Using chemistry to understand life at the molecular level and interact with it

In this specialisation, you’ll focus on complex molecular systems in a biological context. The first step is to understand how cells work: which processes are essential to the functioning of a cell? Which proteins are involved? And what is the relation between their structure and functioning? Next, you can start to modify the working of the cell, addressing challenging problems, such as wound healing and drug delivery. You’ll get a comprehensive theoretical basis in biochemistry and hands-on experience in a lab.

Why study this specialisation at Radboud University?

- At Radboud University, all (bio)chemistry and chemical biology research groups work closely together, allowing you to tackle a wide range of exciting problems during your internship.
- Radboud University offers a unique combination of top level organic and biomolecular chemistry research groups at the Institute for Molecules and Materials (IMM), the Radboud Institute for Molecular Life Science (RIMLS), and the Radboud Institute for Health Sciences (RIHS).
- You will work on projects that run ‘from molecule to man’, or in other words, from the fume cupboard to the patient.
- Teaching takes place in small groups and in a stimulating, personal setting.

change perspective

Radboud University
Programme outline (2 years, 120 EC)
The programme of this specialisation depends on the Master’s that you follow: Chemistry, Molecular Life Sciences or Science.

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Courses
Below you can find an overview of the compulsory courses and some examples of electives. Please have a look at the online prospectus (see ‘More information’) for more detailed information.

Compulsory courses
- Chemical Biology (3 EC)
- Organic Chemistry of Biomolecules (3 EC)
- Omics (3 EC)
- Systems Chemistry (3 EC)
- Instrumental Analysis in (Bio)Molecular Chemistry (3 EC)

Examples of specialisation electives
- Protein Dynamics and Networks (3 EC)
- Apoptosis (3 EC)
- Cellular Imaging in Four Dimensions (3 EC)
- Physical Organic Chemistry of the Cell (3 EC)

Research internship
During your internships, you will be responsible for your own experiments, under the supervision of one of our top researchers. A selection of research groups for this specialisation are:
- Physical Organic Chemistry (ru.nl/physicalorganicchemistry)
  > Prof. Wilhelm Huck
- Biomedical Chemistry (biomedicalchemistry.nl)
  > Prof. Ger Pruin, Dr Kim Bonger
- Synthetic Organic Chemistry (soc.science.ru.nl)
  > Dr Thomas Boltje, Dr Jasmin Mecinovic

More possibilities at the Institute for Molecules and Materials can be found at ru.nl/imm in research theme 2 ‘Chemistry and Spectroscopy of Complex Molecular Systems’. For your second internship you can also choose to work at another institute, university, or company. Many of our Master’s students take this opportunity to go abroad and work with a top research group anywhere in the world. For suggestions, you can always contact a lecturer or the student advisor (see ‘More information’).

Your advantages on the labour market
This Master’s specialisation is an excellent preparation for a career in research since we stimulate our Master’s students to develop a critical mind and a problem solving attitude. Some of them will become the next generation of top scientists and, in our experience, all of them will have a job within a couple of months after graduation. Almost half will become a PhD student at a university, while others will work at a research institute in the (bio)chemical industry or in one of our spin-off companies. A small portion chooses a job outside of the scientific world, for example as policymaker at a governmental organisation.

Admission requirements
You are required to have a Bachelor’s degree in Chemistry, Molecular Life Sciences, Science, or a closely related discipline. You must also have a sufficient proficiency in English. Students from a University of Applied Sciences (HBO) need to follow a minor or pre-Master’s. Other additional deficiency programmes are tailor-made. For details, please visit the website or contact the student advisor (see ‘More information’).

Application procedure
The programme starts in September. The application deadline is 1 April for students from non-EU/EEA countries and 1 May for students from within the EU/EEA. You apply for the Master’s programme in Chemistry, Molecular Life Science, or Science via www.studielink.nl. After admittance to the Master’s programme, you can enrol for the specialisation in Chemistry for Life.

More information
Prospectus: www.ru.nl/prospectus/sciencefaculty

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