



**Karolinska  
Institutet**

Course syllabus for

## **Health Risk Assessment, 9 credits**

Hälsoriskbedömning, 9 hp

This course syllabus is valid from spring 2025.

Please note that the course syllabus is available in the following versions:

Spring2019 , Spring2020 , Spring2022 , Spring2024 , Spring2025

Course code	4TX031
Course name	Health Risk Assessment
Credits	9 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Toxicology
Level	AV - Second cycle
Grading scale	Pass with distinction, Pass, Fail
Department	Institute of Environmental Medicine
Decided by	Utbildningsnämnden IMM
Decision date	2018-10-22
Revised by	Education committee IMM
Last revision	2024-10-08
Course syllabus valid from	Spring 2025

## **Specific entry requirements**

At least the grade Pass for all courses on semester 1 and for the course Laboratory animal sciences in theory and practice, within the Master's programme in toxicology.

## **Objectives**

Upon completion of the course, the student shall be able to:

Regarding knowledge and understanding

- describe and explain the basic concepts and principles of health risk assessment of chemical substances,
- describe methods used to assess chemical hazards and exposure,
- describe the role of health risk assessment within chemicals regulation,

Regarding competence and skills

- calculate health-based guidance values and margin of exposure and explain and motivate the

- calculations,
- in groups make a complete health risk assessment, and present and discuss this assessment, both orally and in written format,
- identify and critically review important information sources in toxicology and health risk assessment, including both risk assessments and individual studies,
- explain how lack of data, other uncertainties and variability are handled in health risk assessment,
- identify societal and ethical aspects associated with health risk assessment from a local and global perspective, including gender equality and equal opportunities,

Regarding judgement and approach

- discuss the usefulness and limitations of different types of data (in silico, in vitro, in vivo, epidemiological) for evaluating toxicity and health risks, and reflect on the development and integration of next generation methods,
- reflect on how factors such as variability, uncertainties and expert judgment may influence risk assessment conclusions,
- reflect on how chemical health risks can be best communicated to different groups.

## Content

The course comprises fundamental concepts, principles and methods, and conditions for risk assessment, regulatory applications, examples of complex risk assessments, conditions for risk communication and training in practical risk assessment. The course also highlights the role of risk assessment in promoting sustainable development in a global perspective, in which communication to the public and public authorities plays an important part.

## Teaching methods

The course contains lectures, practical exercises, group assignments, discussions and study visit.

## Examination

The examination consists of a written report and oral presentation (Fail/Pass), giving oral feedback on a group assignment (Fail/Pass), and a written examination (Fail/Pass/Pass with distinction).

The course grade is based on the results of the written examination.

### Compulsory participation

All group exercises, study visits, oral and written presentation and critical oral review are compulsory.

The examiner assesses if, and in that case how, absence can be compensated. Before the student has participated in all compulsory parts or compensated absence in accordance with the examiner's instructions, the student's results for respective part will not be registered. Absence from a compulsory activity may result in that the student cannot compensate the absence until the next time the course is given.

If there are special grounds, or a need for adaptation for a student with a disability, the examiner may decide to deviate from the syllabus's regulations on the examination form, the number of examination opportunities, the possibility of supplementation or exemptions from the compulsory section/s of the course etc. Content and learning outcomes as well as the level of expected skills, knowledge and abilities may not be changed, removed or reduced.

## Other directives

The course language is English.

# Literature and other teaching aids

## Mandatory literature

Handouts and other assigned literature

## *Recommended literature*

*Hayes, A. Wallace; Kruger, Claire L.*

### **Hayes' principles and methods of toxicology**

6. ed. : - xxvi, 2157 p.

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