# FAL3021 Land and Water Systems 7.5 credits

**Mark- och vattensystem**

This is a translation of the Swedish, legally binding, course syllabus.

## Establishment

The course syllabus is valid from Autumn 2024 according to faculty board decision: A-2024-0253, 4.1. Decision date: 2024-04-11

## Grading scale

P, F

## Education cycle

Third cycle

## Specific prerequisites

Admitted as PhD student in Sustainable Development, Environmental Science and Engineering

## Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

## Intended learning outcomes

After completing the course the student should be able to:

- acquire scientifically based skills and knowledge in the field of soil and water systems by demonstrating a case study based on their PhD project, existing literature, or in collaboration with stakeholders working on relevant research problems.
- solve problems of systems engineering, planning, or management of land and water resources related to sustainable development.
- develop understandings in research design: how to develop research questions, identify knowledge gaps and methods and data that can answer these questions
- develop an understanding of data analysis: how to use analytical methods to reliably and effectively address research questions
- develop an understanding of scientific writing and presentation: be able to formulate and solve problems in case studies
- relate the work to sustainable development.

## Course contents

The course aims to provide PhD students with an understanding of research activities in the broad field of soil and water systems. The specific aim of the course is to provide knowledge and skills in managing land and water as an integrated system to help society achieve the goals of improved quality of life, a healthy environment, and sustainable development in an era of global climate change and land use change. The course will stimulate students' thinking towards integration and synthesis of theories and knowledge across disciplinary boundaries in land and water resource development. Students will write a short report on their case study to understand, and summarize their research questions and knowledge gaps, implement methods and data, and present results and discussions. These activities will also stimulate critical thinking skills that can be implemented in the PhD theses themselves and related publications. Moreover, critical thinking helps to understand systems and strategies, identify gaps solve problems, and critically reflect on activities leading to (better) decision-making. The skill includes cognitive thinking skills, such as interpretation, analysis, evaluation, and explanation.

## Examination

- SEM1 - Seminars, 2.0 credits, grading scale: P, F
- UPP1 - Hand-in text reflections, 2.5 credits, grading scale: P, F
- UPP2 - Final written assignment, 3.0 credits, grading scale: P, F

Based on recommendation from KTH’s coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

## Other requirements for final grade

Mandatory attendance and active participation is required at all seminars. If there are special reasons, the responsible teacher can provide compensation task for absence. Normally, a maximum of two seminars can be compensated.

## Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.

## Additional regulations

The application for the course is made to the course responsible and must contain a shorter application letter with a reflection on why the student wants to take the course.