Programme-specific Section of the Curriculum for the MSc Programme in

Chemistry with a minor subject

at the Faculty of Science, University of Copenhagen

September 2013 (Rev. 2024)

Contents

1 Title, affiliation and language

A shared section that applies to all BSc, part-time MSc and MSc Programmes at the Faculty of Science is linked to this programme-specific curriculum.

1.1 Title

The MSc Programme in Chemistry with a minor subject leads to a Master of Science (MSc) in Chemistry and minor in [the minor subject] with the Danish title: *Cand.scient. (candidatus/candidata scientiarum) i kemi med sidefag i [the minor subject]*.

It will appear from the diploma that the study programme has been completed as an MSc in two subjects and, provided that the requirements pertaining to the Upper Secondary School course packages (*gymnasiefagpakkerne*) have been met, that academic qualifications (*faglig kompetence*) for teaching at the Danish Upper Secondary School in the subjects have been achieved.

1.2 Affiliation

The programme is affiliated with the Study Board of Physics, Chemistry and Nanoscience, and the students can both elect, and be elected, to this study board.

1.3 Corps of external examiners

The following corps of external examiners is used for the central parts of the MSc Programme:

- Corps of External Examiners for Chemistry (*kemi*).

1.4 Language

The language of this MSc Programme is English.

2 Academic profile

2.1 Purpose

The objective of the programme is to provide the graduates with an in-depth knowledge within the methods and scientific basis of chemical research. The education is based on the competences the students have acquired during the MSc study programme. On completion of the programme, students will be able to perform research at advanced levels and analyse and solve questions and problems within the broad field of chemistry. A master's degree in chemistry equips the graduates with the necessary skills for participating in research groups or for the independent leadership and management of complex work and development situations within the field. The master's programme in Chemistry combines formal coursework with independent research guided by an experienced researcher.

2.2 General programme profile

The master's programme in chemistry is a research-based education. The master's programme in chemistry with a minor subject has an obligatory course in didactic. The graduate can chose between various partly elective courses covering most aspects of modern chemistry, such as organic chemistry, inorganic chemistry, computational chemistry and physical chemistry. Thus it is possible to create an individual academic profile.

Chemistry is the key subject area of the programme.

2.3 General structure of the programme

The MSc Programme is set at 120 or 150 ECTS depending on whether the minor subject is within the field of sciences or not.

Exercise and Sport Sciences is in this regard considered as being outside the field of science.

The MSc Programme in Chemistry with a minor subject consists of the following elements:

- Basic study program, 120 ECTS including the thesis.
- Extension of the minor subject, 30 ECTS, if the minor subject is outside the field of science.

There are no defined specialisations in this MSc Programme.

2.4 Career opportunities

The MSc Programme in Chemistry with a minor subject qualifies students to become professionals within business functions and/or areas such as:

- Upper Secondary School
- A PhD programme
- The private sector such as chemical or pharmaceutical companies.
- High-tech companies.
- Consulting companies.
- The public sector.
- Universities.
- Sector Research Institute.
- Prerequisites for further studies, including a PhD program.

3 Description of competence profiles

Students following the MSc Programme acquire the knowledge, skills and competences listed below. Students will also acquire other qualifications through elective subject elements and other study activities.

3.1 Competence profile

Graduates holding an MSc in Chemistry with a minor subject have acquired the following:

Knowledge about:

- Methods within selected areas and through independent work
- In-depth knowledge of an area of specialisation at an international level by conducting independent research and working under supervision.
- Learning theory and teaching theory relevant to science teaching in high school.

Skills in/to:

- Develop and implement a goal description for educational planning and implementation.
- Organise learning in informal environments in combination with learning in formal settings as well as analyse and resolve students' comprehension problems (alternative conceptions).
- Process and analyse digital data.
- Read and understand original academic literature in the field of chemistry.
- Carry out digital scientific information searches.
- Use the subject's most important databases.
- Explain chemistry work, both orally and in writing.

Competences in/to:

- Designing, implementing, evaluating and reflecting on her/his own (and others') teaching of science in secondary education from selected theoretical considerations and arguments.
- Formulating, structuring and managing a research project involving the development and use of chemical methods.
- Managing complex work and development situations.
- Seeking out and summarising the available knowledge in a field of chemistry.
- Assessing chemical methods, and their application and limitations.
- Assessing the sustainability of chemicals, their synthesis and reactions
- Being critical and acting insightful in relation to digital chemical data
- Discussing chemistry's methods, theory and results, both in general and on a scientific level.
- Discussing the application of chemical results in an industrial, social and ethical context in an academic manner.
- Taking independent responsibility for own academic development and specialization.

4 Admission requirements

The admission requirements for the MSc Programme in Biology with a minor subject is the same as the admission requirements listed in paragraph 4 in "Programme-specific Section of the Curriculum for the MSc Programme in Chemistry" supplemented with the following:

- At least 105 ECTS from the Upper Secondary School course package (*gymnasiefagpakken*) are included in the BSc programme.
- At least 45 ECTS from the minor subject is included in the BSc programme.
  - If the minor subject is *within* the field of sciences (with the exception of Exercise and Sport Sciences) the 45 ECTS must be contained in the minor subject Upper Secondary School course package (*den reducerede gymnasiefagpakke*).

5 Prioritisation of applicants

With a Bachelor's degree in Chemistry from University of Copenhagen the student is granted reserved access and guaranteed a place on the MSc Programme in Chemistry with a minor subject if the student applies in time to begin the MSc Programme within three years of the completion of the Bachelor's degree.

If the number of qualified applicants to the programme exceeds the number of places available the applicants will be prioritesed according to paragraph 5 in "Programme-specific Section of the Curriculum for the MSc Programme in Chemistry".

6 Structure of the programme

The compulsory subject elements, restricted elective subject elements and the thesis constitute the central parts of the programme (Section 30 of the Ministerial Order on Bachelor and Master's Programmes (Candidatus) at Universities).

6.1 Programme components

The programme is set at 120/150 ECTS and consists of the following:

- Compulsory subject elements, 15 ECTS.
- Restricted elective subject elements, 30 ECTS
- The minor subject
  - 45 ECTS (minor subject within the field of science).

- 75 ECTS (minor subject outside the field of science).
- Thesis, 30 ECTS

6.1.1 Compulsory subject elements within the major subject

All of the following subject elements are to be covered (15 ECTS):			
Course Code	**Course Title**	**Block**	**ECTS**
NKEA60002U	Kemiske undervisningsforsøg	Block 1	7.5 ECTS
NNDK22001U	Videregående fagdidaktik i naturvidenskabelige fag(DidNatV)	Block 2	7.5 ECTS

6.1.2 Restricted elective subjects within the major subject

30 ECTS of the following subject elements are to be covered:			
Course Code	**Course Title**	**Block**	**ECTS**
NKEK12008U	Structural Tools in Nanoscience	Block 1	7.5 ECTS
NKEA09010U	Scientific Writing, Planning and Presentation	Block 1	7.5 ECTS
NKEK11002U	Atmospheric Environmental Chemistry	Block 1	7.5 ECTS
NKEK15003U	Methods and Modelling in Inorganic Chemistry	Block 1+2	15 ECTS
NKEK13007U	Reactions and Synthesis in Medicinal Chemistry (KemiMed)	Block 1+2	15 ECTS
NKEA07016U	Computational Chemistry	Block 1+2	15 ECTS
NKEA09012U	Air Pollution and Health	Block 2	7.5 ECTS
NKEK22005U	Heterocyclic Chemistry	Block 3	7.5 ECTS
NKEK22001U	Advanced Vibrational Spectroscopy	Block 3	7.5 ECTS
NPLB14027U	Analytical Chemistry	Block 3	7.5 ECTS
NKEK15004U	Descriptive Inorganic Chemistry	Block 3+4	15 ECTS
NKEK13006U	Organic Chemistry	Block 3+4	15 ECTS
NKEK22000U	Advanced Fluorescence Spectroscopy and Microscopy	Block 4	7.5 ECTS
	Project in Practice	Block 1-5	15 ECTS

6.1.2 Restricted elective subjects within the minor subject

45 ECTS are to be covered as subject elements from the minor subject if the minor subject is within the field of science.

75 ECTS are to be covered as subject elements from the minor subject if the minor subject is outside the field of science.

If the student lacks less than 45 or 75 ECTS of the minor subject when the MSc Programme begins the difference must be covered as elective subject elements.

6.1.3 Elective subject elements

The elective subjects are generally covered by the subject elements which the student follows on the minor subject.

- It is, however, possible to release additional elective subjects if the academic minimum requirements for the minor subjects have been met – this will, e.g., be the case if one or both of the following two conditions are present:
  - A subject elements forms part of both the major and minor Upper Secondary School course packages (*gymnasiefagpakker*). The subject element should only be passed once, and the student has full freedom of choice in terms of the remaining ECTS.

    - If less than 45 or 75 ECTS within the minor subject are missing when entering the MSc Programme.
- BSc subject elements corresponding to 15 ECTS may be included in the MSc Programme as elective subjects elements.
- Projects. See 6.1.4 Projects.

6.1.4 Projects

Projects outside the course scope, projects in practice and thesis preparation projects may not exceed 45 ECTS of the programme.

- Projects outside the course scope may be included in the elective section of the programme by up to 15 ECTS. The regulations are described in Appendix 5 to the shared section of the curriculum.
- Projects in practice may be included in the elective or restricted elective section of the programme with 15 ECTS. Project in practice may not exceed 15 ECTS in total on the restricted elective and elective section of the programme. Project in practice may be written as a combination of the restricted elective and elective section of the programme. The regulations are described in Appendix 4 to the shared section of the curriculum.
- Thesis preparation projects may be included in the elective section of the programme with up to 15 ECTS. The regulations are described in Appendix 6 to the shared section of the curriculum.

6.1.5 Thesis

The MSc Programme in Chemistry with a minor subject includes a thesis corresponding to 30 ECTS, as described in Appendix 2 to the shared curriculum. Topic of the thesis must be within the academic scope of the programme.

6.1.6 Academic mobility

The academic mobility is generally covered by the subject elements which the student follows on the minor subject.

The student has the possibility to arrange academic mobility during the programme according to rules and regulations regarding pre-approvals and credit.

7 Exemptions

In exceptional circumstances, the study board may grant exemptions from the rules in the curriculum specified solely by the Faculty of Science.

8 Commencement etc.

8.1 Validity

This subject specific section of the curriculum applies to all students enrolled in the programme – see however Appendix 2.

8.2 Transfer

Students enrolled on previous curricula may be transferred to the new one as per the applicable transfer regulations or according to an individual credit transfer by the study board.

8.3 Amendments

The curriculum may be amended once a year so that any changes come into effect at the beginning of the academic year. Amendments must be proposed by the study board and approved by the Dean.

Notification about amendments that tighten the admission requirements for the programme will be published online at www.science.ku.dk one year before they come into effect.

If amendments are made to this curriculum, an interim arrangement may be added if necessary to allow students to complete their MSc Programme according to the amended curriculum.

Appendix 1 The recommended academic progression

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Table for students admitted to the programme in September (summer):

Table – MSc Programme in Chemistry with a minor subject within SCIENCE

<table>
<tr><th></th><th>Block 1</th><th>Block 2</th><th>Block 3</th><th>Block 4</th></tr>
<tr><td rowspan="2">1st year</td><td>Minor subject</td><td>Minor subject</td><td>Minor subject</td><td>Minor subject</td></tr>
<tr><td>Minor subject</td><td>Minor subject</td><td>Restricted elective</td><td>Restricted elective</td></tr>
<tr><td rowspan="2">2nd year</td><td>Kemiske undervisningsforsøg</td><td>Videregående fag-didaktik i natur-videnskabelige fag</td><td colspan="2" rowspan="2">Thesis</td></tr>
<tr><td>Restricted elective</td><td>Restricted elective</td></tr>
</table>

Table – MSc Programme in Chemistry with a minor subject outside SCIENCE

<table>
<tr><th></th><th>Block 1</th><th>Block 2</th><th>Block 3</th><th>Block 4</th></tr>
<tr><td rowspan="2">1st year</td><td>Minor subject</td><td>Minor subject</td><td>Minor subject</td><td>Minor subject</td></tr>
<tr><td>Minor subject</td><td>Minor subject</td><td>Minor subject</td><td>Minor subject</td></tr>
<tr><td rowspan="2">2nd year</td><td>Kemiske undervisningsforsøg</td><td>Videregående fag-didaktik i natur-videnskabelige fag</td><td>Minor subject</td><td>Minor subject</td></tr>
<tr><td>Restricted elective</td><td>Restricted elective</td><td>Restricted elective</td><td>Restricted elective</td></tr>
<tr><td>3rd year</td><td colspan="3">Thesis</td></tr>
</table>

Table for students admitted to the programme in February (winter):

Table – MSc Programme in Chemistry with a minor subject within SCIENCE*

	Block 3	Block 4	Block 1	Block 2
1st year	Minor subject	Minor subject	Minor subject	Minor subject
	Minor subject	Minor subject	Kemiske undervisningsforsøg	Videregående fag-didaktik i natur-videnskabelige fag
2nd year	Restricted elective	Restricted elective	Thesis	
	Restricted elective	Restricted elective		

*This table is only relevant for students who begin the MSc Programme in February (block 3)

Table – MSc Programme in Chemistry with a minor subject outside SCIENCE*

	Block 3	Block 4	Block 1	Block 2
1st year	Minor subject	Minor subject	Minor subject	Minor subject
	Minor subject	Minor subject	Minor subject	Minor subject
2nd year	Minor subject	Minor subject	Kemiske undervisningsforsøg	Videregående fag-didaktik i natur-videnskabelige fag
	Restricted elective	Restricted elective	Restricted elective	Restricted elective
3rd year	Thesis			

*This table is only relevant for students who begin the MSc Programme in February (block 3)

Appendix 2 Interim arrangements

The Shared Section of the BSc and MSc Curricula for Study Programmes applies to all students.

1 General changes for students admitted in the academic year 2022/23

Students admitted to the MSc Programme in the academic year 2022/23 must finish the programme as listed in the curriculum above with the following exceptions.

Table – MSc Programme in Chemistry with a minor subject within SCIENCE

<table>
<tr><th></th><th>Block 1</th><th>Block 2</th><th>Block 3</th><th>Block 4</th></tr>
<tr><td rowspan="2">1st year</td><td>Minor subject</td><td>Minor subject</td><td>Minor subject</td><td>Minor subject</td></tr>
<tr><td>Minor subject</td><td>Minor subject</td><td>Elective</td><td>Elective</td></tr>
<tr><td rowspan="2">2nd year</td><td>Elective</td><td>Videregående fag-didaktik i natur-videnskabelige fag</td><td colspan="2" rowspan="2">Thesis</td></tr>
<tr><td>Elective</td><td>Elective</td></tr>
</table>

Table – MSc Programme in Chemistry with a minor subject outside SCIENCE

<table>
<tr><th></th><th>Block 1</th><th>Block 2</th><th>Block 3</th><th>Block 4</th></tr>
<tr><td rowspan="2">1st year</td><td>Minor subject</td><td>Minor subject</td><td>Minor subject</td><td>Minor subject</td></tr>
<tr><td>Minor subject</td><td>Minor subject</td><td>Minor subject</td><td>Minor subject</td></tr>
<tr><td rowspan="2">2nd year</td><td>Elective</td><td>Videregående fag-didaktik i natur-videnskabelige fag</td><td>Minor subject</td><td>Minor subject</td></tr>
<tr><td>Elective</td><td>Elective</td><td>Elective</td><td>Elective</td></tr>
<tr><td>3rd year</td><td colspan="3">Thesis</td></tr>
</table>

Table – MSc Programme in Chemistry with a minor subject within SCIENCE*

<table>
<tr><th></th><th>Block 3</th><th>Block 4</th><th>Block 1</th><th>Block 2</th></tr>
<tr><td rowspan="2">1st year</td><td>Minor subject</td><td>Minor subject</td><td>Minor subject</td><td>Minor subject</td></tr>
<tr><td>Minor subject</td><td>Minor subject</td><td>Elective</td><td>Videregående fag-didaktik i natur-videnskabelige fag</td></tr>
<tr><td rowspan="2">2nd year</td><td>Elective</td><td>Elective</td><td colspan="2" rowspan="2">Thesis</td></tr>
<tr><td>Elective</td><td>Elective</td></tr>
</table>

*This table is only relevant for students who begin the MSc Programme in February (block 3)

Table – MSc Programme in Chemistry with a minor subject outside SCIENCE*

	Block 3	Block 4	Block 1	Block 2
1st year	Minor subject	Minor subject	Minor subject	Minor subject
	Minor subject	Minor subject	Minor subject	Minor subject
2nd year	Minor subject	Minor subject	Elective	Videregående fag-didaktik i natur-videnskabelige fag
	Elective	Elective	Elective	Elective
3rd year	Thesis			

*This table is only relevant for students who begin the MSc Programme in February (block 3)

2 General changes for students admitted in the academic year 2021/22

Students admitted to the MSc Programme in the academic year 2021/22 must finish the programme as listed in the curriculum above with the following exceptions.

Table – MSc Programme in Chemistry with a minor subject within SCIENCE

	Block 1	Block 2	Block 3	Block 4
1st year	Minor subject	Minor subject	Minor subject	Minor subject
	Minor subject	Minor subject	Restricted elective	Restricted elective
2nd year	Restricted elective	*Naturfagsdidaktik for Biologi*	Thesis	
	Restricted elective	Restricted elective		

Subject elements in italics have been discontinued. See discontinued courses below.

Table – MSc Programme in Chemistry with a minor subject outside SCIENCE

	Block 1	Block 2	Block 3	Block 4
1st year	Minor subject	Minor subject	Minor subject	Minor subject
	Minor subject	Minor subject	Minor subject	Minor subject
2nd year	Restricted elective	*Naturfagsdidaktik for Biologi*	Minor subject	Minor subject
	Restricted elective	Restricted elective	Restricted elective	Restricted elective
3rd year	Thesis			

Subject elements in italics have been discontinued. See discontinued courses below.

Table – MSc Programme in Chemistry with a minor subject within SCIENCE*

	Block 3	Block 4	Block 1	Block 2
1st year	Minor subject	Minor subject	Minor subject	Minor subject
	Minor subject	Minor subject	Restricted elective	*Naturfagsdidaktik for Biologi*
2nd year	Restricted elective	Restricted elective	Thesis	
	Restricted elective	Restricted elective		

*This table is only relevant for students who begin the MSc Programme in February (block 3)
Subject elements in italics have been discontinued. See discontinued courses below.

Table – MSc Programme in Chemistry with a minor subject outside SCIENCE*

	Block 3	Block 4	Block 1	Block 2
1st year	Minor subject	Minor subject	Minor subject	Minor subject
	Minor subject	Minor subject	Minor subject	Minor subject
2nd year	Minor subject	Minor subject	Restricted elective	*Naturfagsdidaktik for Biologi*
	Restricted elective	Restricted elective	Restricted elective	Restricted elective
3rd year	Thesis			

*This table is only relevant for students who begin the MSc Programme in February (block 3)
Subject elements in italics have been discontinued. See discontinued courses below.

Restricted elective subject elements within the major subject

37.5 ECTS are to be covered as subject elements from the following lists:			
NKEA09010U	Scientific Writing, Planning and Presentation	Block 1	7.5 ECTS
NKEK13007U	Reaction and Synthesis in Medicinal Chemistry	Block 1+2	15 ECTS
NKEA07016U	Computational Chemistry	Block 1+2	15 ECTS
NKEK11002U	Atmospheric Environmental Chemistry	Block 2	7.5 ECTS
NKEA09012U	Air Pollution and Health	Block 2	7.5 ECTS
NKEK15004U	Descriptive Inorganic Chemistry	Block 3+4	15 ECTS
NKEK13006U	Organic Chemistry	Block 3+4	15 ECTS
NKEK13018U	Advanced Photochemistry	Discontinued*	7.5 ECTS
NKEK21001U	Advanced Molecular Spectroscopy	Discontinued*	15 ECTS

*See discontinued courses below.

3 General changes for students admitted in the academic year 2020/21

Students admitted to the MSc Programme in the academic year 2020/21 must finish the programme as listed in the curriculum above with the following exceptions.

Table – MSc Programme in Chemistry with a minor subject within SCIENCE

	Block 1	Block 2	Block 3	Block 4
1st year	Minor subject	Minor subject	Minor subject	Minor subject
	Minor subject	Minor subject	Restricted elective	Restricted elective

	Block 1	Block 2	Block 3	Block 4
2nd year	Restricted elective	*Naturfagsdidaktik for Biologi*	Thesis	
	Restricted elective	Restricted elective		

Subject elements in italics have been discontinued. See discontinued courses below.

Table – MSc Programme in Chemistry with a minor subject outside SCIENCE

	Block 1	Block 2	Block 3	Block 4
1st year	Minor subject	Minor subject	Minor subject	Minor subject
	Minor subject	Minor subject	Minor subject	Minor subject
2nd year	Restricted elective	*Naturfagsdidaktik for Biologi*	Minor subject	Minor subject
	Restricted elective	Restricted elective	Restricted elective	Restricted elective
3rd year	Thesis			

Subject elements in italics have been discontinued. See discontinued courses below.

Table – MSc Programme in Chemistry with a minor subject within SCIENCE*

	Block 3	Block 4	Block 1	Block 2
1st year	Minor subject	Minor subject	Minor subject	Minor subject
	Minor subject	Minor subject	Restricted elective	*Naturfagsdidaktik for Biologi*
2nd year	Restricted elective	Restricted elective	Thesis	
	Restricted elective	Restricted elective		

*This table is only relevant for students who begin the MSc Programme in February (block 3)
Subject elements in italics have been discontinued. See discontinued courses below.

Table – MSc Programme in Chemistry with a minor subject outside SCIENCE*

	Block 3	Block 4	Block 1	Block 2
1st year	Minor subject	Minor subject	Minor subject	Minor subject
	Minor subject	Minor subject	Minor subject	Minor subject
2nd year	Minor subject	Minor subject	Restricted elective	*Naturfagsdidaktik for Biologi*
	Restricted elective	Restricted elective	Restricted elective	Restricted elective
3rd year	Thesis			

*This table is only relevant for students who begin the MSc Programme in February (block 3)
Subject elements in italics have been discontinued. See discontinued courses below.

Restricted elective subject elements within the major subject

37.5 ECTS are to be covered as subject elements from the following lists:			
NKEA09010U	Scientific Writing, Planning and Presentation	Block 1	7.5 ECTS
NKEK13007U	Reaction and Synthesis in Medicinal Chemistry	Block 1+2	15 ECTS
NKEA07016U	Computational Chemistry	Block 1+2	15 ECTS
NKEK11002U	Atmospheric Environmental Chemistry	Block 2	7.5 ECTS
NKEA09012U	Air Pollution and Health	Block 2	7.5 ECTS
NKEK15004U	Descriptive Inorganic Chemistry	Block 3+4	15 ECTS
NKEK13006U	Organic Chemistry	Block 3+4	15 ECTS
NKEK10004U	Advanced Physical Chemistry	Discontinued*	15 ECTS
NKEK13018U	Advanced Photochemistry	Discontinued*	7.5 ECTS
NKEK21001U	Advanced Molecular Spectroscopy	Discontinued*	15 ECTS

*See discontinued courses below.

4 Discontinued courses

Course Code	Course Title	ECTS	Interim arrangement
NKEK21001U	Advanced Molecular Spectroscopy	15	The course was a restricted elective course in the academic year 2021/22 and 2020/21. Offered for the last time: 2021/22 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2022/23
NKEK13018U	Advanced Photochemistry	7.5	The course was a restricted elective course in the academic year 2021/22 and 2020/21. Offered for the last time: 2021/22 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2022/23
NKEK10004U	Advanced Physical Chemistry	15	The course was a restricted elective course in the academic year 2020/21. Offered for the last time: 2020/21 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22. The course is identical to Advanced Molecular Spectroscopy (NKEK21001U), 15 ECTS
NNDK15000U	Naturfagsdidaktik for Biologi	7.5	The course was compulsory in the academic year 2021/22 and 2020/21. Offered for the last time: 2020/21 The course is identical to Videregående fagdidaktik i naturvidenskabelige fag (NNDK22001U), 7.5 ECTS

Appendix 3 Description of objectives for the thesis

After completing the thesis, the student should have:

Knowledge of:

- Appropriate methods within selected areas in chemistry of active research.
- Selected areas in chemistry at an international level by conducting independent research and working under supervision.

Skills in/to:

- Read and understand original academic literature in the field of chemistry.
- Explain chemistry work, both orally and in writing.
- Identify, define and formulate the scientific issue/impact of a research project.
- Define and develop testable hypotheses.
- Process and analyse data.

Competences in/to:

- Formulating, structuring and managing a research project involving the development and use of chemical methods.
- Managing complex work and development situations.
- Seeking out and summarising the available knowledge in selected areas of chemistry.
- Assessing chemical methods, and their application and limitations.
- Discussing chemical methods, theory and results, both in general and on a scientific level.
- Discussing the application of chemical results in an industrial, social and ethical context in an academic manner.
- Taking independent responsibility for own academic development and specialisation.