Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

GOVERNING DOCUMENT

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General syllabus for the doctoral programme in the subject of: CHEMISTRY

Valid as of 01/07/2016

Department to which the study plan applies	Subject code:
MOLECULAR SCIENCES	NJKEMI01

The objectives and design of courses in this subject may vary between faculties (see point 4. Miscellaneous).

Chemistry ("KEMI") is a subject that concerns the composition, structure and characteristics of different substances, the reactions that transfer one substance to another and various changes in energy that take place as part of these reactions. At SLU, focus is on the structure and characteristics of inorganic compounds in soil and water as well as on biomolecules, metabolism and biotechnology.

[A general syllabus must indicate the following: the main content of the programme, specific entry requirements and any other regulations required. All general syllabuses must be approved by the faculty board.]

1. Programme content and scope

The programme has two main components: courses and the doctoral thesis.

Thesis work

On this programme, the student will conduct independent research work which is presented in a doctoral thesis corresponding to 195 higher education credits (HEC). The thesis may be submitted as a compilation thesis or, exceptionally, as a monograph. The thesis must be written in English.

For a licentiate degree, scientific work corresponding to 100 HEC is normally required. At least 2 papers should normally be included in the thesis. These papers must be of such quality that they are eligible for publication. The thesis must be written in English.

Courses

The student is required to undertake coursework which corresponds to 45–60 HEC for a Degree of Doctor, or 22.5–30 HEC for a Degree of Licentiate. This must include suitable general courses as well as elective subject courses. Participation in courses linked to a graduate school or similar network is encouraged.

Subject courses should include an advanced general subject course (advanced inorganic chemistry and advanced organic chemistry respectively) corresponding to at least 15 HEC. At least 10 HEC should consist of research methodology courses (e.g. EXAFS spectroscopy, practical X-ray crystallography, NMR, mass spectrometry, chromatography).

According to the rules for doctoral education at SLU (Regulations and forms for doctoral education | Medarbetarwebben), all doctoral and licentiate degrees at SLU must include credit awarding courses of philosophy of science and research ethics at PhD-level. These courses should also cover rules on cheating and plagiarism.

2. Specific entry requirements

Those admitted must meet the following specific entry requirements.

Normally, the specific entry requirement for chemistry is knowledge corresponding to at least 90 HEC in chemistry (general, analytical, inorganic and physical chemistry as well as biochemistry and organic chemistry). This must include a degree project, and subject-specific studies at the advanced level of at least 30 HEC.

3. Overall rules for doctoral education at SLU

Third-cycle (doctoral) education is regulated by the Higher Education Ordinance (SFS 1993:100) and the Ordinance for the Swedish University of Agricultural Sciences (SFS 1993:221).

The local governing documents that regulate doctoral education at SLU level can be found on the page Regulations and forms for doctoral education.

The programme is organised in a way that allows doctoral students to meet the qualitative targets for third-cycle courses and programmes specified in the *Higher Education Ordinance's Appendix 2 – Qualifications Ordinance* (see appendix 1).

4. Miscellaneous

Each faculty offering the third-cycle subject can choose to specify specialisations or requirements in addition to the general syllabus. These requirements must be documented in an appendix.

5. Appendixes

Appendix 1. Higher Education Ordinance's Annex 2 – System of Qualifications

Appendix 1.

Higher Education Ordinance Appendix 2 – System of Qualifications.

Outcomes For the Degree of Doctor the third-cycle student shall

Knowledge and understanding

- *demonstrate broad knowledge and systematic understanding of the research field as well as advanced and up-to-date specialised knowledge in a limited area of this field, and*
- *demonstrate familiarity with research methodology in general and the methods of the specific field of research in particular.*

Competence and skills

- *demonstrate the capacity for scholarly analysis and synthesis as well to review and assess new and complex phenomena, issues and situations autonomously and critically*
- *demonstrate the ability to identify and formulate issues with scholarly precision critically, autonomously and creatively, and to plan and use appropriate methods to undertake research and other qualified tasks within predetermined time frames and to review and evaluate such work*
- *demonstrate through a dissertation the ability to make a significant contribution to the formation of knowledge through his or her own research;*
- *demonstrate the ability in both national and international contexts to present and discuss research and research findings authoritatively in speech and writing and in dialogue with the academic community and society in general*
- *demonstrate the ability to identify the need for further knowledge and*
- *demonstrate the capacity to contribute to social development and support the learning of others both through research and education and in some other qualified professional capacity.*

Judgement and approach

- *demonstrate intellectual autonomy and disciplinary rectitude as well as the ability to make assessments of research ethics, and*
- *demonstrate specialised insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used.*

Outcomes For a Degree of Licentiate the third-cycle student shall:
Knowledge and understanding

- *demonstrate knowledge and understanding in the field of research including current specialist knowledge in a limited area of this field as well as specialised knowledge of research methodology in general and the methods of the specific field of research in particular.*

Competence and skills

- *demonstrate the ability to identify and formulate issues with scholarly precision critically, autonomously and creatively, and to plan and use appropriate methods to undertake a limited piece of research and other qualified tasks within predetermined time frames in order to contribute to the formation of knowledge as well as to evaluate this work;*
- *demonstrate the ability in both national and international contexts to present and discuss research and research findings in speech and writing and in dialogue with the academic community and society in general, and*
- *demonstrate the proficiency required to participate autonomously in research and development work and to work autonomously in some other qualified capacity.*

Judgement and approach

- *demonstrate the ability to make assessments of ethical aspects of their own research;*
- *demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and*
- *demonstrate the ability to identify the personal need for further knowledge and take responsibility for their ongoing learning.*