

# Recommended plan of study

## About the course

subject	Chemical Biology
Recommended Study Plan	<p>Read about the Master Programme and find the Study Regulations at <a href="https://ruc.dk">ruc.dk</a></p> <p>If you have any questions regarding study planning, available courses etc. please contact the study administration at <a href="mailto:inm-exams@ruc.dk">inm-exams@ruc.dk</a></p> <p><b>List of courses offered in the Autumn 2023</b></p> <p><b><u>Mandatory courses:</u></b></p> <ul style="list-style-type: none"><li>• Essential Organic Chemistry (10 ECTS)</li><li>• Applied Spectroscopy* (5 ECTS) students who passed the Bachelor Subject Course in Applied Spectroscopy – must take Inorganic Chemistry in the spring/2nd semester, and instead take an extra elective course during 1st semester. Find the recommended elective courses below.</li><li>• Experimental Biotechnology (5 ECTS)</li><li>• General Molecular and Medical Biology (5 ECTS)</li></ul> <p><b><u>Elective courses:</u></b></p> <p>The programme consists of mandatory study activities and elective courses worth 20 ECTS.</p> <ul style="list-style-type: none"><li>• It is mandatory to choose elective courses worth 10 ECTS within chemistry</li><li>• The student can choose elective courses worth 10 ECTS offered within the natural sciences.</li></ul> <p>The student have the opportunity, as part of the elective courses, to choose between three profiles, each consisting of four courses of 5 ECTS each. Please note that the offering of the specialisation courses is depending on the total number of course registrations.</p> <p>Read more about the framework for elective courses and the three profiles further down the page under 'The programmes structure' and 'Regarding elective courses and thematic profiles'.</p> <p><b><u>Profile: Protein Function and Properties</u></b></p> <ul style="list-style-type: none"><li>• Proteomics and Metabolomics (5 ECTS) (chem)</li></ul> <p>If you have passed the Bachelor Subject Module Applied Spectroscopy you need to take an extra elective in your 1st semester. In that case you are recommended to take the course Principles of Separation Techniques (Advanced Chemical Methods) as part of the theme Protein Function and Properties .</p> <p><b><u>Profile: Chemistry in Biological Systems</u></b></p> <ul style="list-style-type: none"><li>• Principles of Separation Techniques (Advanced Chemical Methods) (5 ECTS) (chem)</li></ul> <p>If you have passed the Bachelor Subject Module Applied Spectroscopy you need to take an extra elective in your 1st semester. In that case you are recommended to take the course Proteomics and Metabolomics as part of the theme Chemistry in Biological Systems.</p> <p><b><u>Profile: Medicinal Chemistry</u></b></p> <ul style="list-style-type: none"><li>• Pharmacology (5 ECTS) (bio)</li></ul> <p>If you have passed the Bachelor Subject Module Applied Spectroscopy you need to take an extra elective in your 1st semester. In that case you are recommended to take the course Advanced Chemical Methods as part of the theme Medicinal Chemistry .</p> <p><b><u>Other courses available:</u></b></p> <p>Please note that it is the students own responsibility to ensure that these elective courses don't collide with other courses and with courses from the tracks above.</p> <ul style="list-style-type: none"><li>• Genomics and Metabolism (5 ECTS) (bio)</li><li>• CANCELLED Nutrition Biology (Seminar Course in Molecular Health Science) (5 ECTS) (bio)</li></ul>

## List of courses offered in the Spring 2024

### Mandatory courses:

- Advanced Eukaryotic Cell Biology 1 – Inside the Cell (5 ECTS)
- Good Practices in Experimental Sciences (5 ECTS)
- Applied Data Science and Data Visualisation (5 ECTS)

### Elective courses:

The programme consists of mandatory study activities and elective courses worth 20 ECTS.

- It is mandatory to choose elective courses worth 10 ECTS within chemistry
- The student can choose elective courses worth 10 ECTS offered within the natural sciences.

The student have the opportunity, as part of the elective courses, to choose between three profiles, each consisting of four courses of 5 ECTS each. Please note that the offering of the specialisation courses is depending on the total number of course registrations.

Read more about the framework for elective courses and the three profiles further down the page under 'The programmes structure' and 'Regarding elective courses and thematic profiles'.

#### Profile: Protein Function and Properties

- Biophysical Chemistry (5 ECTS) (chem)
- Protein Biochemistry (5 ECTS) (bio)
- Bioinformatics (5 ECTS) (bio)

#### Profile: Chemistry in Biological Systems

- Bioorganic Chemistry - from Metabolites to Medicines (5 ECTS) (chem)
- Biophysical Chemistry (5 ECTS) (chem)
- Preparation and Testing of Biopharmaceuticals (5 ECTS) (chem)

#### Profile: Medical Chemistry

- Preparation and Testing of Biopharmaceuticals (5 ECTS) (chem)
- Bioorganic Chemistry - from Metabolites to Medicines (5 ECTS) (chem)
- Host-Pathogen Interactions (5 ECTS) (bio)

#### Other courses available:

Please note that it is the students own responsibility to ensure that these elective courses don't collide with other courses and with courses from the tracks above.

- Inorganic Chemistry \*for students who have passed Applied Spectroscopy during their Bachelor
- Project Management
- Experimental Host-Pathogen Interactions (bio)
- Experimental Cell Biology (bio)
- Advanced Eukaryotic Cell Biology 2 - Cellular Mechanisms in Development and Cancer (bio)

Course days:

Hold: 1

Regarding elective courses and thematic profiles (click to read more)

time 01-09-2023 00:00 til  
01-09-2023 00:00

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**Regarding elective courses**

The programme consists of mandatory study activities and elective courses worth 20 ECTS.

It is mandatory to choose elective courses worth 10 ECTS within chemistry. The student can choose elective courses worth 10 ECTS offered within the natural sciences.

The student has the opportunity, as part of the elective courses, to choose between three profiles, each consisting of four courses of 5 ECTS each. Please note that the offering of the specialisation courses is depending on the total number of course registrations.

**Protein Function and Properties**

- Proteomics and Metabolomics (5 ECTS) (chem)
- Biophysical Chemistry (5 ECTS) (chem)
- Protein Biochemistry (5 ECTS) (bio)
- Bioinformatics (5 ECTS) (bio)

**Chemistry in Biological Systems**

- Bioorganic Chemistry - from Metabolites to Medicines (5 ECTS) (chem)
- Biophysical Chemistry (5 ECTS) (chem)
- Preparation and Testing of Biopharmaceuticals (5 ECTS) (chem)
- Advanced Chemical Methods (5 ECTS) (chem): Courses can vary from semester to semester and will be announced on study.ruc.dk prior to semester start.

**Medicinal Chemistry**

- Preparation and Testing of Biopharmaceuticals (5 ECTS) (chem)
- Bioorganic Chemistry - from Metabolites to Medicines (5 ECTS) (chem)
- Pharmacology (5 ECTS) (bio)
- Host-Pathogen Interaction (5 ECTS) (bio)

## The programme's structure (click to read more)

time 01-09-2023 00:00 til  
01-09-2023 00:00

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**The programme's structure****First semester****Objective**

The main objective of this semester is to lift the students to a higher level of mastery in selected areas of chemistry and molecular biology. There is also room to start the profile following the suggested options and for a fully elective course.

**Study activities****Mandatory study activities**

- Essential Organic Chemistry (10 ECTS)
- Applied Spectroscopy (5 ECTS)\*
- Experimental Biotechnology (5 ECTS)
- General Molecular and Medical Biology (5 ECTS)

\*students who passed the Bachelor Subject Course in Applied Spectroscopy - please look for the transitional rules.

**Elective courses**

The student choose one course among the following:

- Proteomics and Metabolomics (5 ECTS)
- Advanced Chemical Methods (5 ECTS): Courses can vary from semester to semester and will be announced on study.ruc.dk prior to semester start.
- Genomics and Metabolism (5 ECTS)

- Pharmacology (5 ECTS)

Each semester, the board of studies approves a number of elective courses that the student can choose from. Course descriptions are found on [study.ruc.dk](http://study.ruc.dk). Please note that the offering of the specialisation courses is depending on the total number of course registrations.

## Second semester

### Objective

The main objective of this semester is to let the students continue their profile and prepare them for more independent experimental work.

### Study activities

Mandatory study activities (15 ECTS)

- Advanced Eukaryotic Cell Biology I - Inside the Cell (5 ECTS)
- Good Practices in Experimental Sciences (5 ECTS)
- Applied Data Science and Visualisation (5 ECTS)

Elective courses (a total of 15 ECTS)

- Biophysical Chemistry (5 ECTS)
- Protein Biochemistry (5 ECTS)
- Bioinformatics (5 ECTS)
- Bioorganic Chemistry - from Metabolites to Medicines (5 ECTS)
- Preparation and Testing of Biopharmaceuticals (5 ECTS)
- Host-pathogen Interactions (5 ECTS)

Each semester, the board of studies approves a number of elective courses that the student can choose from. Course descriptions are found on [study.ruc.dk](http://study.ruc.dk). Please note that the offering of the specialisation courses is depending on the total number of course registrations.

## Third and fourth semester

### Objective

The objective of this semester is to let the students work independently with projects of their own choice. If they choose a project-oriented internship or a master thesis in another environment they will also get experience with working in another environment.

The student can choose to participate in a project-oriented internship or write a project in the 3 semester. In this case the master thesis accounts for 45 ECTS and is initiated in the 3 semester alongside either of the above. Otherwise the master thesis accounts for 60 ECTS and is placed in the 3 and 4 semester.

### Study activities

On the 3 and 4 semester the student chooses between:

- Project-oriented Internship or Project (15 ECTS) and Master Thesis (45 ECTS) or
- Master Thesis (60 ECTS).

## Transitional rules (click to read more)

time 01-09-2023 00:00 til  
01-09-2023 00:00

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Content

### Transitional rules

Students enrolled before 1st of September 2023 must complete the programme according to the 2022 study regulation with the following amendments:

- Students who have passed Bioorganic Chemistry cannot take the course Bioorganic Chemistry - from Metabolites to Medicines.

- Students who have passed Solid Phase Synthesis of Peptides and Peptidomimetics cannot take the course Preparation and Testing of Biopharmaceuticals.
- Students admitted to Track 1 must pass General Molecular and Medical Biology (5 ECTS).
- Students admitted to Track 2 are advised to have relevant prerequisites within medical biology if the courses Pharmacology (5 ECTS) and/or Host-pathogen Interactions (5 ECTS) are chosen.

**Applies to all students**

. Students who have passed the subject modul course Applied Spectroscopy (5 ECTS) during their Bachelor programme are not allowed to take the master course Applied Spectroscopy (5 ECTS).

- The students must take Inorganic Chemistry (5 ECTS) instead of Applied Spectroscopy (5 ECTS).