



## Qualification descriptor for Degree of Master of Science (120 credits) - Major; Geosciences

*Teknologie Masterexamen - Huvudområde; Geovetenskap*

**Degree regulations of 2007**  
**Second cycle**

### Specialisations

Name	Start term	For admitted until
Ore Geology ( <i>Malmgeologi</i> )	A12	
Environmental Geochemistry ( <i>Miljögeokemi</i> )	A12	

### Established

Qualification descriptor approved on 2011-01-25 by Tekniska fakultetsnämnden. Qualification descriptor updated on 2013-06-28 by Chef Utbildnings- och forskningsenheten.

### Examination Objectives

#### Higher Education Act

English information is not available

#### Higher Education Ordinance

Annex 2

##### Knowledge and understanding

For a Master of Arts/Science (120 credits) the student shall have:

- \* demonstrated knowledge and understanding in the main field of study, including both broad knowledge of the field and a considerable degree of specialised knowledge in certain areas of the field as well as insight into current research and development work, and
- \* demonstrated specialised methodological knowledge in the main field of study.

##### Competence and skills

For a Master of Arts/Science (120 credits) the student shall have:

- \* demonstrated the ability to critically and systematically integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information
- \* demonstrated the ability to identify and formulate issues critically, autonomously and creatively as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames and so contribute to the formation of knowledge as well as the ability to evaluate this work
- \* demonstrated the ability in speech and writing both nationally and internationally to report clearly and discuss his or her conclusions and the knowledge and arguments on which they are based in dialogue with different audiences, and
- \* demonstrated the skills required for participation in research and development work or autonomous employment in some other qualified capacity.

##### Judgement and approach

For a Master of Arts/Science (120 credits) the student shall have:

- \* demonstrated the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues and also to demonstrate awareness of ethical aspects of research and development work
- \* demonstrated insight into the possibilities and limitations of research, its role in society and the

responsibility of the individual for how it is used, and

\* demonstrated the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning.

## Detailed objectives for this degree

After course completion, the student should have:

- general technical skills and an in-depth knowledge of mineral resources and environmental geochemistry to act as a professional in industrial and university applications,
- the ability to use appropriate methods and equipment to solve both scientific and industrial related problems and to combine knowledge and methods from different disciplines,
- the ability to provide written and oral presentation of technical and scientific problems and results for professionals and laymen,
- practical training in identifying, formulating and solving technical problems within given economic and time frames,
- developed an ability to cooperate and conduct good management,
- experience of how to plan, perform and report a project in geosciences,
- knowledge about doctoral studies.

## Specialisations

### Ore Geology

After course completion, the student should have:

- an advanced knowledge about the genesis, investigation and evaluation of mineral deposits,
- an advanced knowledge about the behavior of elements in natural and contaminated environments,
- an ability to use appropriate methods and equipment to solve both scientific and industrial related problems,
- knowledge of environmental, technical, political, legal and economic aspects of the exploration of mineral deposits and how to contribute to sustainable development,

### Environmental Geochemistry

After course completion, the student should have:

- an advanced knowledge about the behavior of elements in natural and contaminated environments,
- knowledge about the genesis and investigation of mineral deposits,
- the ability to use appropriate methods and equipment to solve both scientific and industrial related geochemical problems,
- knowledge of environmental, technical, political, legal and economic aspects of the exploration of mineral deposits and how to contribute to sustainable development.

## Credits

The programme requires 120 credits.

*The credits stated indicate the total for all courses leading to the degree. All courses are to have been completed and passed.*

## Special requirements

### Higher Education Ordinance and Luleå University of Technology

Independent project (degree project)

A requirement for the award of a Master of Arts/Science (120 credits) is completion by the student of an independent project (degree project) for at least 30 credits in the main field of study. The degree project may comprise less than 30 credits, however no less than 15 credits, if the student has already completed an independent project in the second cycle for at least 15 credits in the main field of study or the equivalent from a programme of study outside Sweden. (The Higher Education Ordinance, Annex 2 Qualifications ordinance)

Master of Arts/Science (60/120 credits) require a previous degree of Bachelor, Bachelor in fine arts or a professional degree of at least 180 credits or an equivalent foreign degree. (SFS 2006:1053, ch. 6, 5 § also appendix 2, Degree regulations)

A minimum of 90 credits of the education's 120 credits must consist of courses at second cycle level. A requirement for a Master's degree is that a main subject area has been formulated. (Riktlinjer för Bolognaanpassning (Guidelines for Bologna adaptation), LTU Dnr 783-06)

*All course requirements for this degree are stated in the official syllabus.*

### **Degree certificate**

*A degree certificate will be issued upon application to students who fulfil the requirements for a degree.*

### **Course requirements for this degree**

Syllabus - [Arctic Mineral Resources](#) (*Utbildningsplan - Arktiska mineralresurser*)

Syllabus - [Master programme in Exploration Geoscience](#) (*Utbildningsplan - Geovetenskap för prospektering, master*)

Syllabus - [Master programme in Applied Environmental Geochemistry](#) (*Utbildningsplan - Tillämpad miljögeokemi, master*)

Syllabus - [Master Programme in Exploration and Environmental Geosciences](#) (*Utbildningsplan - Geovetenskap, inr malmgeologi och miljögeokemi, master*)

Syllabus - [Master Programme in Georesources Engineering](#) (*Utbildningsplan - Geovetenskapliga resurser, master*)