Translation of Curriculum Statement (Study Plan) for Third Cycle (PhD) Education

Chemistry with specialization in Macromolecular Chemistry

Swedish title: Kemi med inriktning mot Makromolekylär kemi

TNKEMI16

Swedish curriculum adopted by the Board of the Faculty of Science and Technology (Board for Third-cycle Educational) on 2021-11-03.

Translation approved on 2021-11-03.

The Curriculum Statement for third-cycle education consists of three parts: a general part, this subject specific curriculum statement, and each doctoral student's individual study plan.

Objective

Based on first- and second cycle education in the scientific discipline, the third-cycle education should provide additional competences in the subject area as well as in-depth knowledge in macromolecular chemistry.

During the education, the student will, by active participation in courses and research work under supervision, reach a high level of theoretical competence in the subject area, and extensive practical competence in the methodology relevant for macromolecular chemistry.

The person receiving the PhD degree in macromolecular chemistry should critically and independently be able to conduct research and development projects in the area with stringent requirements on in-depth subject knowledge as well as broad research knowledge.

In addition, the PhD student must also be able to present her/his goals and results in oral and written form to different audiences in English, in the case of Swedish-speaking doctoral students, also in Swedish.
Subject description
Macromolecular chemistry treats the synthesis, structure, properties
and use of naturally occurring and synthetic macromolecules. The
subject is a part of chemistry but also has clear boundaries to topics in
materials science, biology and medicine and finds applications
exemplified by plastic materials, advanced information technology,
energy and medicine.

Eligibility

Basic Eligibility
The basic eligibility for third-cycle studies is described in the general
part of the study plan.

Special Eligibility
Eligible for third-cycle studies in Macromolecular Chemistry is the
candidate who has passed approved courses in chemistry, or courses
within the subject relevant areas, of at least 90 higher education
credits, or who have acquired equivalent knowledge abroad.

Admission
Applicants for third-cycle studies in Chemistry with specialization in
Macromolecular Chemistry must submit an application to the head of
the Department of Chemistry-Ångström. Admission to doctoral
studies normally takes place several times per year.

Postgraduate education in Chemistry with specialization in
Macromolecular Chemistry shall lead to a filosofie doktorsexamen or,
alternatively, a teknologie doktorsexamen. The English rendering will,
in both cases, be a licentiate/doctorate degree of philosophy.
According to decision (TEKNAT 2012/215) the degree title should be
determined by the contents of the postgraduate education and not by
the undergraduate degree of the postgraduate student.

At the time of admission, the department must provide a financial
assistance plan demonstrating sufficient support to cover the
maintenance of the applicant as well as her/his research.

Program structure
At the time of admission, each doctoral student and her/his supervisor
shall draw up an individual study plan after consultation with the
professor in charge of third-cycle studies. The plan is to be approved
by the Head of the Department (by delegation of the Board of the Disciplinary Domain) at the time of admission. The individual study plan shall be annually reviewed by the doctoral student and her/his supervisor jointly, and supplemented with a summary of the achieved results and the plans for the coming year. Significant changes as well as any disagreement on the individual study plan shall be reported to the Head of the Department or, if deemed necessary, to the Third-cycle Educational Board.

Courses
Within the education, at the postgraduate level, there may be different types of courses, such as lectures, literature studies, practical exercises, field studies, etc. The courses will provide broader insights into the subject as a complement to the specialist competence gained in research work. For example, the courses included in the individual study plan can be obtained from courses in education at the primary and advanced level, provided that they are not included in the eligibility requirements.

A course in research ethics of at least 2 higher education credits is mandatory for licentiate and doctoral degree. A course in university educational theory is also mandatory for doctoral students who teach at basic and advanced level.

Course offerings are revised continuously. However, the following courses should be included in the education:
Research Methodology 10hp
Macromolecular Chemistry 15hp
Research ethics 2hp

Depending on the chosen research orientation, it may be desirable that a significant part of the courses in the individual study plan be derived from chemistry, but courses in more specific areas related to the research project could also be suitable. For a broader knowledge, for example, physics, and especially macromolecular physics, may be relevant.

Requirements for doctoral degree
The requirements for the doctoral degree consist of passed examinations in the courses included in the approved individual study plan of each doctoral student, as well as a passed public defense of the degree project. The studies awarded a doctoral degree comprise 240
higher education credits (four years of full-time studies), of which the doctoral thesis comprises a minimum of 120 higher education credits and the course part a minimum of 40 higher education credits.

Requirements for licentiate degree

A doctoral student who has acquired at least 120 higher education credits (two years of full-time studies) is eligible for a licentiate degree. The requirements consist of passing the examinations included in the program stage and receiving a passing grade on an academic paper of at least 60 higher education credits. The part of the course amounts to a minimum of 20 higher education credits.

Other

Research in Macromolecular Chemistry is conducted in extensive international cooperation and requires a comprehensive global flow of information. It is, therefore, necessary that the doctoral student can apply scientific texts in the field in English and can communicate in spoken and written in English.