



UiT The Arctic University of Norway

Program description

Geosciences - master

120 ECTS credits, Campus Tromsø

The program description has been approved by the Faculty of Science and Technology on 11.06.2025



Study programme name	Geosciences - master
Degree obtained	Master of Science in Geosciences
Target group	The master's program in geosciences is aimed at providing students with a solid in-depth education covering, e.g., the following areas: Marine geosciences, structural geology, petrology, mineralogy, ore geology, sedimentology, Quaternary geosciences, petroleum geosciences, environmental geology, and geohazards.
Admission requirements, required prerequisite, recommended prerequisite knowledge	Admission to the master's program in geosciences requires a bachelor's degree or equivalent qualification (180 ECTS) in geosciences In addition, specialization in geology, geophysics, or equivalent of at least 80 ECTS is required. Applicants must have a minimum grade average comparable to a Norwegian "C" (2.5) in the ECTS scale, see the UiT webpage for international admissions for more information on how the point average is calculated.
Certificate of good conduct	-
Suitability assessment	-
The study programme's Learning Outcome	In addition to a solid competence in a specialized field of geosciences, students will have acquired the following after completing the Master of Science in Geosciences: <i>Knowledge</i> The candidate has • advanced knowledge within general geosciences and specialized insight in one or more of the following fields: marine geosciences, structural geology, petrology, mineralogy, ore geology, environmental geology, quantitative geosciences, sedimentology, Quaternary geosciences, petroleum geosciences, and geohazards. • thorough knowledge of scientific theory and geoscientific methods within the selected topic(s). This includes understanding geoscience based on scientific observations from the field and the laboratory. • the ability to apply geoscientific knowledge in new technological or scientific areas within the selected topic(s). • the ability to solve geoscientific problems based on the scientific history, tradition, and distinctive character of

geosciences. This includes deep understanding of geoscientific data from the field and/or the laboratory as well as understanding of geological time, processes, and products.

Skills

The candidate can

- critically analyze geoscientific problems using data, methods, and results from peer-reviewed, international geoscientific research literature. The candidate can structure and formulate scholarly arguments building on such information.
- analyze existing geoscientific theories, use methods and interpretations, and work independently with applied and theoretical solving of geoscientific problems. This regards both the solution of academic research questions and applied aspects of the selected topic(s).
- use relevant geoscientific methods for research and professional development within the selected topic(s) in an independent manner. This can include field observations, data collection, laboratory analyses, and literature review.
- carry out an independent, well-defined research project under academic supervision. The project is based on geoscientific field observations, laboratory data, literature or a combination thereof.
- conduct his/her work in accordance with current ethical standards within the selected geoscientific topic(s).

General competence

The candidate can

- analyze and carry out the most important elements of academic and professional geoscientific research projects: penetrate literature, carry out field and laboratory research, analyze geoscientific data and communicate results to fellow students and scientists.
- apply his/her knowledge and skills in new areas for completing advanced tasks and projects within the selected geoscientific topic(s).
- communicate comprehensive independent work and master geoscientific terminology as well as the use of key literature and academic referencing. This includes communication in the form of written academic theses, research reports, and oral presentations to peer students and geoscientists.

	• discuss, argue, and critically assess geoscientific problems, analyses and conclusions, both with specialists and with the public. • contribute to academic, technological and industrial innovation within the geosciences.
Academic content and description of the study programme	The study plan consists of two mandatory courses: BED-3200 Sustainable innovation (10 ECTS) and either GEO-3107 Field trip hard rock geology (5 ECTS) or GEO-3113 Field course in exogene geology or GEO-3155 Glacial sediments from ice to ocean (5 ECTS). The remaining 45 ECTS are completed with optional M-GEO courses, courses at The University Centre in Svalbard (UNIS), and/or pre-approved courses from exchange to universities abroad. The master's thesis amounts to 60 ECTS. The master's thesis of 60 ECTS (GEO-3900) is normally to be started in the second year. The courses consist of lectures, exercises, laboratory work and field courses/excursions/cruises. Several of the courses are given as intensive courses. Optional courses should be selected in collaboration with the supervisor and be relevant to the choice of research topic of the master's thesis. Other optional courses, either from UiT or from other institutions, may be approved upon application and recommended by the supervisor. The master student should as soon as possible in the first semester find a supervisor for his/her master's project. The Department of Geosciences will announce available master projects on the department's website, but students might also suggest master projects themselves. The main supervisor must be affiliated with the Department of Geosciences; some master projects might involve one or more co-supervisors from other institutions or the industry. At least one (co-)supervisor must be a permanent faculty member (professor or associate/assistant professor) at the Department of Geosciences.

Table: programme structure					
	Semester	5 ECTS	5 ECTS	10 ECTS	10 ECTS
	1. sem (fall)	GEO-3107* Field Trip Hard Rock Geology <i>and/or</i> GEO-3155* Glacial sediments from ice to ocean	Optional	TVR-3000 Sustainable innovation	Optional
		5 ECTS	25 ECTS		
	2. sem (spring)	GEO-3113* Field Course in Exogene Geology <i>or an optional course</i>	Optional		
		30 ECTS			
	3. sem (fall)	GEO-3900 Master's Thesis in Geosciences			
		30 ECTS			
	4. sem (spring)	GEO-3900 Master's Thesis in Geosciences			
<i>*It is mandatory to complete at least one of these courses. M-GEO students have priority on these courses.</i>					
Optional courses (depending on master's project chosen; number of ECTS in brackets):					
Fall:					
• GEO-3112 Sedimentary Processes and Products (10) • GEO-3115 Hydrocarbon Systems - From Source to Seal (10) • GEO-3126 Practical Seismic Processing (5) • GEO-3135 From Onshore Rock-Slope Failures to Marine Geohazards: Processes and Products (10) • GEO-3137 Seismology (10) • GEO-3154 Paleoceanography and Climate (10) • GEO-3153 Quantitative Geosciences (5)					

	Spring: • GEO-3152 Phase Equilibria in Metamorphic Petrology (5) • GEO-3106 Advanced Structural Geology and Tectonics (10) • GEO-3130 Geology of Mineral Deposits (10) • GEO-3138 Integrated Geological and Geophysical Interpretation (10) • GEO-3139 Snow Avalanche Science and Management (10) • GEO-3151 Geo-Seminar in Energy and Environment (10) Both spring and fall: • Geology Project GEO-3221 (5) or GEO-3222 (10) • Special Curriculum GEO-3805 (5) • Science courses subject to approval • National courses in Earth sciences subject to approval • Courses at The University Centre in Svalbard (UNIS)
Learning activities, examination and assessment	The teaching form varies between the courses in the study program. Teaching and learning forms on the program are, e.g., lectures, exercises, excursions/field courses/cruises and self-studies. The form of assessment varies, written or oral exam, home assignment or report, sometimes in combination with a final oral or written exam. These are identified in the course descriptions.
The study programme's relevance	A master's degree in geosciences can lead to exciting jobs in, e.g., industry, mineral recovery, science, engineering, management or public administration. The Department of Geosciences cooperates with many industrial partners as well as institutions like NGU (Geological Survey of Norway) in the fields of research and education. A completed master's degree qualifies for admission to PhD studies, depending on satisfactory marks in the master's and bachelor's degree. PhD studies in geosciences are offered at UiT The Arctic University of Norway.
Work scope	Full-time students are expected to allocate a normal work week to study, which is c. 40 hours a week. This includes lectures, exercises and individual studies.
For master's theses/independent work in master's degrees	The master's thesis consists of an independent scientific work equivalent to 60 ECTS. The thesis must be done individually, even if a group collaboration during field work can occur. A supervision contract for the thesis is set up before the start-up, which regulates rights, obligations and resource use and resource access for the parties involved. Assessment form is a master's thesis, presentation of the thesis, and final oral exam.

Language of instruction and examination	The language of instruction is English, and all the syllabus material is in English. Examination questions will be given in English but may be answered either in English or in a Scandinavian language. The master's thesis can be written either in English or in a Scandinavian language.
Internationalisation	The student classes will have international students each semester, either as master program students or exchange students for shorter periods. The students will be invited to lectures and seminars given by guest lecturers from foreign institutions. Literature and syllabus will be in English.
Student exchange	The Department of Geosciences has exchange agreements through UiT, either as bilateral agreements or as part of exchange programs. The department has a close cooperation with The University Centre in Svalbard (UNIS), which offers a broad range of courses in Arctic geology, geophysics, and technology. Exchange studies abroad or studies at UNIS can be recognized in the master's degree if recommended by your supervisor, and only if the external courses are validated prior to participation.
Supervised professional training	-
Administrative responsibility and academic responsibility	The study program is led by the <i>Program Board for Bachelor and Master in Geosciences</i> , at the Department of Geosciences. The administrative responsible for the program is the Department of Geosciences at the Faculty of Science and Technology.
Quality assurance	The study program is evaluated every year according to the university's quality assurance system. The courses in the study program are evaluated at least every third time they are given. Evaluations consist of reports from both students and teachers.
Other regulations	Faculty of Science and Technology has prepared <i>Supplementary provisions for the two years master's degree programme (120 credits)</i>. In addition, the Department of Geosciences has established a <i>Guidance for master theses</i>. Health, Environment & Safety (HES): If the master's thesis involves work in a laboratory, in the field or on a research/education cruise, it is mandatory to complete a course in safety education prior to commencing the thesis. The safety course is held each semester. In addition, students must comply with other safety training/regulations described on each course website where applicable.