



LUND
UNIVERSITY

Faculty of Science

KEMN30, Organizing Molecular Matter: Master's Degree Project, 60 credits

Nanokemi: Examensarbete för masterexamen, 60 högskolepoäng
Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2008-04-29 and was last revised on 2008-04-29. The revised syllabus applies from 2008-04-30, autumn semester 2008.

General Information

The course is a compulsory second-cycle course for a degree of Master of Science, main field of study Organizing Molecular Matter (see also section "Further information").

Language of instruction: Swedish and English
When necessary, the course in full is given in English.

Main field of studies

Organizing Molecular Matter

Depth of study relative to the degree requirements

A2E, Second cycle, contains degree project for Master of Arts/Master of Science (120 credits)

Learning outcomes

The aim of the degree project is to give the students the opportunity to gain highly specialised knowledge within a subject-specific area, to give training in advanced research methodology, as well as in independently running and implementing a research project of limited scope.

On completion of the project, students shall be able to

- demonstrate excellent theoretical knowledge, understanding and problem solving abilities which, all together, mean considerable subject-specific specialisation
- demonstrate excellent experimental skills in practical laboratory work or theoretical calculations and thus display a respectable ability to participate in the creation of new knowledge, even in new or unfamiliar contexts and surroundings

- demonstrate good skills in planning and documenting experimental work
- carry out adequate risk assessments for subject-specific chemical work, and be very familiar with the laws and ordinances that regulate such work, as well as being able to reflect on and discuss the ethical aspects and social significance of such work and research.
- demonstrate great familiarity with the scientific method's work methodology and critical approach. This includes being able to scientifically test hypotheses, having good capabilities in assessing the quality of both their own and others' results, and being able to read, understand and critically review scientific primary publications
- demonstrate good abilities in using and conveying their knowledge in different forms in their area, including everything from report writing to oral presentations, and participate in free exchanges of opinion both with researchers in the international scientific area and with laymen in the surrounding community

Course content

The degree project consists of two parts, each worth 30 higher education credits (see "Assessment") and its focus and design is decided in consultation with the supervisor.

The degree project can be carried out at any unit within the Chemistry Department but may, after agreement with the examiner/grading committee, be carried out at another higher education department or outside the university.

Work shall comprise literature studies that survey the background to the selected research task and contain laboratory and/or theoretical tasks.

Course design

The student carries out literature studies, establishes a project plan and performs a subject-specific research task under supervision.

Assessment

After half of the study time (20 weeks) an oral presentation is held at which the results achieved thus far are presented, and a revised plan for continued work is presented. The supervisor, examiner or student may then decide whether to conclude the work as a degree project worth 30 credits and, in this case, a full written report is submitted to the examiner for assessment. If work is to continue, the part-examination is reported as being worth 30 credits.

After 40 weeks the degree project concludes with a written report and a public presentation in the presence of the supervisor and examiner/grading committee. The written report must contain an introduction to the research work with relevant, complete references to the literature, a material and methods section that enables the experiment to be repeated, as well as a presentation and discussion of the results achieved.

Before publication in the faculty database for degree projects an English summary and a short, popular science description in Swedish, intended for a wider audience, must be appended. The oral presentation takes place as a public seminar in the presence of the supervisor and examiner/grading committee.

If the examiner considers that the work as submitted cannot be awarded a passing grade, the student will be given the opportunity to complete the work for further assessment.

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass, Pass with distinction.

To pass the course students must have a pass on the written project report, a pass in the oral presentation and material must have been submitted to the faculty's database.

The grade for the part-examination is Pass, and the grade for material submitted to the faculty's database is Participated.

The examiner/grading committee determine the grade of the degree project after consultation with the supervisor. The final grade is decided through weighting the assessment of the project's implementation and the written and oral presentations.

Entry requirements

To be eligible for the course students must have basic eligibility, English B and

- a first cycle degree comprising at least 180 higher education credits and with a subject focus that is relevant to studies in Organizing Molecular Matter and
- KEMM07 Surface and Colloid Chemistry - Advanced Course, 15 credits
- KEMM27 Chemist's Modelling Tools, 15 credits
- KEMM17 Magnetic resonance – spectroscopy and imaging, 7.5 credits
- KEMM37 Scattering Methods, 7.5 credits
- KEMM18 Statistical Thermodynamics, 7.5 credits and
- KEMM28 Molecular Quantum Mechanics, 7.5 credits

Equivalent knowledge that has been gained in another way also provides eligibility for the course.

Further information

The course KEMN30 Organizing Molecular Matter: Master's Degree Project, 60 credits, can be replaced in the degree by KEMN10 Organizing Molecular Matter: Master's Degree Project, 30 credits.

Subcourses in KEMN30, Organizing Molecular Matter: Master's Degree Project

Applies from H09

- 0801 Organized Molecular Matter: Master's Degree Project, 30,0 hp
Grading scale: Fail, Pass, Pass with distinction
- 0802 Half-time Examination, 30,0 hp
Grading scale: Fail, Pass
- 0803 Summary, 0,0 hp
Grading scale: Fail, Participated