Programme Syllabus:

Master by Research in Chemistry, 120 credits

General data

Code	TMKEA
Cycle	Second cycle
Ref no	MIUN 2009/97
Credits	120
Answerable department	Natural Sciences
Answerable faculty	Faculty of Science, Technology and Media
Established	2019-10-28
Date of change	2022-12-03
Version valid from	2020-07-01

Aim

The objective of the programme is to provide an increased knowledge within the subject by planning and carrying out research projects in collaboration with other researchers and, if any, external partners.

Programme objectives

OUTCOMES ACCORDING TO THE HIGHER EDUCATION ORDINANCE FOR A MASTER OF ARTS/SCIENCE (120 CREDITS)

Knowledge and understanding
For a Master of Arts/Science (120 credits) the student shall have:
- demonstrated knowledge and understanding in the main field of study, including both broad knowledge of the field and a considerable degree of specialised knowledge in certain areas of the field as well as insight into current research and development work, and
- demonstrated specialised methodological knowledge in the main field of study.

Competence and skills

For a Master of Arts/Science (120 credits) the student shall have:
- demonstrated the ability to critically and systematically integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information
- demonstrated the ability to identify and formulate issues critically, autonomously and creatively as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames and so contribute to the formation of knowledge as well as the ability to evaluate this work
- demonstrated the ability in speech and writing both nationally and internationally to report clearly and discuss his or her conclusions and the knowledge and arguments on which they are based in dialogue with different audiences, and
- demonstrated the skills required for participation in research and development work or autonomous employment in some other qualified capacity.

Judgement and approach
For a Master of Arts/Science (120 credits) the student shall have:
- demonstrated the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues and also to demonstrate awareness of ethical aspects of research and development work
- demonstrated insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and
- demonstrated the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning.

OUTCOMES FOR MASTER BY RESEARCH IN CHEMISTRY
After having completed the programme the student shall be able to:
- describe the research front within the selected domain of research
- explain, compare and evaluate the possibilities and limitations of different theoretical or experimental methods
- analyse and evaluate a scientific issue
- independently plan, document, carry out and communicate the results of an extensive scientific work
- evaluate chemical processes and/or their products based on financial as well as environmental aspects
- demonstrate an in-depth knowledge and understanding within a selected current domain of research, for example:
+ Analytical Chemistry, focusing on the development of chemical methods of analysis or tools to interpret obtained data, applied in for example soil chemistry or bioanalytical chemistry
+ Physical Chemistry, focusing on interaction and aggregation in aqueous solution of individual molecules and larger aggregates
+ Organic Chemistry, focusing on developing and performing chemical reactions

and chemical analysis techniques

Content

Chemistry BA/MA, 30 credits
Chemistry MA, Scientific Writing and Presentation Techniques, 7.5 credits
Chemistry MA, Problem Formulation and Thesis Planning, 7.5 credits
Chemistry MA, Development of Theory and Experiment, 15 credits
Chemistry MA Scientific Project I, 15 credits
Chemistry MA, Scientific Project II, 15 credits
Chemistry MA, Thesis, 30 credits

Entry requirements

English course 6/English course B from Swedish Upper Secondary School (Gymnasium) or the equivalent.

Bachelor of Science, Bachelor of Science in Engineering (at least 180 credits/180 ECTS) in relevant subject, for example Chemistry, Medicine, Chemical Engineering or equivalent.

Eligibility for available research project is assessed on the basis of the applicant's bachelor's degree project/thesis, a letter of motivation, and, where appropriate, through other documented experience relevant to the subject.

Description of programme

The degree programme runs full-time for two years and is carried out for the most part in the form of research work in a research group.

Selection rules and procedures

Alternative selection, see heading "Other information".

Programme with restricted admissions

Special prerequisites for courses are given in the respective course specifications.

Teaching and examination

Teaching is full-time in the form of research work in a research group.
The language of instruction is English or Swedish.

The teaching and examination procedures are stated in the syllabus of each course.

Title of qualification

Degree of Master of Arts/Science (120 credits)

Masterexamen med huvudområdet kemi, translated into Master of Science (120 credits) with a major in Chemistry.

Other information

During the programme course names, contents, credit units and schedules may change.

CRITERIA FOR ALTERNATIVE SELECTION
- The applicant’s qualifications in relation to the chosen subject and the competence demands for the project
- Letter of motivation
- Scientific quality of Bachelor's thesis, or other documented scientific work relevant to the planned field of research
- The applicant’s analytical ability and English writing skills