

Recommended plan of study

About the course

subject	Chemical Biology
Recommended Study Plan	Read about the Master Programme and find the Study Regulations at ruc.dk If you have any questions regarding study planning, available courses etc. please contact the study administration at inm-studieadministration@ruc.dk List of courses offered in the Autumn 2022 <u>Mandatory courses:</u> • Essential Organic Chemistry • Applied Spectroscopy* 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. • Experimental Biotechnology • General Molecular and Medical Biology (Track 1) <u>Elective courses:</u> You can choose freely between the offered elective courses. You can also choose to combine the elective courses into one of three profiles (note that the offering of the courses is depending on enough course registrations). Read more about the framework for elective courses and the three profiles further down the page under 'The programmes structure'. <u>Profile: Protein Function and Properties</u> • Proteomics and Metabolomics 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 . <u>Profile: Chemistry in Biological Systems</u> • Principles of Separation Techniques (Advanced Chemical Methods) 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. <u>Profile: Omics</u> • Proteomics and Metabolomics • Genomics and Metabolism *Please note that students who attend the course General Molecular and Medical Biology and have not passed the Bachelor Subject Module Applied Spectroscopy you must choose between Proteomics and Metabolomics and Genomics and Metabolism. <u>Other courses available:</u> 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. • Pharmacology • Nutrition Biology (Seminar Course in Molecular Health Science) Regarding elective courses 1st semester: • Students on Track 1 who passed the Bachelor Subject Course in Applied Spectroscopy: 10 ECTS electives • Students on Track 1: 5 ECTS electives • Students on Track 2 who passed the Bachelor Subject Course in Applied Spectroscopy: 15 ECTS electives • Students on Track 2: 10 ECTS electives

List of courses offered in the Spring 2023

Mandatory courses:

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

Elective courses:

You can choose freely between the offered elective courses. You can also choose to combine the elective courses into one of three profiles (note that the offering of the courses is depending on enough course registrations).

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

Profile: Protein Function and Properties

- Biophysical Chemistry
- Protein Biochemistry
- Bioinformatics

Profile: Chemistry in Biological Systems

- Bioorganic Chemistry
- Biophysical Chemistry
- Solid Phase Synthesis of Peptides and Peptidomimetics

Profile: Omics

- Bioinformatics
- Bioorganic Chemistry

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
- Host-Pathogen Interactions
- Experimental Host-Pathogen Interactions
- Experimental Cell Biology
- Advanced Eukaryotic Cell Biology 2 - Cellular Mechanisms in Development and Cancer
- Project Management

Regarding elective courses 2nd semester:

- Students on Track 1 who passed the Bachelor Subject Course in Applied Spectroscopy: 10 ECTS electives
- Students on Track 1: 15 ECTS electives
- Students on Track 2 who passed the Bachelor Subject Course in Applied Spectroscopy: 10 ECTS electives
- Students on Track 2: 15 ECTS electives

Course days:

Hold: 1

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

time 01-09-2022 00:01 til
01-09-2022 00:01

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Regarding tracks

Chemical Biology has two tracks:

- Students who have a background in chemistry will be admitted to Track 1.
- Students who have a background in both chemistry and molecular biology will be admitted to Track 2.

Students admitted to Track 1 must, in addition to the mandatory study activities in the first semester, take the courses General Molecular and Medical Biology (5 ECTS) and Elective Course (5 ECTS). Students admitted to Track 2 must, in addition to the mandatory study activities in the first semester, take Elective Courses (10 ECTS).

Regarding elective courses

Students can choose freely between the offered elective courses. The students also 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 enough course registrations.

Protein Function and Properties

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

Chemistry in Biological Systems

- Bioorganic Chemistry (5 ECTS)
- Biophysical Chemistry (5 ECTS)
- Solid Phase Synthesis of Peptides and Peptidomimetics (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.

Omics

- Proteomics and Metabolomics (5 ECTS)
- Genomics and Metabolism (5 ECTS)
- Bioinformatics (5 ECTS)
- Bioorganic Chemistry (5 ECTS)

The programme's structure (click to read more)

time 01-09-2022 00:02 til
01-09-2022 00:02

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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) – Please note! Only for students on Track 1

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

Elective courses

Students on Track 1 must choose a 5 ECTS elective course and students on Track 2 must take 10 ECTS elective courses 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)

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.

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 (5 ECTS)
- Solid Phase Synthesis of Peptides and Peptidomimetics (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.

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 01-09-2022 00:03 til
01-09-2022 00:03

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Transitional rules

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).