



KH003V Introductory Course in Chemistry for Professionally Active 6.0 fup

Introduktionskurs i kemi för yrkesverksamma

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

Establishment

Course syllabus for KH003V valid from Autumn 2015

Grading scale

P, F

Education cycle

Pre-university level

Specific prerequisites

General entry requirements: <https://www.kth.se/utbildning/anmalan-antagning-behorighet/behorighet/grundlaggande-behorighet-1.54566>

Language of instruction

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

Intended learning outcomes

On completion of the course, you will have acquired the basics of chemistry. A general knowledge of chemistry and a platform for broader studies in chemistry.

Able to describe atomic structure and explain how the periodic system relates to this. Able to calculate molecular weights from the periodic system and be familiar with the names of the elements. Able to use and understand simple nomenclature for atomic ions, molecules and molecular ions within inorganic and the organic chemistry. You should be familiar with the most common functional groups in organic compounds. You should be able to account for ion and covalent bonding models and decide which model best describes bonding in a compound. You should know about intermolecular forces and how they influence properties such as boiling point. You should be able to write correct balanced reaction formulae neglecting spectator ions, and be able to make simple (molar, mass, concentration, volume) stoichiometric calculations including stoichiometric relationships and limiting reactions. Able to make the classification precipitation/dissolution reactions, acid-base reactions and redox reactions and know what is characteristic of each respective class of reactions and be able to give examples. You should further know and be able to use the concepts acid-base, oxidant, reducing agent, and the oxidation and aggregation states.

Course contents

The atom, the elements and the periodic system
Chemical bonding, intermolecular forces and solutions
Compounds, nomenclature and functional groups
Formulae and stoichiometry
Some types of chemical reactions

Disposition

The course is given at one quarter speed and is a distance course. The course is given via a web-based course platform. Reading material and supervision are given periodically during the course. Possibility to contact other students is offered via the course platform. The first lecture and an or a couple of meetings at KTH will be organised for interested students. Two to three meetings on KTH, of which one is compulsory.

Course literature

The course is given via the course platform Bilda. The course uses Liber's web-based support to "Gymnasie-Kemi A" that be reached free of charge via your browser. The course uses also materials that are available on the course platform.

As a complement to the information in the course platform it is the good, but not necessary, to have access to a prescribed book for the Chemistry for the upper secondary school A, e.g. Andersson S., Sonesson A., Ståhlhandske B., Tullberg A. (2000) Gymnasium Chemistry A, Liber or the equivalent.

Equipment

Access to internet and web browsers and computer with software that is compatible with Word Excel, Powerpoint in Office 97 or later, and with flash and possibility to read pdf-files.

Examination

- INL1 - Assignment, 1.0 fup, grading scale: P, F
- INL2 - Assignment, 1.0 fup, grading scale: P, F
- INL5 - Assignment, 1.0 fup, grading scale: P, F
- RED1 - Presentation, 0.5 fup, grading scale: P, F
- INL3 - Assignment, 1.0 fup, grading scale: P, F
- INL4 - Assignment, 1.5 fup, grading scale: P, 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.

Examination takes place through self-correcting tests in the course platform, possibly supplemented by compulsory student interaction via the course platform. The course is completed by an oral presentation (at KTH or via webhotel or telephone).

Other requirements for final grade

Compulsory parts:

INL1 1 credit Self-correcting test: The atom, elements and the periodic system

INL2 1 credit Self-correcting test: Chemical bonding, intermolecular forces and solutions

INL3 1 credit Self-correcting test: Compounds, nomenclature and functional groups

INL4 1.5 credits Self-correcting test: Formulae and stoichiometry

INL5 1 credit Self-correcting test: Some types of chemical reactions

RED1 0.5 credits Oral presentation

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.