Programme-specific Section of the Curriculum for the MSc Programme in

Geology-Geoscience

at the Faculty of Science, University of Copenhagen

2009-2020 (Rev. 2024)

Contents

1 Title, affiliation and language
A shared section that applies to all BSc, part-time MSc and MSc Programmes at the Faculty of Science is linked to this programme-specific curriculum.

1.1 Title
The MSc Programme in Geology-Geoscience leads to a Master of Science (MSc) in Geology-Geoscience with the Danish title: *Cand.scient. (candidatus/candidata scientiarum) i geologi-geoscience.*

1.2 Affiliation
The programme is affiliated with the Study Board of Geosciences and Management, and the students can both elect, and be elected, to this study board.

1.3 Corps of external examiners
The following corps of external examiners is used for the central parts of the MSc Programme:
- Corps of External Examiners for Geology (*geologi*).

1.4 Language
The language of this MSc Programme is English.

2 Academic profile
2.1 Purpose
Geology-Geoscience is a term for the sciences concerned with the Earth, geological materials, processes and structures, as well as the study of the history of the Earth and of life on Earth within a temporal framework. The MSc Programme in Geology-Geoscience programme is a research-based study programme, the objective of which is to provide students with knowledge, skills and competences within the central subjects of the programme.

2.2 General programme profile
The study programme is structured around 4 specialist qualification profiles, each of which comprises a compulsory qualification profile course. The elective subjects include a number of specialist courses, a project course, a practical course and a field and method course. The thesis, which concludes the MSc programme, is an independent experimental, field-based or theoretical study within a clearly defined area of the geological fields of study.

The key subject areas of the programme are: Formation and evolution of the Earth, geological materials, processes and structures, and the study of the history of the Earth and of life on Earth within a temporal framework.

2.3 General structure of the programme
The MSc Programme is set at 120 ECTS.

The MSc Programme in Geology-Geoscience consists of the following elements:
- Specialisation, 120 ECTS incl. thesis.

The student must choose one of the following specialisations:
- Sedimentary Systems and Paleoclimate Water Resources
- Solid Earth Geophysics
- Solid Earth Geochemistry and Petrology

2.4 Career opportunities

The MSc Programme in Geology-Geosciences qualifies students to become professionals within business functions and/or areas such as:

- A PhD programme
- Provide the student with the qualifications required to independently take on job functions based on the methods and scientific foundation of the geological subjects covered.
- Provide the student with the qualifications required to take part in scientific work within the areas of the chosen specialisation.

3 Description of competence profiles

Students following the MSc Programme acquire the knowledge, skills and competences listed below. Students will also acquire other qualifications through elective subject elements and other study activities.

3.1 Sedimentary Systems and Paleoclimate

Graduates holding an MSc in Geology-Geoscience with a specialisation in Sedimentary Systems and Paleoclimate have acquired the following:

Knowledge about:

- Types of sedimentary basins within a plate-tectonic framework.
- Explorational aspects for resources, such as geothermal energy, CO_2 storage possibilities, hydrocarbons and groundwater, in sedimentary basins.
- Seismic profiles, well logs and outcrop data from selected sedimentary systems.
- Climate archives, geochemical and sedimentary proxies.
- The principles for formulating geological questions, planning and managing geological studies and reporting on findings at an academically appropriate level.
- The integration of field-based data with relevant analysis methods to solve complex geological problems at a high academic level.
- The essential elements in analyses of sedimentary source areas, including geology, provenance studies, sediment flux and drainage patterns.
- The nature and significance of flora and fauna in various sediments.

Skills in/to:

- Describe the types of sedimentary basins in a plate-tectonic framework, and to proceed from there in a series of steps to progressively smaller scale and higher degrees of detail.
- Describe the explorational aspects for geothermal energy, CO_2 storage possibilities, hydrocarbons and groundwater in sedimentary systems.
- Apply seismic profiles, well logs and outcrop data from selected basins.
- Perform an independent analysis and synthesis of a sedimentary systems through time based on all available seismic, borehole and outcrop data and by applying a wide spectrum of tectonic, stratigraphic and sedimentological methods within a plate tectonic framework.
- Make a professional-style oral presentation and write a short, concise report on a selected subject which can be directly used by a wide range of professionals.
- Analyse multiple palaeoclimate-related data sets, interpret processes and link these back to the observed data.
- Participate in and undertake the planning of a geological study.
- Analyse a geological problem, devise a working model, collect and analyse geological data and prepare an academically sound and detailed scientific report.

- Combine geological field and laboratory-based experience within the specified area of geology-geoscience.
- Classify sedimentary basins in a plate-tectonic framework, and describe and interpret basin-filling in a tectonic-stratigraphic framework.
- Identify, characterise and interpret major sedimentary systems, with the aid of correlations of outcrop profiles, borehole logs and seismic profiles, based on seismic and sequence stratigraphy and seismic geomorphology.
- Identify, describe and interpret the most significant palaeoclimatic aspects of correlation between outcrop profiles and geochemical/sedimentary proxies, using stratigraphic principles, including chemostratigraphy.

Competences in/to:
- Classifying sedimentary basins within a plate tectonic framework.
- Describing and interpreting basin fill in a stratigraphic-tectonic framework.
- Explaining the main elements in the analysis of sedimentary source areas, including geology, provenance, sediment flux and drainage patterns.
- Identifying, describing and interpreting major depositional systems by correlation of outcrops, well logs and seismic profiles using seismic and sequence stratigraphy and seismic geomorphology.
- Identifying and explaining potential occurrences of economically important resources in the investigated sedimentary systems.
- Undertaking a synthesis of the formation, stratigraphical development and resources of a sedimentary system based on all available data.
- Analysing geological climate archives based on field observations or geochemical and sedimentary proxies.
- Giving an oral presentation of this synthesis and present it in a short, concise report.
- Explaining core academic areas, disciplines, theories and working methods within the field of geology-geoscience.
- Understanding geological work functions and development tasks requiring new solution models.
- Independently implementing and carrying out monodisciplinary and interdisciplinary collaboration and assume professional responsibility.
- Independently assuming responsibility for their own professional development and specialisation and critically seek, read and assess specialist literature.
- Identifying and explaining models for potentially important sedimentary resources in sedimentary systems.
- Presenting a synthesis of the formation, stratigraphic development and resources in a sedimentary basin on the basis of existing data.
- Analysing geological climate archives based on field observations or geochemical and sedimentary proxies.
- Evaluating the validity of palaeoclimatic archives and model results by means of comparative studies.

3.2 Water Resources

Graduates holding an MSc in Geology-Geoscience with a specialisation in Water Resources have acquired the following:

Knowledge about:
- Fundamentals of groundwater flow and solute transport.
- Climate change and water resources.
- Advanced integrated hydrological modelling

- Groundwater and water resources management and protection
- Geochemistry and groundwater pollution.
- Integration of field-based data with relevant analysis methods to solve complex hydrological problems at a high academic level.

Skills in/to:

- Perform hydrological modelling and water balance assessment and management at catchment scale.
- Calibrate hydrological models using inverse parameterization methods.
- Statistically analyse hydrological time series.
- Stochastically analyse effects of uncertain geology on water resources
- Programme and develop numerical solutions to geoscience solutions.
- Integrate several disciplines including hydrology, Quaternary geology, hydrogeophysics, contaminant hydrology, hydrochemistry/isotopes and hydrogeology.
- Use advanced software and modelling to construct 3D geological-hydrogeological and hydrological-groundwater models.
- Interpret and carry out quantitative modelling of near-surface processes such as the spatial and chronological distribution of precipitation, evapotranspiration and infiltration of water and dissolved materials from the surface.
- Interpret and carry out quantitative modelling of sub-surface processes such as flow and transport in heterogeneous aquifers, and interactions between groundwater and surface water near lakes, rivers and oceans.
- Interpret and carry out quantitative modelling of geochemical reactions in porous media and coupling to the flow of the groundwater.

Competences in/to:

- Reading and comprehending international literature on water resources and related supporting disciplines.
- Collecting and critically evaluating existing and new interdisciplinary data on hydrology, geology, geophysics, hydrogeology and geochemistry.
- Calibrating and applying hydrological models for various hydrological fluxes (e.g. unsaturated flow, groundwater flow, flow interaction between groundwater and surface water) to solve flow and transport problems.
- Analysing the impact of the geological settings on subsurface flow and transport.
- Analysing and assessing hydrology, water balance and water resources at catchment scale.
- Writing a report on water resource problems and present findings.
- Explaining core academic areas, disciplines, theories and working methods within the field of geology-geoscience.
- Understanding geological work functions and development tasks requiring new solution models.
- Independently implementing and carrying out monodisciplinary and interdisciplinary collaboration and assume professional responsibility.
- Independently assuming responsibility for their own professional development and specialisation and critically seek, read and assess specialist literature.
- Using national and international studies as examples to highlight the procedures for the collation, processing and interpretation of major hydrological, hydrogeological and hydrogeophysical data sets.

3.3 Solid Earth Geophysics

Graduates holding an MSc in Geology-Geoscience with a specialisation in Solid Earth Geophysics have acquired the following:

Knowledge about:

- Theoretical and practical aspects of seismology.
- Determination of the material properties of the whole Earth.
- Theory and application of the Earth's gravity and its significance for Earth's structure and dynamics.
- The thermal structure of the Earth's interior, including applications to geological problems.
- Electromagnetic theory and the geomagnetic field, including application to geological studies.
- The principles for formulating geophysical questions, planning and managing geological studies and reporting on findings at an academically appropriate level.
- Integration of field-based data with relevant analysis methods to solve complex geophysical problems at a high academic level.
- Geodynamic modelling of plate tectonic processes and mantle dynamics
- The relations between geodynamic processes, lithosphere structure and mineral deposits.
- The relationship between Earth's structure, physical properties and dynamics.

Skills in/to:

- Understand the state-of-the-art physical methods for studying the Earth.
- General knowledge of the structure of the Earth.
- Understand the general information on which our present understanding of the Earth is based, including its limitation.
- Understand the current literature on the subject, including skills to present this understanding.
- Appreciate the relationship between structure, physical properties, and dynamics of the Earth.
- Use basic physical formulas for solving general geophysical problems.
- Participate in and undertake the planning of a geophysical study.
- Analyse a geophysical problem, devise a working model, collect and analyse geological data and prepare an academically sound and detailed scientific report.
- Combine geophysical field and laboratory-based experience within the specified area of geology-geoscience.
- Carry out different types of geophysical observations.
- Perform geodynamic modelling of processes related to mantle convection and plate tectonics.

Competences in/to:

- Accounting for the current state-of-the-art physical methods for studying the Earth.
- Accounting for the structure of the Earth.
- Accounting for the information on which our present understanding of the Earth is based, including limitations.
- Understanding the current literature on the subject, including skills to present this understanding.
- Accounting for the relation between structure, physical properties, and dynamics of the Earth.
- Accounting for the relation between geodynamic processes, lithosphere structure, mineral deposits and natural hazards.
- Using basic physical formulas for solving general geophysical problems.

- Explaining core academic areas, disciplines, theories and working methods within the field of geology-geoscience.
- Understanding geophysical work functions and development tasks requiring new solution models.
- Independently implementing and carrying out monodisciplinary and interdisciplinary collaboration and assume professional responsibility.
- Independently assuming responsibility for their own professional development and specialisation and critically seek, read and assess specialist literature.
- Synthesising results from different geophysical methods in order to describe the Earth's properties in terms of density, elasticity and rheology.

3.4 Solid Earth Geochemistry and Petrology

Graduates holding an MSc in Geology-Geoscience with a specialisation in Solid Earth Geochemistry and Petrology have acquired the following:

Knowledge about:

- Geochemical evolution of the Earth from 4.6 Ga to today.
- Geochemistry and mineralogy of Earth components (core, mantle, crust) and in particular the crust-mantle system.
- The geochemical cycling of relevant elements in the continental crustal and marine systems-
- Isotopic tracers and their applicability in identifying and understanding the evolution of Earth’s geochemical components, geochemical and petrological processes, and the dating of geological events.
- The principles for formulating geological questions, planning and managing geological studies and reporting on findings at an academically appropriate level.
- Integration of field-based data with relevant analysis methods to solve complex geological problems at a high academic level.
- Petrologic high-temperature processes and up-to-date models for the formation of metamorphic and magmatic rock complexes and ore deposits.
- The Earth's interior and volcanological processes as integrated parts of the planet's evolution.
- The relationship between the structure of Earth materials, the conditions for their creation and the physical and chemical environments in which they are formed.

Skills in/to:

- Demonstrate an understanding of the processes that led to the Earth’s formation and its prime differentiation.
- Describe the general characteristics of the different geochemical reservoirs within the Earth, the interplays between them, in particular the crust-mantle system.
- Describe the chemical and mineralogical variations within the different Earth’s geochemical reservoirs in terms of geochemical processes linked to modern plate tectonic theory, lithospheric recycling and geodynamics, and to thermodynamic and crystallographic principles.
- Apply isotopic tracers to high-temperature petrological problems.
- Participate in and undertake the planning of a geological study.
- Analyse a geological problem, devise a working model, collect and analyse geological data and prepare an academically sound and detailed scientific report.
- Combine geological field and laboratory-based experience within the specified area of geology-geoscience.
- Perform quantitative modelling of selected geochemical and physical processes in petrology and process geochemical data.

Competences in/to:

- Demonstrating familiarity with the on-going and past processes that have led to the structure of the Earth's crust-mantle system.
- Describing the general characteristics of the different geochemical reservoirs within the Earth, the interplays between the crust and mantle, and explain these within the framework of the evolution of the planet.
- Explaining chemical and mineralogical variations within the different Earth's geochemical reservoirs in terms of geochemical processes linked to modern plate tectonic theory, lithospheric recycling and geodynamics, and to thermodynamic and crystallographic principles.
- The ability to recite the milestones in Earth's early evolution and the processes that led to the formation of the Earth, its prime differentiation and the chronology of these events.
- Explaining core academic areas, disciplines, theories and working methods within the field of geology-geoscience.
- Understanding geological work functions and development tasks requiring new solution models.
- Independently implementing and carrying out monodisciplinary and interdisciplinary collaboration and assume professional responsibility.
- Independently assuming responsibility for their own professional development and specialisation and critically seek, read and assess specialist literature.
- Interpreting petrological processes using a combination of field observations and petrographic and geochemical data sets.

4 Admission requirements

With a Bachelor's degree in Geology-Geoscience from the University of Copenhagen the student is granted reserved access and guaranteed a place at the MSc Programme in Geology-Geoscience if the student applies in time to begin the MSc Programme within three years of the completion of the Bachelor's degree.

4.1 Applicants with a Bachelor's degree in Geology-Geoscience

Applicants with a Bachelor's degree in Geology-Geoscience from the University of Copenhagen are directly academically qualified for admission to the MSc Programme.

4.2 Applicants with a related Bachelor's degree

Applicants with a Bachelor's degree in the following:

- Geography and Geoinformatics from the University of Copenhagen.
- Geoscience from Aarhus University.
- Geology from international universities.
- Within the field of science from the University of Copenhagen, other Danish or Nordic universities.

may also be admitted if their programme includes the following:

- Subject elements on bachelor's level within the academic field of geology-geoscience, 60 ECTS.

4.3 Other applicants

The Faculty may also admit applicants who, after an individual academic assessment, are assessed to possess educational qualifications equivalent to those required in Subclauses 4.1- 2.

4.4 Language requirements
Applicants must as a minimum document English language qualifications comparable to a Danish upper secondary school English B level or English proficiency corresponding to the tests and scores required. Accepted tests and required minimum scores are published online at www.science.ku.dk.

4.5 Supplementary subject elements
The qualifications of an applicant to the MSc programme are assessed exclusively on the basis of the qualifying bachelor's degree. Supplementary subject elements passed between the completion of the bachelor's programme and the admission to the MSc programme cannot be included in the overall assessment.

However, subject elements passed before the completion of the bachelor's programme may be included in the overall assessment. This includes subject elements completed as continuing education as well as subject elements completed as part of a former higher education programme. A maximum of 30 ECTS supplementary subject elements can be included in the overall assessment.

Subject elements passed before completing the BSc programme which are to form part of the MSc programme to which the student has a legal right of admission (§15-courses) cannot be included in the overall assessment.

5 Prioritisation of applicants
If the number of qualified applicants to the programme exceeds the number of places available, applicants will be prioritised as follows:

1) Applicants with a Bachelor's degree in Geology-Geoscience from the University of Copenhagen with reserved access to the programme.
2) Applicants with a Bachelor's degree in Geology-Geoscience from the University of Copenhagen.
3) Other applicants.

If the number of qualified applicants within a category exceeds the number of places available, applicants will be prioritised according to the following criteria (listed below in prioritised order):

- On the basis of ECTS obtained in study elements within geology-geoscience.

6 Structure of the programme
The compulsory subject elements, restricted elective subject elements and the thesis constitute the central parts of the programme (Section 30 of the Ministerial Order on Bachelor and Master's Programmes (Candidatus) at Universities).

6.1 Sedimentary Systems and Paleoclimate
The specialisation is set at 120 ECTS and consists of the following:

- Compulsory subject elements, 22.5 ECTS.
- Restricted elective subject elements, 22.5 ECTS
- Elective subject elements, 15 ECTS.
- Thesis, 60 ECTS.

6.1.1 Compulsory subject elements

All of the following subject elements are to be covered (22.5 ECTS):			
Course Code	**Course Title**	**Block**	**ECTS**
NGEA09047U	Interpretation of Reflection Seismic and Wireline Log Data	Discontinued*	7.5 ECTS
NIGK14021U	Sedimentary Basins - Evolution, Environments and Resources (part 1)	Discontinued*	7.5 ECTS
NIGK17019U	Sedimentary Deposits: Modern and Ancient	Discontinued*	7.5 ECTS

See discontinued courses below.

6.1.2 Restricted elective subject elements

22.5 ECTS are to be covered as subject elements from the following two lists:

1) 7.5 ECTS are to be covered as subject elements from the following list:			
Course Code	**Course Title**	**Block**	**ECTS**
NIGK14025U	Water Resources (part 1)	Discontinued*	7.5 ECTS
NIGK15024U	Solid Earth Geophysics (part 1)	Discontinued*	7.5 ECTS
NIGK14019U	Core to Crust: Earth´s Evolution and Processes (part 1)	Discontinued*	7.5 ECTS

2) 15 ECTS are to be covered as subject elements from the following list:			
Restricted elective subject elements offered as part of the most recently revised version of the curriculum**			
Course Code	**Course Title**	**Block**	**ECTS**
NGEK10029U	Groundwater Exploitation and Protection	Discontinued*	7.5 ECTS
NIGK17002U	Past Climate and Sea Level: Processes and Proxies	Discontinued*	7.5 ECTS
NIGK19002U	Geodynamics	Discontinued*	7.5 ECTS
NGEA09056U	Numerical Modelling in Fluvial, Coastal, Estuarine and Marine Environment	Discontinued*	7.5 ECTS
NIGK15007U	Field and Methods Course in Geology-Geoscience	Discontinued*	15 ECTS
NIGK13019U	Water Resources Management	Discontinued*	7.5 ECTS
NIGK14022U	Sedimentary Basins - Evolution, Environments and Resources (part 2)	Discontinued*	7.5 ECTS
NIGK19001U	Introduction to Geomicrobiology	Block 4	7.5 ECTS
NIGK17004U	Applied Mineralogy	Discontinued*	7.5 ECTS
NNMK17000U	Stardust to Planets: Building a Habitable Solar System	Discontinued*	7.5 ECTS
NFYK15004U	Advanced Seismology	Discontinued*	7.5 ECTS
NIGK17003U	Hydrogeology: Data Collection and Processing	Discontinued*	7.5 ECTS
NIGK19004U	Marine Geoscience	Block 5	7.5 ECTS
NIGK15023U	Project Course in Geology-Geoscience	Discontinued*	7.5 ECTS
	Project in Practice	Block 1-5	15 ECTS

* See discontinued courses below.

**See https://studies.ku.dk/

6.1.3 Elective subject elements

15 ECTS are to be covered as elective subject elements.

- All subject elements at MSc level may be included as elective subject elements in the MSc Programme.
- BSc subject elements corresponding to 7.5 ECTS may be included in the MSc Programme.
- All courses at GLOBE Institute SUND, affiliated with a SCIENCE Study Board, are preapproved as elective courses.
- Projects. See 6.1.4 Projects.

6.1.4 Projects

- Projects outside the course scope may be included in the elective section of the programme with up to 7.5 ECTS. The main supervisor must be employed at either SCIENCE or GLOBE Institute SUND. The regulations are described in Appendix 5 to the shared section of the curriculum.
- Projects in practice may be included in the elective and/or restricted elective section of the programme with 15 ECTS. Projects in practice may not exceed 15 ECTS in total of the restricted elective and elective section of the programme. Project in practice may be written as a combination of the restricted elective and elective section of the programme. The regulations are described in Appendix 4 to the shared section of the curriculum.
- Thesis preparation projects may not be included in the elective section of the programme. The regulations are described in Appendix 6 to the shared section of the curriculum.

6.1.5 Thesis

The MSc Programme in Geology-Geoscience with a specialisation in Sedimentary Systems and Paleoclimate includes a thesis corresponding to 60 ECTS, as described in Appendix 2 to the shared curriculum. The thesis must be written within the academic scope of the programme.

The main supervisor must be employed at either SCIENCE or GLOBE Institute SUND.

6.1.6 Academic mobility

The curriculum makes it possible to follow subject elements outside the Faculty of Science.

The academic mobility for the MSc Programme in Geology-geoscience with a specialisation in Sedimentary Systems and Paleoclimate is placed in block 3+4 of the 1st year.

Academic mobility requires that the student follows the rules and regulations regarding pre-approval and credit transfer.

In addition, the student has the possibility to arrange similar academic mobility in other parts of the programme.

6.2 Water Resources

The specialisation is set at 120 ECTS and consists of the following:

- Compulsory subject elements, 22.5 ECTS.
- Restricted elective subject elements, 22.5 ECTS.
- Elective subject elements, 15 ECTS.
- Thesis, 60 ECTS.

6.2.1 Compulsory subject elements

All of the following subject elements are to be covered (15 ECTS):			
Course Code	**Course Title**	**Block**	**ECTS**
NIGK14025U	Water Resources (part 1)	Discontinued*	7.5 ECTS
NIGK14026U	Water Resources (part 2)	Discontinued*	7.5 ECTS
NGEK12002U	Groundwater Geochemistry	Discontinued*	7.5 ECTS

* See discontinued courses below.

6.2.2 Restricted elective subject elements

22.5 ECTS are to be covered as subject elements from the following two lists:

1) 7.5 ECTS are to be covered as subject elements from the following list:			
Course Code	**Course Title**	**Block**	**ECTS**
NIGK15024U	Solid Earth Geophysics (part 1)	Discontinued*	7.5 ECTS

NIGK14019U	Core to Crust: Earth´s Evolution and Processes (part 1)	Discontinued*	7.5 ECTS
NGEA09047U	Interpretation of Reflection Seismic and Wireline Log Data	Discontinued*	7.5 ECTS

2) 15 ECTS are to be covered as subject elements from the following list:			
Restricted elective subject elements offered as part of the most recently revised version of the curriculum**			
Course Code	**Course Title**	**Block**	**ECTS**
NGEK10029U	Groundwater Exploitation and Protection	Discontinued*	7.5 ECTS
NIGK17002U	Past Climate and Sea Level: Processes and Proxies	Discontinued*	7.5 ECTS
NIGK19002U	Geodynamics	Discontinued*	7.5 ECTS
NGEA09056U	Numerical Modelling in Fluvial, Coastal, Estuarine and Marine Environment	Discontinued*	7.5 ECTS
NIGK15007U	Field and Methods Course in Geology-Geoscience	Discontinued*	15 ECTS
NIGK13019U	Water Resources Management	Discontinued*	7.5 ECTS
NIGK14022U	Sedimentary Basins - Evolution, Environments and Resources (part 2)	Discontinued*	7.5 ECTS
NIGK19001U	Introduction to Geomicrobiology	Block 4	7.5 ECTS
NIGK17004U	Applied Mineralogy	Discontinued*	7.5 ECTS
NNMK17000U	Stardust to Planets: Building a Habitable Solar System	Discontinued*	7.5 ECTS
NFYK15004U	Advanced Seismology	Discontinued*	7.5 ECTS
NIGK17003U	Hydrogeology: Data Collection and Processing	Discontinued*	7.5 ECTS
NIGK19004U	Marine Geoscience	Block 5	7.5 ECTS
NIGK15023U	Project Course in Geology-Geoscience	Discontinued*	7.5 ECTS
	Project in Practice	Block 1-5	15 ECTS

* See discontinued courses below.
**See https://studies.ku.dk/

6.2.3 Elective subject elements

15 ECTS are to be covered as elective subject elements.

- All subject elements at MSc level may be included as elective subject elements in the MSc Programme.
- BSc subject elements corresponding to 7.5 ECTS may be included in the MSc Programme.
- All courses at GLOBE Institute SUND, affiliated with a SCIENCE Study Board, are preapproved as elective courses.
- Projects. See 6.2.4 Projects.

6.2.4 Projects

- Projects outside the course scope may be included in the elective section of the programme with up to 7.5 ECTS. The main supervisor must be employed at either SCIENCE or GLOBE Institute SUND. The regulations are described in Appendix 5 to the shared section of the curriculum.
- Projects in practice may be included in the elective and/or restricted elective section of the programme with 15 ECTS. Projects in practice may not exceed 15 ECTS in total of the restricted elective and elective section of the programme. Project in practice may be written as a combination of the restricted elective and elective section of the programme. The regulations are described in Appendix 4 to the shared section of the curriculum.
- Thesis preparation projects may not be included in the elective section of the programme. The regulations are described in Appendix 6 to the shared section of the curriculum.

6.2.5 Thesis

The MSc Programme in Geology-Geoscience with a specialisation in Water Resources includes a thesis corresponding to 60 ECTS, as described in Appendix 2 to the shared curriculum. The thesis must be written within the academic scope of the programme.

The main supervisor must be employed at either SCIENCE or GLOBE Institute SUND.

6.2.6 Academic mobility

The curriculum makes it possible to follow subject elements outside the Faculty of Science.

The academic mobility for the MSc Programme in Geology-geoscience with a specialisation in Water Resources is placed in block 3+4 of the 1st year.

Academic mobility requires that the student follows the rules and regulations regarding pre-approval and credit transfer.

In addition, the student has the possibility to arrange similar academic mobility in other parts of the programme.

6.3 Solid Earth Geophysics

The specialisation is set at 120 ECTS and consists of the following:

- Compulsory subject elements, 22.5 ECTS.
- Restricted elective subject elements, 22.5 ECTS.
- Elective subject elements, 15 ECTS.
- Thesis, 60 ECTS.

6.3.1 Compulsory subject elements

All of the following subject elements are to be covered (22.5 ECTS):			
Course Code	**Course Title**	**Block**	**ECTS**
NIGK15024U	Solid Earth Geophysics (part 1)	Discontinued*	7.5 ECTS
NIGK15025U	Solid Earth Geophysics (part 2)	Discontinued*	7.5 ECTS
NGEA09046U	Acquisition and Processing of Seismic Data	Discontinued*	7.5 ECTS

* See discontinued courses below.

6.3.2 Restricted elective subject elements

22.5 ECTS are to be covered as subject elements from the following two lists:

1) 7.5 ECTS are to be covered as subject elements from the following list:			
Course Code	**Course Title**	**Block**	**ECTS**
NIGK14019U	Core to Crust: Earth´s Evolution and Processes (part 1)	Discontinued*	7.5 ECTS
NIGK14025U	Water Resources (part 1)	Discontinued*	7.5 ECTS
NGEA09047U	Interpretation of Reflection Seismic and Wireline Log Data	Discontinued*	7.5 ECTS

2) 15 ECTS are to be covered as subject elements from the following list:			
Restricted elective subject elements offered as part of the most recently revised version of the curriculum**			
Course Code	**Course Title**	**Block**	**ECTS**
NGEK10029U	Groundwater Exploitation and Protection	Discontinued*	7.5 ECTS
NIGK17002U	Past Climate and Sea Level: Processes and Proxies	Discontinued*	7.5 ECTS
NIGK19002U	Geodynamics	Discontinued*	7.5 ECTS
NGEA09056U	Numerical Modelling in Fluvial, Coastal, Estuarine and Marine Environment	Discontinued*	7.5 ECTS
NIGK15007U	Field and Methods Course in Geology-Geoscience	Discontinued*	15 ECTS
NIGK13019U	Water Resources Management	Discontinued*	7.5 ECTS
NIGK14022U	Sedimentary Basins - Evolution, Environments and Resources (part 2)	Discontinued*	7.5 ECTS
NIGK19001U	Introduction to Geomicrobiology	Block 4	7.5 ECTS
NIGK17004U	Applied Mineralogy	Discontinued*	7.5 ECTS
NNMK17000U	Stardust to Planets: Building a Habitable Solar System	Discontinued*	7.5 ECTS
NFYK15004U	Advanced Seismology	Discontinued*	7.5 ECTS
NIGK17003U	Hydrogeology: Data Collection and Processing	Discontinued*	7.5 ECTS
NIGK19004U	Marine Geoscience	Block 5	7.5 ECTS
NIGK15023U	Project Course in Geology-Geoscience	Discontinued*	7.5 ECTS
	Project in Practice	Block 1-5	15 ECTS

* See discontinued courses below.
**See https://studies.ku.dk/

6.3.3 Elective subject elements

15 ECTS are to be covered as elective subject elements.

- All subject elements at MSc level may be included as elective subject elements in the MSc Programme.
- BSc subject elements corresponding to 7.5 ECTS may be included in the MSc Programme.
- All courses at GLOBE Institute SUND, affiliated with a SCIENCE Study Board, are preapproved as elective courses.
- Projects. See 6.3.4 Projects.

6.3.4 Projects

- Projects outside the course scope may be included in the elective section of the programme with up to 7.5 ECTS. The main supervisor must be employed at either SCIENCE or GLOBE Institute SUND.The regulations are described in Appendix 5 to the shared section of the curriculum.
- Projects in practice may be included in the elective and/or restricted elective section of the programme with 15 ECTS. Projects in practice may not exceed 15 ECTS in total of the restricted elective and elective section of the programme. Project in practice may be written as a combination of the restricted elective and elective section of the programme. The regulations are described in Appendix 4 to the shared section of the curriculum.
- Thesis preparation projects may not be included in the elective section of the programme. The regulations are described in Appendix 6 to the shared section of the curriculum.

6.3.5 Thesis

The MSc Programme in Geology-Geoscience with a specialisation in Solid Earth Geophysics includes a thesis corresponding to 60 ECTS, as described in Appendix 2 to the shared curriculum. The thesis must be written within the academic scope of the programme.

The main supervisor must be employed at either SCIENCE or GLOBE Institute SUND.

6.3.6 Academic mobility

The curriculum makes it possible to follow subject elements outside the Faculty of Science.

The academic mobility for the MSc Programme in Geology-geoscience with a specialisation in Solid Earth Geophysics is placed in block 3+4 of the 1st year.

Academic mobility requires that the student follows the rules and regulations regarding pre-approval and credit transfer.

In addition, the student has the possibility to arrange similar academic mobility in other parts of the programme.

6.4 Solid Earth Geochemistry and Petrology

The specialisation is set at 120 ECTS and consists of the following:

- Compulsory subject elements, 22.5 ECTS.
- Restricted elective subject elements, 22.5 ECTS.
- Elective subject elements, 15 ECTS.
- Thesis, 60 ECTS.

6.4.1 Compulsory subject elements

All of the following subject elements are to be covered (22.5 ECTS):			
Course Code	**Course Title**	**Block**	**ECTS**
NIGK14019U	Core to Crust: Earth´s Evolution and Processes (part 1)	Discontinued*	7.5 ECTS
NIGK14020U	Core to Crust: Earth´s Evolution and Processes (part 2)	Discontinued*	7.5 ECTS
NIGK17001U	Current Advances in Igneous Petrology and Geochemistry	Discontinued*	7.5 ECTS

* See discontinued courses below.

6.4.2 Restricted elective subject elements

22.5 ECTS are to be covered as subject elements from the following two lists:

1) 7.5 ECTS are to be covered as subject elements from the following list:			
Course Code	**Course Title**	**Block**	**ECTS**
NIGK15024U	Solid Earth Geophysics (part 1)	Discontinued*	7.5 ECTS
NGEA09047U	Interpretation of Reflection Seismic and Wireline Log Data	Discontinued*	7.5 ECTS
NIGK14025U	Water Resources (part 1)	Discontinued*	7.5 ECTS

2) 15 ECTS are to be covered as subject elements from the following list:			
Restricted elective subject elements offered as part of the most recently revised version of the curriculum**			
Course Code	**Course Title**	**Block**	**ECTS**
NGEK10029U	Groundwater Exploitation and Protection	Discontinued*	7.5 ECTS
NIGK17002U	Past Climate and Sea Level: Processes and Proxies	Discontinued*	7.5 ECTS
NIGK19002U	Geodynamics	Discontinued*	7.5 ECTS
NGEA09056U	Numerical Modelling in Fluvial, Coastal, Estuarine and Marine Environment	Discontinued*	7.5 ECTS
NIGK15007U	Field and Methods Course in geology-geoscience	Discontinued*	15 ECTS
NFYK15004U	Advanced Seismology	Discontinued*	7.5 ECTS
NNMK17000U	Stardust to Planets: Building a Habitable Solar System	Discontinued*	7.5 ECTS
NIGK17004U	Applied Mineralogy	Discontinued*	7.5 ECTS
NIGK14022U	Sedimentary Basins - Evolution, Environments and Resources (part 2)	Discontinued*	7.5 ECTS
NIGK19001U	Introduction to Geomicrobiology	Block 4	7.5 ECTS
NIGK13019U	Water Resources Management	Discontinued*	7.5 ECTS
NIGK17003U	Hydrogeology: Data Collection and Processing	Discontinued*	7.5 ECTS
NIGK19004U	Marine Geoscience	Block 5	7.5 ECTS
NIGK15023U	Project Course in Geology-Geoscience	Discontinued*	7.5 ECTS
	Project in Practice	Block 1-5	15 ECTS

* See discontinued courses below.
**See https://studies.ku.dk/

6.4.3 Elective subject elements

15 ECTS are to be covered as elective subject elements

- All subject elements at MSc level may be included as elective subject elements in the MSc Programme.
- BSc subject elements corresponding to 7.5 ECTS may be included in the MSc Programme.
- All courses at GLOBE Institute SUND, affiliated with a SCIENCE Study Board, are preapproved as elective courses.
- Projects. See 6.4.4 Projects.

6.4.4 Projects

- Projects outside the course scope may be included in the elective section of the programme with up to 7.5 ECTS. The main supervisor must be employed at either SCIENCE or GLOBE Institute SUND. The regulations are described in Appendix 5 to the shared section of the curriculum.
- Projects in practice may be included in the elective and/or restricted elective section of the programme with 15 ECTS. Projects in practice may not exceed 15 ECTS in total on the restricted elective and elective section of the programme. Project in practice may be written as a combination of the restricted elective and elective section of the programme. The regulations are described in Appendix 4 to the shared section of the curriculum.
- Thesis preparation projects may not be included in the elective section of the programme. The regulations are described in Appendix 6 to the shared section of the curriculum.

6.4.5 Thesis

The MSc Programme in Geology-Geoscience with a specialisation in Solid Earth Geochemistry and Petrology includes a thesis corresponding to 60 ECTS, as described in Appendix 2 to the shared curriculum. The thesis must be written within the academic scope of the programme.

The main supervisor must be employed at either SCIENCE or GLOBE Institute SUND.

6.4.6 Academic mobility

The curriculum makes it possible to follow subject elements outside the Faculty of Science.

The academic mobility for the MSc Programme in Geology-geoscience with a specialisation in Solid Earth Geochemistry and Petrology is placed in block 3+4 of the 1st year.

Academic mobility requires that the student follows the rules and regulations regarding pre-approval and credit transfer.

In addition the student has the possibility to arrange similar academic mobility in other parts of the programme.

7 Exemptions

In exceptional circumstances, the study board may grant exemptions from the rules in the curriculum specified solely by the Faculty of Science.

8 Commencement etc.

8.1 Validity

This subject specific section of the curriculum applies to all students enrolled in the programme – see however Appendix 2.

8.2 Transfer

Students enrolled on previous curricula may be transferred to the new one as per the applicable transfer regulations or according to an individual credit transfer by the study board.

8.3 Amendments

The curriculum may be amended once a year so that any changes come into effect at the start of the academic year. Amendments must be proposed by the study board and approved by the Dean.

Notification about amendments that tighten the admission requirements for the programme will be published online at www.science.ku.dk one year before they come into effect.

If amendments are made to this curriculum, an interim arrangement may be added if necessary to allow students to complete their MSc Programme according to the amended curriculum.

Appendix 1 The recommended academic progression

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

Table – Sedimentary Systems and Paleoclimate

	Block 1	Block 2	Block 3	Block 4
1st year	***Interpretation of Reflection Seismic and Wireline Log Data***	***Sedimentary Basins - Evolution, Environments and Resources (part 1)***	**Restricted elective**	**Restricted elective**
	Restricted elective	***Sedimentary Deposits: Modern and Ancient***	**Elective**	**Elective**
2nd year	**Thesis**			

Subject elements in italics have been discontinued. See discontinued courses below.

Table – Water Resources

	Block 1	Block 2	Block 3	Block 4
1st year	***Water Resources (part 1)***	***Water Resources (part 2)***	**Restricted elective**	**Restricted elective**
	Restricted elective	***Groundwater Geochemistry***	**Elective**	**Elective**
2nd year	**Thesis**			

Subject elements in italics have been discontinued. See discontinued courses below.

Table – Solid Earth Geophysics

	Block 1	Block 2	Block 3	Block 4
1st year	***Solid Earth Geophysics (part 1)***	***Solid Earth Geophysics (part 2)***	**Restricted elective**	**Restricted elective**
	Restricted elective	***Acquisition and Proces-sing of Seismic Data***	**Elective**	**Elective**
2nd year	**Thesis**			

Subject elements in italics have been discontinued. See discontinued courses below.

Table – Solid Earth Geochemistry and Petrology

	Block 1	Block 2	Block 3	Block 4
1st year	***Core to Crust: Earth´s Evolution and Processes (part 1)***	***Core to Crust: Earth´s Evolution and Processes (part 2)***	**Restricted elective**	**Restricted elective**
	Restricted elective	***Current Advances in Igneous Petrology and Geochemistry***	**Elective**	**Elective**
2nd year	**Thesis**			

Subject elements in italics have been discontinued. See discontinued courses below.

Appendix 2 Interim arrangements

The Shared Section of the BSc and MSc Curricula for Study Programmes applies to all students.

The interim arrangements below only consist of parts where the current curriculum differs from the rules and regulations that were previously valid. Therefore, if information about relevant rules and regulations are missing, it can be found in the curriculum above.

1 General changes for students admitted in the academic year 2018/19 and 2019/20

Students admitted to the MSc Programme in the academic year 2018/19 must finish the programme as listed in the curriculum above with the following exceptions.

1.1 Sedimentary Basins, Palaeoclimate and Hydrocarbon Resources

Title

The MSc Programme in Geology-Geoscience with a specialisation in Sedimentary Systems and Paleoclimate leads to a Master of Science (MSc) in Geology-Geoscience with a specialisation in Sedimentary Basins, Paleoclimate and Hydrocarbon Resources with the Danish title:
Cand.scient. (candidatus/candidata scientiarum) i geologi-geoscience med en specialisering i sedimentære bassiner, palæoklima og kulbrinte ressourcer.

Restricted elective subject elements

22.5 ECTS credits are to be covered as subject elements from the following two lists:

1) 7,5 ECTS credits are to be covered as subject elements from the following list:
Restricted elective subject elements offered as part of the specialisation in Sedimentary Systems and Paleoclimate, list 1, in this curriculum (see above)

2) 15 ECTS credits are to be covered as subject elements from the following list:			
Restricted elective subject elements offered as part of the specialisation in Sedimentary Systems and Paleoclimate, list 2, in this curriculum (see above)			
NFYK15009U	Earth Structure and Processes	Discontinued*	7.5 ECTS
NNMK17007U	Quaternary and Glacial Geology	Discontinued*	7.5 ECTS
NIGK15016U	Lithosphere Structure from Geophysical Data	Discontinued*	7.5 ECTS

*See discontinued courses below.

1.1.2 Water Resources

Restricted elective subject elements

22.5 ECTS credits are to be covered as subject elements from the following two lists:

1) 7,5 ECTS credits are to be covered as subject elements from the following list:
Restricted elective subject elements offered as part of the specialisation in Water Resources, list 1, in this curriculum (see above)

2) 15 ECTS credits are to be covered as subject elements from the following list:			
Restricted elective subject elements offered as part of the specialisation in Water Resources, list 2, in this curriculum (see above)			
NFYK15009U	Earth Structure and Processes	Discontinued*	7.5 ECTS
NNMK17007U	Quaternary and Glacial Geology	Discontinued*	7.5 ECTS
NIGK15016U	Lithosphere Structure from Geophysical Data	Discontinued*	7.5 ECTS

*See discontinued courses below.

1.1.3 Solid Earth Geophysics

Restricted elective subject elements

22.5 ECTS credits are to be covered as subject elements from the following two lists:

1) 7,5 ECTS credits are to be covered as subject elements from the following list:
Restricted elective subject elements offered as part of the specialisation in Solid Earth Geophysics, list 1, in this curriculum (see above)

2) 15 ECTS credits are to be covered as subject elements from the following list:			
Restricted elective subject elements offered as part of the specialisation in Solid Earth Geophysics, list 2, in this curriculum (see above)			
NFYK15009U	Earth Structure and Processes	Discontinued*	7.5 ECTS
NNMK17007U	Quaternary and Glacial Geology	Discontinued*	7.5 ECTS
NIGK15016U	Lithosphere Structure from Geophysical Data	Discontinued*	7.5 ECTS

*See discontinued courses below.

1.1.4 Solid Earth Geochemistry and Petrology

Restricted elective subject elements

22.5 ECTS credits are to be covered as subject elements from the following two lists:

1) 7,5 ECTS credits are to be covered as subject elements from the following list:
Restricted elective subject elements offered as part of the specialisation in Solid Earth Geochemistry and Petrology, list 1, in this curriculum (see above)

2) 15 ECTS credits are to be covered as subject elements from the following list:			
Restricted elective subject elements offered as part of the specialisation in Solid Earth Geochemistry and Petrology, list 2, in this curriculum (see above)			
NFYK15009U	Earth Structure and Processes	Discontinued*	7.5 ECTS
NNMK17007U	Quaternary and Glacial Geology	Discontinued*	7.5 ECTS
NIGK15016U	Lithosphere Structure from Geophysical Data	Discontinued*	7.5 ECTS

*See discontinued courses below.

2 Discontinued courses

Course Code	Course Title	ECTS	Interim arrangement
NGEA09046U	Acquisition and Processing of Seismic Data	7.5	The course was a compulsory subject element on the specialization in Solid Earth Geophysics in the academic year 2020/21 and earlier. Offered for the last time: 2020/21. Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22. Students following the course as a compulsory subject element must replace the course as follows: Students must do an alternative exam in form of a written assignment that fulfils the course's learning objectives with the course coordinator as supervisor.

NFYK15004U	Advanced Seismology	7.5	The course was restricted elective on the specializations in Sedimentary Systems and Paleoclimate, Water Resources, Solid Earth Geophysics, and Solid Earth Geochemistry and Petrology in the academic year 2020/21 or earlier. Offered for the last time: 2021/22 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2022/23.
NIGK17004U	Applied Mineralogy	7.5	The course was restricted elective on the specializations in Sedimentary Systems and Paleoclimate, Water Resources, Solid Earth Geophysics, and Solid Earth Geochemistry and Petrology in the academic year 2020/21 or earlier. Offered for the last time: 2020/21 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22.
NIGK14056U	Climate Change and Water Resources	7.5	The course was restricted elective on the specializations in Sedimentary Basins, Paleoclimate and Hydrocarbon Resources, Water Resources and Solid Earth Geochemistry and Petrology in the academic year 2016/17.
NIGK14019U	Core to Crust: Earth´s Evolution and Processes (part 1)	7.5	The course was a compulsory subject element on the specialization in Solid Earth Geochemistry and Petrology in the academic year 2020/21 and earlier. Offered for the last time: 2020/21. Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22. Students following the course as a compulsory subject element must replace the course as follows: Students must do an alternative exam in form of a written assignment that fulfils the course's learning objectives with the course coordinator as supervisor.
		7.5	The course was restricted elective on the specializations in Sedimentary Systems and Paleoclimate, Water Resources and Solid Earth Geophysics in the academic year 2020/21 or earlier. Offered for the last time: 2020/21 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22. Students that must pass the course as a restricted elective subject element must replace the course as follows: Students must do an alternative exam in form of a written assignment that fulfils the course's learning

			objectives with the course coordinator as supervisor.
NIGK14020U	Core to Crust: Earth´s Evolution and Processes (part 2)	7.5	The course was a compulsory subject element on the specialization in Solid Earth Geochemistry and Petrology in the academic year 2020/21 and earlier. Offered for the last time: 2020/21. Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22. Students following the course as a compulsory subject element must replace the course as follows: Students must do an alternative exam in form of a written assignment that fulfils the course's learning objectives with the course coordinator as supervisor.
NIGK17001U	Current Advances in Igneous Petrology and Geochemistry	7.5	The course was a compulsory subject element on the specialization in Solid Earth Geochemistry and Petrology in the academic year 2020/21 and earlier. Offered for the last time: 2020/21. Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22. Students following the course as a compulsory subject element must replace the course as follows: Students must do an alternative exam in form of a written assignment that fulfils the course's learning objectives with the course coordinator as supervisor.
NFYK15009U	Earth Structure and Processes	7.5	The course was restricted elective in the academic year 2018/19. Offered for the last time: 2018/19 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2019/20
NIGK19002U	Geodynamics	7.5	The course was restricted elective on the specializations in Sedimentary Systems and Paleoclimate, Water Resources, Solid Earth Geophysics, and Solid Earth Geochemistry and Petrology in the academic year 2020/21 or earlier. Offered for the last time: 2020/21 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22.
NGEK10029U	Groundwater Exploitation and Protection	7.5	The course was restricted elective on the specializations in Sedimentary Systems and Paleoclimate, Water Resources, Solid Earth Geophysics, and Solid Earth Geochemistry and Petrology in the academic year 2020/21 or earlier.

			Offered for the last time: 2020/21 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22.
NGEK12002U	Groundwater Geochemistry	7.5	The course was a compulsory subject element on the specialization in Water Resources in the academic year 2020/21 and earlier. Offered for the last time: 2020/21. Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22. Students following the course as a compulsory subject element must replace the course as follows: Students must do an alternative exam in form of a written assignment that fulfils the course's learning objectives with the course coordinator as supervisor.
NIGK17003U	Hydrogeology: Data collection and processing (summercourse)	7.5	The course was restricted elective on the specializations in Sedimentary Systems and Paleoclimate, Water Resources, Solid Earth Geophysics, and Solid Earth Geochemistry and Petrology in the academic year 2020/21 or earlier. Offered for the last time: 2020/21 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22.
NGEA09047U	Interpretation of Reflection Seismic and Wireline Log Data	7.5	The course was a compulsory subject element on the specialization in Sedimentary Basins, Paleoclimate and Hydrocarbon Resources in the academic year 2020/21 and earlier. Offered for the last time: 2020/21. Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22. Students following the course as a compulsory subject element must replace the course as follows: Students must do an alternative exam in form of a written assignment that fulfils the course's learning objectives with the course coordinator as supervisor.
		7.5	The course was restricted elective on the specializations in Water Resources, Solid Earth Geophysics, and Solid Earth Geochemistry and Petrology in the academic year 2020/21 or earlier. Offered for the last time: 2020/21 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22.

			Students that must pass the course as a restricted elective subject element must replace the course as follows: Students must do an alternative exam in form of a written assignment that fulfils the course's learning objectives with the course coordinator as supervisor.
NIGK19001U	Introduction to Geomicrobiology	7.5	The course was restricted elective on the specializations in Sedimentary Systems and Paleoclimate, Water Resources, Solid Earth Geophysics, and Solid Earth Geochemistry and Petrology in the academic year 2020/21 or earlier. Offered for the last time: 2020/21 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22.
NIGK15016U	Lithosphere Structure from Geophysical Data	7.5	The course was restricted elective in the academic year 2019/20 or earlier. Offered for the last time: 2019/20 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2020/21
NGEA09056U	Numerical Modelling in Fluvial, Coastal, Estuarine and Marine Environment	7.5	The course was restricted elective on the specializations in Sedimentary Systems and Paleoclimate, Water Resources, Solid Earth Geophysics, and Solid Earth Geochemistry and Petrology in the academic year 2020/21 or earlier. Offered for the last time: 2020/21 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22. The course is identical to NIGK21000U Numerical Modelling in Coastal, Estuarine and Marine Environments, 7.5 ECTS.
NIGK17002U	Past Climate and Sea Level: Processes and Proxies	7.5	The course was restricted elective on the specializations in Sedimentary Systems and Paleoclimate, Water Resources, Solid Earth Geophysics, and Solid Earth Geochemistry and Petrology in the academic year 2020/21 or earlier. Offered for the last time: 2020/21 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22. The course is identical to NIGK21035U Past Climate, 7.5 ECTS.
NIGK15023U	Project course in Geology-Geoscience	7.5	The course was restricted elective on the specializations in Sedimentary Systems and Paleoclimate, Water Resources, Solid Earth Geophysics, and Solid Earth Geochemistry and Petrology in the academic year 2020/21 or earlier.

			Offered for the last time: 2020/21 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22.
NIGK14021U	Sedimentary Basins - Evolution, Environments and Resources (part 1)	7.5	The course was a compulsory subject element on the specialization in Sedimentary Basins, Paleoclimate and Hydrocarbon Resources in the academic year 2020/21 and earlier. Offered for the last time: 2020/21. Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22. Students following the course as a compulsory subject element must replace the course as follows: Students must do an alternative exam in form of a written assignment that fulfils the course's learning objectives with the course coordinator as supervisor.
NIGK14022U	Sedimentary Basins - Evolution, Environments and Resources (part 2)	7.5	The course was restricted elective on the specializations in Sedimentary Systems and Paleoclimate, Water Resources, Solid Earth Geophysics, and Solid Earth Geochemistry and Petrology in the academic year 2020/21 or earlier. Offered for the last time: 2020/21 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22.
NIGK17019U	Sedimentary deposits modern and ancient	7.5	The course was a compulsory subject element on the specialization in Sedimentary Basins, Paleoclimate and Hydrocarbon Resources in the academic year 2020/21 and earlier. Offered for the last time: 2020/21. Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22. Students following the course as a compulsory subject element must replace the course as follows: Students must do an alternative exam in form of a written assignment that fulfils the course's learning objectives with the course coordinator as supervisor.
NIGK15024U	Solid Earth Geophysics (part 1)	7.5	The course was a compulsory subject element on the specialization in Solid Earth Geophysics in the academic year 2020/21 and earlier. Offered for the last time: 2020/21. Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22.

			Students following the course as a compulsory subject element must replace the course as follows: Students must do an alternative exam in form of a written assignment that fulfils the course's learning objectives with the course coordinator as supervisor.
		7.5	The course was restricted elective on the specializations in Sedimentary Systems and Paleoclimate, Water Resources and Solid Earth Geochemistry and Petrology in the academic year 2020/21 or earlier. Offered for the last time: 2020/21 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22. Students that must pass the course as a restricted elective subject element must replace the course as follows: Students must do an alternative exam in form of a written assignment that fulfils the course's learning objectives with the course coordinator as supervisor.
NIGK15025U	Solid Earth Geophysics (part 2)	7.5	The course was a compulsory subject element on the specialization in Solid Earth Geophysics in the academic year 2020/21 and earlier. Offered for the last time: 2020/21. Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22. Students following the course as a compulsory subject element must replace the course as follows: Students must do an alternative exam in form of a written assignment that fulfils the course's learning objectives with the course coordinator as supervisor.
NNMK17000U	Stardust to Planets: Building a Habitable Solar System	7.5	The course was restricted elective on the specializations in Sedimentary Systems and Paleoclimate, Water Resources, Solid Earth Geophysics, and Solid Earth Geochemistry and Petrology in the academic year 2020/21 or earlier. Offered for the last time: 2019/20 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22. The course is identical to SGBK20009U Stardust to Planets: Building a Habitable Solar System, 7.5 ECTS

NNMK17007U	Quarternary and Glacial Geology	7.5	The course was restricted elective in the academic year 2018/19. Offered for the last time: 2018/19 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2019/20.
NIGK13019U	Water Resources Management	7.5	The course was restricted elective on the specializations in Water Resources, Sedimentary Systems and Paleoclimate, Solid Earth Geochemistry and Petrology, and Solid Earth Geophysics in the academic year 2018/19 or earlier. Offered for the last time: 2018/19 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2019/20.
NIGK14025U	Water Resources (part 1)	7.5	The course was a compulsory subject element on the specialization in Water Resources in the academic year 2020/21 and earlier. Offered for the last time: 2020/21. Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22. Students following the course as a compulsory subject element must replace the course as follows: Students must do an alternative exam in form of a written assignment that fulfils the course's learning objectives with the course coordinator as supervisor.
		7.5	The course was restricted elective on the specializations in Sedimentary Systems and Paleoclimate, Solid Earth Geochemistry and Petrology, and Solid Earth Geophysics in the academic year 2020/21 or earlier. Offered for the last time: 2020/21 Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22. Students that must pass the course as a restricted elective subject element must replace the course as follows: Students must do an alternative exam in form of a written assignment that fulfils the course's learning objectives with the course coordinator as supervisor.
NIGK14026U	Water Resources (part 2)	7.5	The course was a compulsory subject element on the specialization in Water Resources in the academic year 2020/21 and earlier. Offered for the last time: 2020/21.

			Last exam if applicable (cf. SCIENCE's Teaching and exam rules): 2021/22. Students following the course as a compulsory subject element must replace the course as follows: Students must do an alternative exam in form of a written assignment that fulfils the course's learning objectives with the course coordinator as supervisor.

Appendix 3 Description of objectives for the thesis

After completing the thesis, the student should have:

Knowledge about:

- Identifying scientific problems within the subject areas for the chosen geological specialisation.
- Summarising a combination of methodologies/theories based on international research for use in the work with problem formulation.
- Discussion of theories/models on the basis of and with a high degree of independence.

Skills to:

- Apply and critically evaluate theories/methodologies in the field of geoscience, including their applicability and limitations.
- Assess the extent to which the production and interpretation of findings/material obtained in the study depend on the theory/methodology and the constraints chosen.
- Draw conclusions in a clear and academic manner in relation to the problem formulation and considering the topic and the subject area of the thesis.
- Discuss and communicate the significance of the thesis on the basis of previous data, earlier research and geological theory.
- Conduct experimental work/producing own geological data relevant to the topic as formulated in the problem formulation.
- Process geological data through a choice of academic analysis methods and present findings objectively and in a concise manner.
- Assess the credibility of own findings based on relevant data processing.

Competences in:

- Initiating and performing academic work within the research context of the chosen study programme and geological specialisation.
- Solving complex problems and carrying out development assignments in a general geological context.