as NMR experiments under supervision. The project is finally presented in a written report and at a seminar.

Attendance at all scheduled activities is obligatory.

After completing the course the student shall be able to:

- Propose suitable strategies to analyze a given sample by NMR spectroscopy.
- Perform simple NMR experiments under supervision.
- Discuss NMR strategies that are brought up in the course in relation to possible applications from his/her own research projects.

Modes of assessment:

Attendance at all scheduled activities and approved individual report on the NMR project. - If a student has failed an examination, the examiner has the right to issue supplementary assignments. This applies if it is possible and there are grounds to do so.

- The examiner can provide an adapted assessment to students entitled to study support for students with disabilities following a decision by the university. Examiners may also issue an adapted examination or provide an alternative way for the students to take the exam.

- If this syllabus is withdrawn, SLU may introduce transitional provisions for examining students admitted based on this syllabus and who have not yet passed the course.

- For the assessment of an independent project (degree project), the examiner may also allow a student to add supplemental information after the deadline for submission. Read more in the Education Planning and Administration Handbook.

Organisation:

Department of Molecular Sciences

Supplementary information

Other information:

- The right to participate in teaching and/or supervision only applies for the course instance the student was admitted to and registered on.
- If there are special reasons, students are entitled to participate in components with compulsory attendance when the course is given again. Read more in the Education Planning and Administration Handbook.