



# SK182N Internet course: Environmental Science. Physics and Applications 6.0 credits

Internetkurs: Miljövetenskap. Fysiken med tillämpningar

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

Course syllabus for SK182N valid from Spring 2009

## Grading scale

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

## Education cycle

First cycle

## Main field of study

Physics, Technology

## Specific prerequisites

- **General requirements**, i.e. completed upper secondary education including documented proficiency in Swedish and English (for courses given in Swedish) or including documented proficiency in English (for courses given in English).

- **Specific requirements:** knowledge of Mathematics corresponding to Mathematics D, Physics corresponding to Physics B and Chemistry corresponding to Chemistry A is required.

## Language of instruction

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

## Intended learning outcomes

The course will give knowledge about the Green-house effect and the solar energy. The course also shows how man affects the environment and how and why the temperature of the Earth is increasing and how the sea levels rise. The student will after the course be able to:

- solve problems regarding the Green-house effect, Global warming and the solar radiation
- explain and to be able to perform calculations on radioactivity, fission and fusion of nuclei
- to follow pollutants transport in the atmosphere. and to do calculations on the ozone layer and how other molecules affects ozone
- discuss physical models within trace-detection
- discuss modern applications within remote sensing, LIDAR, DOAS, LIBS and other recent research on the environment.

## Course contents

Green-house effect. Pollutants in air and water. Global warming, the Ozone layer, Climate changes, Energy from fissile fuel, Nuclear power, Fusion-fission, Tokamak, Laser fusion, Transport of pollutants, , Analytical methods; LIDAR, DOAS, Trace detection, radioactivity, LIBS-laser analysis of materials, Remote sensing and satellites.

## Disposition

course examined over the internet

## Course literature

Environmental Science. Internet-book 2008. Lars-Erik Berg

<http://kurslab.physics.kth.se/~berg/Envir.htm>

## Examination

- TEN1 - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- TEN2 - Examination, 3.0 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.

Exams on the internet

## Other requirements for final grade

Two written exams (TEN1; 3 hp, grading scale A-F), (TEN2; 3 hp, grading scale A-F).

## 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.