



# HN0006 Chemistry 9.0 credits

Kemi /Basårskurs/

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 HN0006 valid from Autumn 2007

## Grading scale

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

## Education cycle

Pre-university level

## Specific prerequisites

Admission to Technical Preparatory Year.

## Language of instruction

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

## Intended learning outcomes

Following completing this course the student will be able to:

- carry out experimental investigations in a satisfactory manner for safety and with satisfactory accuracy and processing, report and interpret results and present work orally and in writing.
- use the periodic table to describe the structure of the atom and predict similarities and differences in the basic chemical properties
- discuss how electromagnetic radiation interacts with matter
- describe how models for different types of chemical bonding based on the electronic structure of atoms and relate the properties to the bond type and strength as well as to the substance's structure.
- interpret, write and use formulas for chemical compounds and reactions, and thus integrating stoichiometric reasoning, and perform simple calculations
- interpret singular  $\Delta G$  change in chemical reactions and the use of singular  $\Delta G$  change to discuss the driving force of a reaction.
- use the concepts of oxidation and reduction of spontaneous and non spontaneous reactions.
- identify common strong and weak acids and bases, perform simple pH calculations and use the concept of neutralization in the stoichiometric calculations.
- discuss equilibria in the buffer effect.
- describe various elements, compounds and modern materials, their characteristics and cycles and their importance.
- relate the knowledge of chemistry to the global environmental impact
- use knowledge of chemistry in daily and technological context

## Course contents

Chemistry A similar course in the Swedish upper secondary school.

## Course literature

Andersson m.fl: Gymnasiekemi A. Liber ISBN 978-91-47-01875-8Aktuellt kurskompendium Övningsuppgifter i kurskompendiet, alternativt Andersson m.fl.: Övningsuppgifter Gymnasiekemi A Liber ISBN 978-91-47-01831-4 Björk : Formler och tabeller. Natur och Kultur ISBN 13-978-91-27-72279-8

## Examination

- LAB1 - Laboratory Work, 2.0 credits, grading scale: P, F
- TEN1 - Examination, 7.0 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.

Written examination (TEN1, 7 credits) with grades A-F

Passed control formulations give bonuses at exam time, therefore only the first exam time. Passed laboratory exercises and thoroughly conducted laboratory reports, which shall be in the computer as a tool (LAB1; 2 credits) with grades P / Q. Laboratory work can be performed only when the course is scheduled. Lab reports must be submitted during the time course is in progress and as directed in the course PM. Final grade based on the grade on the exam. Grading System A-F.

## Other requirements for final grade

Exam 1; 7 ECTS

Lab 1; 2 ECTS

## 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.