



# KD1050 Chemical Thermodynamics 6.0 credits

Kemisk termodynamik

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

## Establishment

Course syllabus for KD1050 valid from Autumn 2010

## Grading scale

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

## Education cycle

First cycle

## Main field of study

Chemistry and Chemical Engineering, Technology

## Specific prerequisites

Completed upper secondary education including documented proficiency in English corresponding to English A. For students who received/will receive their final school grades after 31 December 2009, there is an additional entry requirement for mathematics as follows: documented proficiency in mathematics corresponding to Mathematics A.

And the specific requirements of mathematics, physics and chemistry corresponding to Mathematics E, Physics B and Chemistry A.

## 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 basic knowledge in thermodynamics and its applications in chemistry, chemical engineering and biological systems.

- Describe and use the state laws for gases.
- Describe and apply the four laws of thermodynamics.
- Describe and understand the equilibrium conditions.
- Describe and use the concepts of internal energy, enthalpy, entropy, free energy and chemical potential.
- Understand and apply the partial molar quantities.
- Analyze chemical equilibria in ideal and non-ideal systems.
- Analyze combinations and solutions thermodynamics.
- Analyze phase equilibria.
- Using phase diagrams to solve problems in one-and two-component systems.
- Apply the basic thermodynamics of chemical reactions in biological systems

## Course contents

Properties of gases

The laws of thermodynamics

Thermodynamic equilibrium in ideal and non-ideal systems

The thermodynamics of liquid mixtures

Applications of thermodynamics

## Course literature

Atkins and de Paula  
Atkins' Physical Chemistry, 9th  
Oxford University Press 2010  
ISBN-13: 978-0-19-954337-3

## Examination

- TEN1 - Examination, 6.0 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

Examination (TEN1;6 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.