



F3B5436 Molecular Structure and Dynamics by NMR Spectroscopy 7.5 credits

Molekyler struktur och dynamik av NMR spektroskopi

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

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

Establishment

Course syllabus for F3B5436 valid from Spring 2014

Grading scale

Education cycle

Third cycle

Specific prerequisites

Master degree in chemistry

Language of instruction

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

Intended learning outcomes

A practice oriented course to develop knowledge and understanding of the application of various one- and two-dimensional NMR experiments in order to elucidate structures and kinetic problems.

Course contents

The course contains lectures and tutorials. The lectures cover the following:

Basics principles of NMR experiments, components of a modern FT NMR instrument.

NMR spectral parameters (e.g. chemical shift, scalar couplings, integrals), rules for spectral analysis. Relaxation and the Nuclear Overhauser Effect (NOE).

One-dimensional experiments using complex pulse sequences, (e.g. DEPT).

Two-dimensional NMR experiments (homo- and heteronuclear correlation experiments).

Dynamic NMR spectroscopy

Course literature

Det finns inga speciella bestämda böcker för kursen, ändå de följande böcker innefattar mer eller mindre innehållet av kursen:

T. D. W. Claridge: High-Resolution NMR Techniques in Organic Chemistry, Pergamon 2009,

N. E. Jacobsen; NMR spectroscopy explained, Wiley, 2007,

H. Friebolin: Basic One- and Two-Dimensional NMR Spectroscopy, Wiley, 2010,

S. A. Richards and J. C. Hollerton Essential Practical NMR for Organic Chemistry, 2011

There are no specific textbooks dedicated to this course. Nevertheless, the topics of the course are more or less covered by the following books:

T. D. W. Claridge: High-Resolution NMR Techniques in Organic Chemistry, Pergamon 2009,

N. E. Jacobsen; NMR spectroscopy explained, Wiley, 2007,

H. Friebolin: Basic One- and Two-Dimensional NMR Spectroscopy, Wiley, 2010,

S. A. Richards and J. C. Hollerton Essential Practical NMR for Organic Chemistry, 2011

Examination

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.

Written home assignment

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.