



UiT The Arctic University of Norway

Program description

Geosciences - master

120 ECTS credits, Campus Tromsø

The program description has been approved by the board of Faculty of Science and Technology on XX.XX.2022

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, and geohazards.
Admission requirements, required prerequisite, recommended prerequisite knowledge	Admission to the Master's program in geosciences requires a Bachelor's degree in geology, or another degree following a program of study of not less than three years duration, or similar education approved in accordance with the Norwegian Universities Act section 3-4. In addition, specialization in geology worth the equivalent of at least 80 ECTS credits is required. Normally, an average mark of C or better is required in the Bachelor's degree or similar basis of admission.
Certificate of good conduct	-
Suitability assessment	-
The study programme's Learning Outcome	In addition to a solid competence in a specialized field of geology, students will have acquired the following after completing the Master of Science in Geosciences: <i>Knowledge</i> The candidate has <ul style="list-style-type: none"> • advanced knowledge within general geosciences and specialized insight in one or more of the following fields; marine geosciences, structural geology, petrology, mineralogy, ore geology, 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 on the basis of 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. <i>Skills</i>

	<p>The candidate can</p> <ul style="list-style-type: none"> • critically analyze geoscientific problems using data, methods, and results from peer-reviewed, international geoscientific research literature. The candidate can also 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). <p><i>General competence</i></p> <p>The candidate can</p> <ul style="list-style-type: none"> • 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 the 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 general public. • contribute to academic, technological and industrial innovation within the geosciences.
Academic content and discription of the study programme	The study plan consists of four obligatory courses, of 5 ECTS each, in total 20 ECTS in addition to the Master’s Thesis of 60 ECTS. The remaining 40 ECTS are completed with optional courses.

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 excursions. Several of the courses are given as intensive courses.

Optional courses should be selected in collaboration with your 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 or if recommended by your supervisor.

An individual special curriculum or project paper may also be part of the degree. The study plan can be adjusted to a shorter study period if existing courses are implemented in the plan.

The master student should as soon as possible in the first semester, at latest during the second 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.

Table: programme structure

Semester	5 ECTS	5 ECTS	5 ECTS	15 ECTS
1. sem (fall)	GEO-3107 Field Trip Hard Rock Geology	GEO-3118 Environmental Geology	GEO-3128 Marine Geohazards	Optional
	5 ECTS	25 ECTS		
2. sem (spring)	GEO-3113 Field Course in Exogene Geology	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
<p>Optional courses (depending on project chosen; number of ECTS in brackets):</p> <p>Fall:</p> <ul style="list-style-type: none"> • GEO-3104 Advanced Structural Geology (5) • GEO-3111 Rec. Quaternary Marine Climate and Env. (10) • GEO-3115 Petroleum Geology (10) • GEO-3117 Optical Mineralogy (10) • GEO-3120 Management of the Petroleum Resources (10) • GEO-3122 Micropaleontology (5) • GEO-3126 Practical Seismic Processing (5) • GEO-3135 Rock-Slope Failures: Geology, Hazard and Monitoring (10) • GEO-3137 Seismology (10) • GEO-3151 Geo-Seminar in Energy and Environment (10) <p>Spring:</p> <ul style="list-style-type: none"> • GEO-3105 Petrology 2 (10) • GEO-3106 Tectonics (10) • GEO-3112 Sedimentary Processes and Products (10) • GEO-3119 Petroleum Prospecting (10) • GEO-3129 Drilling and Production of Oil and Gas (5) • GEO-3130 Ore Geology (10) • GEO-3136 Practical Geochronological Methods in Marine, Terrestrial Quaternary Geology and Geohazards (10) • GEO-3138 Integrated Geological and Geophysical Interpretation (10) • GEO-3139 Snow Avalanche Science and Management (10) <p>Either spring or fall:</p> <ul style="list-style-type: none"> • GEO-3144 Arctic Marine Geology and Geophysics Cruise (5) • GEO-3145 Arctic Marine Geology and Geophysics Workshop (5) <p>Both spring and fall:</p> <ul style="list-style-type: none"> • Geology Project GEO-3221 (5) or GEO-3222 (10) • Special Curriculum (GEO-3805, GEO-3810) • Science courses subject to approval • National courses in earth sciences subject to approval 	

Learning activities, examination and assessment	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	<p>A master's degree in geosciences leads to exciting jobs in the industry, mineral recovery, science, engineering, management or public administration. The Department of Geosciences cooperates with Equinor and other industrial partners as well as institutions like NGU (Geological Survey of Norway) in the fields of research and education.</p> <p>Completed Master's degree studies qualify 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.</p>
Work scope	Full-time students are expected to allocate a normal work week to study, which is at least 40 hours a week. This include lectures, exercises and private study.
For master's theses/independent work in master's degrees	The master's degree thesis consists of an independent scientific work of two semesters, equivalent to 60 ECTS credits. 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 submission of a master thesis, presentation and final oral exam.
Language of instruction and examination	<p>Language of instruction is English and all of 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.</p> <p>The Master's thesis can be written either in English or in a Scandinavian language.</p>
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	<p>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.</p> <p>Exchange studies abroad or 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.</p>

Supervised professional training	-
Administrative responsibility and academic responsibility	The study program is lead by the <i>Program Board for Bachelor and Master in Geology</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	<p>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>.</p> <p>Health, Environment & Safety (HES): If the Master's thesis involves work in a laboratory, in the field or on a research cruise, it is mandatory to conduct a course in safety education (HMS-0500) prior to commencing the thesis. The safety course are given early fall and early January. In addition, students must comply with other saftety training/regulations described on each course website where applicable.</p>