



AL2134 Environmental Modelling 7.5 credits

Miljömodellering

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

Establishment

Course syllabus for AL2134 valid from Autumn 2016

Grading scale

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

Education cycle

Second cycle

Main field of study

Environmental Engineering

Specific prerequisites

At least 180 academic credits (ECTS) in a programme of engineering or natural science ; mathematics corresponding to minimum 2 years engineering studies

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. You will also practice your skills in communicating environmental modelling.

After finishing the course, the student should be able to

- Describe the main aims and parts of environmental modelling;
- Describe the 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 conceptual models for dynamic systems of relevance for e.g. Industrial Ecology;
- Formulate, implement and test quantitative dynamic models of systems of relevance to the environment or within Industrial Ecology / Environmental management
- On an introductory level, critically analyse and use models and model results in an applied sense (i.e. with relevance to e.g., Industrial Ecology/Environmental Management/Environmental Assessment);
- On an introductory level use one or more numerical modelling tools;
- Apply environmental modelling to (help) solving a selected contemporary sustainability/environmental challenge
- Understand written descriptions of environmental modelling and on a basic level evaluate such models and their results
- On an introductory level, communicate environmental modelling for different users, and describe the role of environmental modelling within science, engineering and the society.

Course contents

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

Disposition

UPP1 Uppgift 1 1.5 hp

UPP2 Uppgift 2 2.0 hp

UPP3 Uppgift 3 2.0 hp

UPP4 Uppgift 4 2.0 hp

Course literature

Will be announced before the course start

Examination

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

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

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.