



# AL2134 Environmental Modelling 7.5 credits

## Miljömodellering

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

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

## Establishment

The course syllabus is valid from spring term 2023 according to the Head of school decision: A-2022-2467, 3.2.2. Date of decision: 2022-10-12

## Grading scale

A, B, C, D, E, FX, F

## Education cycle

Second cycle

## Main field of study

Environmental Engineering

## Specific prerequisites

Admitted to Master's Programme, Sustainable Technology (TSUTM).

Others: Admitted to a program at KTH - Royal Institute of Technology and at least completed 180 ECTS credits. Courses from upper secondary school corresponding to the courses Eng B/6 according to the Swedish upper secondary school system.

## Language of instruction

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

## Intended learning outcomes

The course is intended to give introductory knowledge and an overview of methods for environmental modelling and its purposes. The course is also intended to give introductory knowledge and experience in model construction and evaluation.

After finishing the course, the student should be able to:

- Describe the main aims and parts as well as key concepts of environmental modelling;
- Describe and distinguish between deterministic and stochastic models, static and dynamic models, forward and backward modelling, empirical and mechanistic models, in terms of concepts and uses;
- Formulate, implement, test and analyse conceptual and quantitative dynamic models of systems of relevance to the environment or within Industrial Ecology / Environmental management
- On an introductory level use one or more numerical modelling tools;
- Understand written descriptions of environmental modelling and apply environmental modelling to (help) solving a selected contemporary sustainability/environmental challenge and communicate the results

## Course contents

- Modelling fundamentals and concepts
- Conceptual and quantitative models; modelling tools
- Model types
- Modelling steps and procedures (good practice)
- Communication of model results

## Examination

- UPP1 - Assignment 1, 1.5 credits, grading scale: A, B, C, D, E, FX, F
- UPP2 - Assignment 2, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- UPP3 - Assignment 3, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- UPP4 - Assignment 4, 2.0 credits, grading scale: A, B, C, D, E, FX, 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.

## Other requirements for final grade

UPP1 Uppgift 1 1.5 hp

UPP2 Uppgift 2 2.0 hp

UPP3 Uppgift 3 2.0 hp

UPP4 Uppgift 4 2.0 hp

## 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.