

Syllabus

for course at advanced level

NMR in Materials Chemistry
NMR inom materialkemi

7.5 Higher Education
Credits
7.5 ECTS credits

Course code:	KZ8005
Valid from:	Spring 2010
Date of approval:	2023-10-27
Department	Department of Materials and Environmental Chemistry
Main field:	Chemistry
Specialisation:	AXX - Second cycle, in-depth level of the course cannot be classified

Decision

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University.

Prerequisites and special admittance requirements

Course structure

Examination code	Name	Higher Education Credits
MOM1	Theory	5
MOM2	Laboratory Exercises	2.5

Course content

- a. The course introduces the basics of nuclear spin resonance (NMR) for solid materials, focusing on the possibilities of obtaining information about local structure and molecular dynamics, mainly in modern inorganic materials. Basic and advanced experimental solid-state NMR methods are described, and their applications are demonstrated e.g. with minerals, ceramics, glasses and porous materials.
- b. The course includes the following elements:
1. Theory 5 higher education credits.
 2. Laboratory exercises 2.5 higher education credits.

Learning outcomes

It is expected that the student after taking the course will be able to:

- Demonstrate insight into basic solid-state NMR and its possibilities, limitations and most common applications in materials chemistry.
- Understand and give an account of the use of various one- and two-dimensional NMR experiments, interpret the results and draw conclusions as to what structural and/or dynamical information they provide about the material studied.
- Carry out simple solid-state NMR experiments.

Education

The education consists of lectures, laboratory exercises and exercises.

Participation in the practical laboratory work and group education associated with this is compulsory. After consultation with the relevant teacher, an examiner may rule that a student is not obliged to participate in certain compulsory education, if there are special grounds for this.

Forms of examination

a. Measurement of knowledge takes place through:

- Written and/or oral examination

b. Grading is carried out according to a 7-point scale related to learning objectives:

A = Excellent, B = Very Good, C = Good, D = Satisfactory,

E = Sufficient Fx = Fail F = Fail.

c. Grading criteria for the course will be distributed at the start of the course.

d. A minimum grade of E is required to pass the course, together with:

- Participation in all compulsory parts.

- Completion of all practical laboratory work, and award of a "Sufficient" grade .

e. Students who fail to achieve a pass grade in an ordinary examination have the right to take at least further four examinations, as long as the course is given. The term "examination" here is used to denote also other compulsory elements of the course. Students who have achieved a pass grade on an examination may not retake this examination in order to attempt to achieve a higher grade. Students who have failed to reach a pass grade on two occasions have the right to request that a different teacher be appointed to set the grade of the course. A request for such appointment must be sent to the departmental board.

Interim

Students may request that the examination is carried out in accordance with this syllabus even after it has ceased to apply. This right is limited, however, to a maximum of three occasions during a two-year-period after the end of giving the course. A request for such examination must be sent to the departmental board.

Required reading

Course literature is decided by the departmental board and is described in an appendix to the syllabus.