

*Course syllabus*

# Miljö kemi Environmental Chemistry

**KASF01, 7,5 credits, G2 (First Cycle)**

**Valid for:** 2023/24

**Faculty:** Faculty of Engineering, LTH

**Decided by:** PLED B/K

**Date of Decision:** 2023-04-18

## General Information

**Main field:** Technology.

**Elective Compulsory for:** B2, K3

**Language of instruction:** The course will be given in English on demand

## Aim

The aim of the course is to provide basic knowledge in understanding, judging, and predicting the effects of chemicals on health and environment.

## Learning outcomes

### *Knowledge and understanding*

For a passing grade the student must

- understand the molecular basis of life and ecosystems
- be able to describe the properties of chemical compounds that make them toxic or environmentally hazardous
- understand how social and societal factors influence attitudes towards toxicity and environmental hazards

### *Competences and skills*

For a passing grade the student must

- be able to estimate and predict risks associated with chemical compounds
- be able to suggest exchange of hazardous chemicals for less hazardous ones
- be able to communicate and discuss risks associated with chemical compounds

### *Judgement and approach*

For a passing grade the student must

- be able to judge possible solutions to toxicity and environmental problems from an ethical and sustainability perspective
- be able to critically judge chemical compounds toxicity and environmental hazards and relate these to risk attitudes and societal needs

## Contents

The chemical basis for how health-damaging and environmentally hazardous compounds are absorbed and metabolized by organisms and the mechanisms behind their effects are discussed thoroughly. Emphasis is put on relationships between structure, chemical properties, and biological effects. The impacts of hazardous chemicals on external environments, such as in the water and air, will be discussed. The course will also discuss environmental legislation.

## Examination details

**Grading scale:** TH - (U,3,4,5) - (Fail, Three, Four, Five)

**Assessment:** Written assessment and a written report.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

### **Parts**

**Code:** 0117. **Name:** Examination.

**Credits:** 6. **Grading scale:** TH. **Assessment:** For a passing grade the student must pass a written final exam.

**Code:** 0217. **Name:** Report.

**Credits:** 1,5. **Grading scale:** UG. **Assessment:** For a passing grade the student must complete and pass a written assignment.

## Admission

**Assumed prior knowledge:** KOKA25 Organic Chemistry

**The number of participants is limited to:** No

**The course overlaps following course/s:** KOK060, KOK032

## Reading list

- Sterner, O.: Förgiftningar och miljöhot. Studentlitteratur, 2010, ISBN: 978-91-44-04749-2.
- Harnung, S. E., Johnson, M. S.: Chemistry and the Environment. Cambridge University Press, 2012, ISBN: 1107682576.

## Contact and other information

**Course coordinator:** Baozhong Zhang, baozhong.zhang@chem.lu.se

**Course homepage:** <https://canvas.education.lu.se/>

**Further information:** Alternative literature in English is "Chemistry Health and the Environment" by Sterner, O., 2nd edition, Wiley-Blackwell (2010). ISBN 978-3-527-32582-5.