

Masters` s degree program in Chemistry – 120 ECTS

The department of chemistry is a highly ranked research institute and cooperates closely with many excellent research groups both nationally and internationally. The Department hosts a Centre of Excellence (CoE) in Theoretical and Computational Chemistry and a national research centre in structural biology. The Department furthermore participates in a Centre for marine bioprospecting where our expertise in molecular analysis, biocatalyst research, synthetic chemistry, cellular chemistry and biotechnology are exploited. For your master's degree, you can choose a specialization and work in one of these research groups. You may choose practical chemistry with extensive laboratory work, or purely theoretical studies where mathematical models and computers are the main tools. Extensive knowledge of chemistry is becoming ever more important in disciplines like medicine and health, biology, environmental studies, biotechnology, geology, material science, nanotechnology and pharmacy, and as the study of molecules and their properties, chemistry remains centrally important in any multidisciplinary scientific field of research.

Professional prospects

A master's degree in chemistry gives opens doors to great opportunities and exciting careers many fields, both in Norway and abroad.

The research activity at the Department of Chemistry is extensive and of top international quality in many fields. Master's degree students work as fully integrated members of one of the many excellent research groups at the department. Thus, a master's degree in chemistry from the UiT The Arctic University of Norway is uniquely valuable in many ways, as the candidates are trained both practically and theoretically in fields with great development prospects and job opportunities now and for years to come. *Examples include: Materials chemistry, Synthetic medicinal chemistry, Drug discovery and design, Theoretical chemistry, Enzymes as nanotechnology tools, Integrated biomolecular systems studies, Bioinformatics, and Biotechnology.*

Job opportunities with a Master in Chemistry are many and diverse; many of them involve moving towards a future *sustainable "green economy"* for which there is a need for new solutions in many fields of human society. The field of chemistry is crucial in the development of new sources of renewable energy (e.g. biofuels, solar cell materials), new solutions for the treatment of waste and pollutants, and for example new materials and nanotechnological tools that transform the efficiencies and reduce the energy costs of industrial processes. A Master's in chemistry from Tromsø is also well suited for work in pharmaceutical industry or academia to develop new drugs aimed for example at combating the major diseases that threaten life and society in both the developing and the developed parts of the world (including the growing problems of cancer, antibiotic resistant bacterial diseases, and others).

Qualification awarded

Master of Science in Chemistry.

Admission requirements

Admission to the master's programme in chemistry requires a bachelor's degree in chemistry, or another degree following a programme of study of at least three years, or similar education approved in accordance with the Norwegian Universities Act section 3-4.

Application deadline

Applicants from Norway or Nordic countries:

Application deadline for Norwegian and Nordic applicants is April 15th for admission to the autumn semester and November 1st for admission to the spring semester.

Online application is via the [Søknadsweb](#), study code 4009.

Applicants from outside the Nordic countries (self-financing applicants):

Application deadline for applicants to self-financing studies is December 1st for admission to the autumn semester.

Online application. More information about [application procedures and requirements](#).

Programme description

The 2-year master's programme includes participation as a full member of one of the research groups, carrying out a research project with an independent scientific thesis, equalling 60 credits. Throughout the project, the master's student will work closely in teams with and supervised by PhD-students, post doctoral fellows and senior scientists (professors). In addition, the programme includes topics (courses) which expand upon the students' chosen major subject and other special curricula, equalling 60 credits.

The 5 research groups are:

[Inorganic- and materials chemistry group](#)

[Organic chemistry group](#)

[Theoretical chemistry group](#)

[Structural chemistry group](#)

[Molecular biosystems group](#)

The research groups provide master's degree projects and curricula that provide qualifying experience for jobs in fields as described above.

The unique and nationally leading expertise and status in many fields of chemistry and chemical biology at the department have led to the establishment and participation in several national centres:

The Theoretical Chemistry and Inorganic- and Material Chemistry groups are responsible for a Centre of Excellence (CoE): [Centre for Theoretical and Computational Chemistry \(CTCC\)](#).

The Organic Chemistry, Structural Chemistry and Molecular Biosystems groups participate and are key players in a Centre for Research-based Innovation (CRI): [MabCent - Centre for bioprospecting and drug discovery](#)

The Structural Chemistry and Molecular Biosystems groups are responsible for a national centre in structural biology: [Norwegian Structural Biology Centre \(NorStruct\)](#)

Master's students and their projects will, in many cases be closely associated with one of the centres and the activities there.

Disciplines

The master's programme in chemistry offers *five disciplines* coinciding with the five research groups:

[Bioinorganic Chemistry \(Inorganic- and materials chemistry\)](#)

[Organic Chemistry](#)

[Structural Biology/Chemistry](#)

[Theoretical Chemistry](#)

Molecular Biosystems (new)

Learning outcome:

Knowledge

The candidate

- has extensive knowledge of the basic areas of chemistry (inorganic, organic, physical and biochemistry)
- has in-depth knowledge in at least one specialized field of chemistry or biological chemistry
- has insight into the international frontier research and development in her/his specialization of chemistry or biological chemistry
- has acquired sufficient knowledge of chemistry and of one or more supporting subject like biochemistry, biotechnology, physics, mathematics or computer science, to understand deeply and treat phenomena occurring in her or his field of specialization.

Skills

The candidate

- has the ability to communicate scientific information clearly and precisely, both written and oral forms
- has the ability to read, understand and use scientific literature
- has acquired the basic tools needed to carry out independent research in her/his field of specialization.
- has become proficient in his/her specialized area and can successfully complete an advanced research project.

General competence

The candidate

- can judge the reliability of information obtained from different sources and has a sound critical attitude towards the knowledge from all sources.
- can apply their knowledge in chemistry or biological chemistry to solve problems in other natural sciences
- can accomplish some independent research and communicate the research questions and results in both written and oral forms.
- can carry out knowledge based evaluations of general problems in science and communicate this to the public
- can accomplish research projects under guidance, e.g. under a PhD-program in chemistry or related areas

Language of instruction and examination

The language of instruction is English and all syllabus material is in English. Examination questions will be given in English, but may be answered in either English or a Scandinavian language.

The master's thesis may also be written in either English or a Scandinavian language.

Teaching and assessment methods

Courses are taught as classes, some in combination with experimental laboratory exercises, and some purely through laboratory work. Fronter is used as the electronic learning portal in all courses. Various assessment methods are used. Courses are assessed through oral or written exams, some through assessment of a laboratory or project report, and some as a combination of methods. The master's thesis is assessed by a committee based on the thesis itself and an oral presentation of the thesis and thesis work. See the individual course descriptions for details.

Programme evaluation

The study programme is evaluated every year according to the university's [quality assurance system](#). The courses constituting the programme are evaluated following every third offering, as a minimum. Course evaluation consists of both student and teacher reports. An overview of which courses to be evaluated each semester is found on the faculty's [quality assurance pages](#).

Student exchange

The master's programme is structured such that the student can spend shorter or longer periods studying abroad, preferably in the second or third semester. Courses must be approved in advance.

Access to further studies

Completed master's degree studies qualify for admission to PhD-studies in Chemistry, depending on satisfactory marks in the master's and bachelor's degrees. [PhD-studies in Chemistry](#) are offered at UiT The Arctic University of Norway.