

Master of Science Environmental Science



Photo: Ron Sijda

” How will your
sushi become
environmentally
friendly?

Environmental

Do you want to take part in developing solutions to current and future environmental problems? If so, then the 2-year master's programme in Environmental Science from Roskilde University may be the right choice for you.

Science

Society is increasingly affected by environmental issues such as pollution, eutrophication, over-exploitation of plant and animal populations, climate change and reduced global biodiversity. Environmental Science is an academic field driven by the need for multi-disciplinary approaches to identify, analyze and solve complex environmental challenges - now and in the future.

Questions to be addressed may include how to solve ecological impact from existing chemical contamination and prevent future contamination, how to improve biological production of e.g., aquaculture by using live feed, how to minimize environmental impact of our consumptions of e.g., plastics, or how ecosystems cope with impacts from different approaches to nutrient cycling.

The purpose of the master's programme in Environmental Science is to educate graduates, who can identify and understand environmental challenges and take part in the development of evidence-based solutions to such problems. As such, the program has a strong foundation in natural science and also include relevant aspects of societal processes such as environmental regulation and legislation from drawing of research from social sciences. Students will gain an in-depth knowledge of the theories and practical methods underlying the analysis and management of environmental issues.

Graduates will be able to conduct comprehensive and specialized interdisciplinary analyses and assessments within the area of Environmental Science and obtain qualifications and competences to become employed by environmental authorities, consultancy companies, NGO's with an environmental angle or within environmental research institutions at the national or international level.

Example of a study programme

4. semester	Master Thesis (60 ECTS)				
	or Project-oriented internship (15 ECTS) and Master thesis (45 ECTS)				
3. semester					
2. semester	Environmental Monitoring and Applications (5 ECTS)	Elective course (25 ECTS)			
1. semester	Introduction to Environmental Science (5 ECTS)	Environmental Management (5 ECTS)	Environmental Chemistry and Element Cycling (10 ECTS)	Data Analysis and Modelling in Environmental Science (5 ECTS)	Elective Course (5 ECTS)

Please note: The table shows an example of a course of study. Courses, projects, internships and studies abroad with credit transfer may vary for each student.

Elective courses

1. semester	
Climate change ecology (5 ECTS)	Sustainable use of biological systems (5 ECTS)

2. semester					
Ecotoxicology - Theory and practice (10 ECTS)	Molecular methods in ecology (5 ECTS)	Environment and health (5 ECTS)	Spatial analysis of the environment (5 ECTS)	Biodiversity and conservation (5 ECTS)	Project management (5 ECTS)

1.

SEMESTER

The objective of the first semester is to introduce the field of Environmental Science and to provide the necessary foundation within selected areas of natural science, data analysis and management.

2.

SEMESTER

The objective of the second semester is to provide in-depth specialization within selected areas of Environmental Science.

3.-4.

SEMESTER

The last two semesters are intended for the master's thesis. Environmental Science students have two options. Students can either make a 60 ECTS thesis during the 3rd and 4th semesters, or they can do a project-oriented internship (15 ECTS) in the 3rd semester, combined with a shorter thesis accounting for 45 ECTS. The short thesis is initiated during the 3rd semester alongside the internship.

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The distance between researchers and students is very small, so you will experience getting the latest knowledge and news within Environmental Science while waiting for the coffee to brew.”

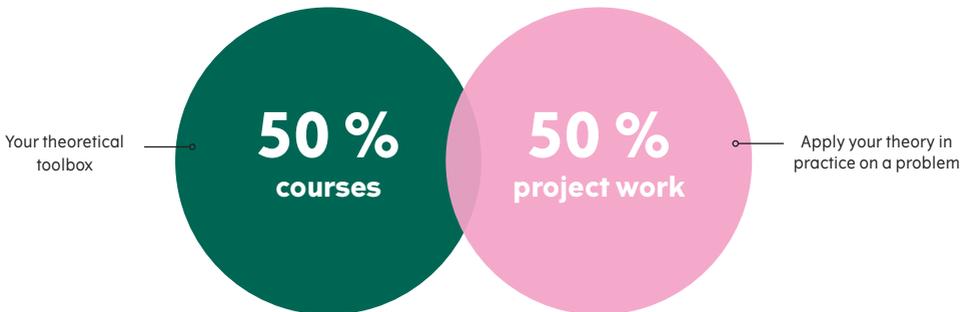
Nikolai Lond Frisk, Aquatic environment employee, Faxe Municipality

Form of Study

Through your education, you get the opportunity to create your own individual education profile and your own independent specialization in accordance with the idea of the problem-oriented, interdisciplinary and project-oriented teaching method at Roskilde University.

THE STUDY FORM IS A COMBINATION OF

- Problem-oriented project group work
- Courses that are organized as teaching in small groups, where the focus is on theories, methods, and problems in an interaction between teacher and student



The project work and guidance are prioritized at Roskilde University. We also prioritize that you gain experience with the production and processing of empirical data as well as the practical application of theories and methods.

All master's programmes offer project-oriented internships and / or studies at other universities at home and abroad with credit transfer.



Photo: Kasper Hornbæk

Examples of projects and master's theses

- Waste audit on Holbæk Hospital - an investigation on plastic waste in a Danish Hospital.
- Testing the performance of single and combined taxonomic groups as indicators for biodiversity in Danish forests by use of complementarity analyses.
- Prevalence of Microplastics in Eelpout from Roskilde Fjord - Implications for Biomonitoring.
- Effects of simulated heat wave scenarios on growth, mortality, photosynthesis, pigment content and oxidative stress in Danish *Saccharina latissima*.
- Influence of environmental changes on growth and biofilm formation of potentially pathogenic bacteria isolated from plastic debris.
- A comparative fate study of the diesel-associated polycyclic aromatic hydrocarbons by the polychaete, *Marphysa macintoshi*, in coastal sediment in Chake-Chake bay, Zanzibar, Tanzania.
- Regulation of textile-related chemicals and their effect on freshwater organisms, *Tubifex tubifex* and *Hyaella Azteca*.
- Impacts of sediment spiked with pharmaceuticals (diclofenac and citalopram) to the amphipod *Corophium volutator* - testing the impact of single compounds and mixtures.
- Adhesion of Benzo(a)Pyrene to Particles of Sediment and Microplastic - Implications for the Vector Effect.
- Assessing the combined effect of temperature increase and exposure to pharmaceuticals (Fluoxetine) on the life-history traits of *Daphnia magna*.
- Cultivation of two macroalgal species, *Palmaria palmata* and *Saccharina latissima*, in Danish waters - a study of suitable cultivation sites.

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My master's degree within Environmental Science has given me strong competencies in risk assessment and ecotoxicology. I apply them in my daily work when defining the requirements for the Nordic Swan Ecolabel for cosmetic care products and detergents.”

Julie Zwicky, consultant, Ecolabelling Denmark

Competences

The masters' programme in Environmental Science gives you a strong professional position in the labor market and a solid starting point for research. The program enables you to:

- Identify environmental problems.
- Analyze impacts on biological systems, propose tests, evaluate their outcomes, and manage effects of such impacts.
- Develop projects aiming to obtain new knowledge to evaluate and solve complex environmental problems.
- Act as a consultant, adviser, or researcher to propose solutions to environmental challenges.

Career examples

Environmental Consultant The Capital Region of Denmark
Research Manager Ocean Rainforest Sp/F, Faroe Islands
Chemical Regulatory Specialist VELUX, Denmark
Ecotoxicologist The Danish Ministry of the Environment (EPA)
PhD student The University of Waikato, New Zealand
Product Manager The Danish Technological Institute, Denmark
Head of Section Danish Nature, WWF, Denmark
Freshwater Biologist Kalundborg Municipality, Denmark
Project Manager Fishing Zealand, Denmark

Further information



You can find admission requirements, application deadlines and other information about Environmental Science at Roskilde University here:

ruc.dk/kandidat/environmental-science

Contact us if you have questions about Environmental Science:

RUC Study & Career Guidance

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