



Programme syllabus

Faculty of Health and Life Sciences

Miljövetenskap, masterprogram, 120 högskolepoäng
Environmental Science, Master Programme, 120 credits

Level

Second cycle

Date of Ratification

Approved 2025-09-11.

The programme syllabus is valid from autumn semester 2026.

Prerequisites

Basic eligibility for second level studies and special eligibility:

- 90 credits in biology, geology, chemistry, engineering or environmental science, including an independent project/degree project of 15 credits
- 15 credits in chemistry
- English 6/nivå 2, or equivalent

Description of Programme

The programme offers a combination of courses and practical activities to build a solid, scientific-based knowledge of natural systems and impacts of human activities in the environment. The programme offers a comprehensive and mainly project course focused training including environmental risk analyses, dispersion of pollutants in natural media, and mitigation options.

The knowledge acquired during the two years of the programme can be directly applied to environmental management, such as in consulting companies responsible for contaminant and risk assessments at contaminated sites, as well as in planning and leading remediation projects at public authorities at municipal, national and international levels. The programme also provides a strong background and experience for students wanting to continue their education at Ph.D. level.

Objectives

Central degree objectives in accordance with the Higher Education Ordinance

Knowledge and understanding

For a Degree of Master (Two Years), the student must:

- demonstrate knowledge and understanding in their main field of study, including both broad knowledge in the field and substantially deeper knowledge of certain parts of the field, together with deeper insight into current research and development work, and
- demonstrate deeper methodological knowledge in their main field of study.

Skills and abilities

For a Degree of Master (Two Years), the student must:

- demonstrate an ability to critically and systematically integrate knowledge and to analyse, assess and deal with complex phenomena, issues and situations, even when limited information is available,
- demonstrate an ability to critically, independently and creatively identify and formulate issues and to plan and, using appropriate methods, carry out advanced tasks within specified time limits, so as to contribute to the development of knowledge and to evaluate this work,
- demonstrate an ability to clearly present and discuss their conclusions and the knowledge and arguments behind them, in dialogue with different groups, orally and in writing, in national and international contexts, and
- demonstrate the skill required to participate in research and development work or to work independently in other advanced contexts.

Judgement and approach

For a Degree of Master (Two Years), the student must:

- demonstrate an ability to make assessments in their main field of study, taking into account relevant scientific, social and ethical aspects, and demonstrate an awareness of ethical aspects of research and development work,
- demonstrate insight into the potential and limitations of science, its role in society and people's responsibility for how it is used, and
- demonstrate an ability to identify their need of further knowledge and to take responsibility for developing their knowledge.

Content

Programme Overview

The programme is divided in two years. During the first year, the students are introduced to research methodology in the natural sciences, to fieldwork and data analysis of environmental science and the literature of environmental science, as well as starting project-based learning. Practical activities may include fieldwork (such as sampling and monitoring strategies for soils, sediments, water, and/or air) and laboratory work, data processing and analyses. The students work in groups with real

cases, in order to understand background environmental conditions, degradation and mitigation.

The second year includes project-based studies, to a large extent within the existing research groups of Environmental Science (belonging to the LNUC CENWIN), and involves consolidation of scientific research methods via a series of project courses oriented to a specific research topic within environmental science. The second year has 50% of the time (30 credits) dedicated to the individual research project (the Master thesis). The project is carried out within a field related to environmental science.

The programme is entirely in English.

Courses in the programme

Year 1

Research Methodology in the Natural Sciences*, 15 credits, A1N Mandatory

The course aims to further develop and gain an understanding of the research methods that are used in the natural science research field. The course includes 6 sub courses with the following content: philosophy of science, research ethics, literature searching, quantitative research methods in the natural sciences, oral presentation skills, laboratory safety and qualitative methods.

Introduction to research in Environmental science*, 15 credits, A1N Mandatory

The students acquire knowledge on the current state of research in the field of environmental science.

The course is divided into two parts. The first part (7.5 credits) is a literature course focused on environmental science and a broader palette of environmental issues. The second part (7.5 credits) handles literature within a specific field of environmental science, where the focus is decided by the student together with the course leader.

Fieldwork and data analysis*, 7.5 credits, A1N

This course includes planning and execution of fieldwork (e.g., sampling of soil, water, air, etc) and lab analyses for exploration or monitoring purposes. It also includes an overview of current techniques for interpretation of data.

Risk management of contaminated sites*, 7.5 credits, A1N Mandatory

The course explores the principles of dispersion of pollutants in the environment and how risks can be assessed. It also discusses risk management (including remediation methods), as well as examples of important actors commonly involved in environmental issues and pertinent legislation.

Project course in environmental science 1*, 15 credits, A1F Mandatory

The course aims to deepen the knowledge of the subject environmental science through a survey of current research literature. The aim and scope will enable the student to focus their profile on a discipline of the field (geochemistry, toxicology, environmental risk analysis, microbiology, circular economy). Students are involved in working groups where they discuss and present the results of their studies. Students can participate in research activities developed by the research groups at the department. Involvement in a specific research group or project may continue throughout the remaining project courses, if applicable, although a change of research group may also be considered.

Year 2

Project course in environmental science 2*, 15 credits, A1F Mandatory

The course aims to deepen and broaden knowledge of the subject environmental science by progressing their knowledge from Project course 1 further by studying certain methods and techniques of the focus area, both in theory and in the laboratory (as a preparation for Project course 3 and the main degree project). Students will thus have the opportunity to participate in research activities developed by the research groups at the department. Students may have a chance to work with data to be used in their degree project.

Project course in environmental science 3*, 15 credits, A1F Mandatory

The course aims to deepen and broaden the knowledge of the subject environmental science gained in Project Course 1 and 2, through further surveys of current research literature. In this course, focus is on practical studies of their focus area. Students will be involved in one of the current research groups at the department, and a special focus of this course is to be involved in laboratory work (not applicable to some focus areas, i.e. circular economy, which will have a different approach here). The students will further discuss and present the results of their surveys to the other students of the course. Students may have a chance to work with data that they can use in their degree project.

Degree Project in environmental science*, 30 credits, A2E Mandatory

The course aims to give a deeper understanding in a subject within the main fields of study, environmental science, as well as train the student's analytical and laboratory skills and the ability to write a scientific work. The students are expected to prepare and defend a master thesis.

* Course in the main field of study (environmental science)

Societal relevance

This master programme trains students in environmental science on advanced level and thereby prepares them to respond, based on the best scientific knowledge available, to environmental-related issues and to disseminate scientific information related to environmental issues in and outside the academia. The programme prepares students for the job market by giving them a strong background in environmental sciences, which is of interest for consulting companies responsible for risk assessment and implementation of remediation projects at municipal, national and international levels. The knowledge and experience acquired during the programme will also provide the students with skills needed to continue their education in environmental sciences or similar fields at Ph.D. level.

Internationalization

The programme provides possibilities for internationalization both at home and abroad. The programme is designed to attract students from all over the world. The students' different backgrounds are actively used in lectures and seminars, e.g. as a starting point for discussions about different countries' environmental politics and attitudes towards sustainability issues.

The students have the opportunity to complete parts of their education abroad. Linnaeus University and the Faculty of Health and Life Sciences offer a wide range of agreements with partner universities that the students may use. Either the third or fourth semester are recommended as first choice for studies abroad. During the fourth semester, the degree project is to be executed as a fulltime activity, allowing the student

to complete their thesis at a university abroad.

Exchange studies should be planned in cooperation with the programme coordinator and the faculty's international coordinator.

Sustainable societal development

The principles of environmental science and sustainable development permeate the entire programme. There is a strong focus on the environmental domain, but students will also establish links between the societal and economic domains, touching on, and aligning with, the topics of several of the Global Goals in the sustainability plan Agenda 2030. The students have the opportunity to do so during the entire programme, but particularly in the project courses in environmental science 1 and 2.

Students of the programme obtain a wide area of knowledge perspectives on environmental issues owing to the multidisciplinary nature of the programme and the varied backgrounds of its teachers. The programme also contributes to promoting an approach of critical thinking. The programme includes an introductory course in research methods and ethics, which takes into account various aspects of relevance to the programme, including research methodology, history and ethics.

Quality Development

A continuous quality evaluation of the programme will review how the learning environment supports the learning and development of the students. Quality control work is undertaken according to the guidelines drawn up by the Faculty of Health and Life Sciences and the Department of Biology and Environmental Science.

The students are invited to participate in course evaluations after completion of each course. Course evaluation results are compiled in a course report and archived. The results of the evaluations and any changes made in the implementation of a course, or its syllabus, are communicated to the students the next time the course is given according to LNU's regulations.

Results and suggestions for improvements are discussed in a programme board (consisting of an external representative, teachers and students) and programme committee (consisting of examiners, course coordinators and programme coordinator) which provide support for the programme's development and quality assurance.

Degree

After having completed their studies in accordance with the requirements stated in the Qualification Ordinance of the Higher Education Ordinance and in Linnaeus University's local qualification ordinance, the student may apply for the award of a qualification. Students who have completed the programme Environmental Science, Master Programme 120 credits, may obtain the following qualification:

Filosofie masterexamen (120 hp)

Huvudområde: Miljövetenskap

Degree of Master of Science (120 credits)

Main Field of Study: Environmental Science

The degree certificate is issued in two languages (Swedish and English) and is accompanied by a diploma supplement in English.

Other Information

Students with a Master degree (60 credits) obtained from the existing master programme in Environmental risk analysis at the Faculty of Health and Life Sciences (Environmental Risk Analysis, Master Programme 60 credits – in Swedish only) may apply for admission to programme in progress, i.e. for admission to the second year of the Master programme in Environmental Science.

For the student, some additional costs may occur within the education framework, e.g. travel expenses in connection with research visits.

In the event of any discrepancies between the Swedish and the English version of this programme syllabus, the Swedish version shall prevail.