



# MJ2651 Ecology, Advanced

## Course 6.0 credits

Ekologi, fortsättningskurs

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

### Establishment

Course syllabus for MJ2651 valid from Autumn 2007

### Grading scale

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

### Education cycle

Second cycle

### Main field of study

### Specific prerequisites

At least three years of academic studies in a program of engineering, or natural science or course MJ1502 (3c1330) or corresponding knowledge.

### Language of instruction

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

## Intended learning outcomes

The overall aim of the course is to provide relevant and useful ecological knowledge in order to understand the human impact on the ecosystems and the possibilities to build a human society based on sustainable development.

This understanding means that after the course you should be able to:

- Describe and explain the biogeochemical circulation of water, carbon, methane and nitrogen and the connection between abiotic and biotic factors.
- Explain and analyze how energy and materials are transported through food webs.
- Explain important ecological concepts such as niche, carrying capacity and resilience.
- Describe and analyze the importance of photosynthesis and respiration.
- Understand the importance of key- and indicator species and the importance of biological diversity.
- Describe and critically evaluate the effects of eutrophication and acidification on land and aquatic ecosystems.
- Describe and explain the problems with alien species and gene modification.
- Identify and have basic knowledge about earth great biomes.
- Search information from scientific literature related to ecological problems and summarize in a written report that should be orally presented.

## Course contents

Important subjects that the course will cover are: basic ecological concepts, population ecology, food webs, biogeochemical circulations, photosynthesis and respiration, key and indicator species, alien species and the importance of biological diversity.

Independent group projects around different case studies will increase the knowledge and will be an important part of the course. Examples of case studies are the Aral Sea problem, Urban Ecology, The Chernobyl accident or the effect of forestry in Sweden or in the tropics.

## Course literature

Mark B. Bush 2003, Ecology of a changing planet third edition. Prentice Hall ISBN 0-13-066257-7

## Examination

- PRO1 - Project Work, 3.0 credits, grading scale: P, F
- FÄL1 - Field Exercises, 1.0 credits, grading scale: P, F
- TEN1 - Examination, 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.

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

## Other requirements for final grade

Written exam (TEN1; 2 cr)

Project work (PRO1; 3 cr)

Field work (FÄL1; 1 cr)

## 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.