



**Karolinska  
Institutet**

Course syllabus for

# **Principles of Toxicology, 7.5 credits**

Toxikologins principer, 7.5 hp

This course syllabus is valid from autumn 2023.

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

[Autumn2015](#) , [Autumn2016](#) , [Autumn2020](#) , [Autumn2021](#) , Autumn2023

Course code	4TX018
Course name	Principles of Toxicology
Credits	7.5 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Toxicology
Level	G2 - First cycle 2
Grading scale	Fail (U), pass (G) or pass with distinction (VG)
Department	Institute of Environmental Medicine
Decided by	Programnämnd 7
Decision date	2015-04-09
Revised by	Education committee IMM
Last revision	2023-03-06
Course syllabus valid from	Autumn 2023

## **Specific entry requirements**

A Bachelor's degree or a professional degree equivalent to a Swedish Bachelor's degree of at least 180 credits in biomedicine, biology, cellular and molecular biology, pharmaceuticals, chemistry, medicine, nutrition or biotechnology. And proficiency in English equivalent to English B/English 6.

## **Objectives**

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

Regarding knowledge and understanding

- describe basic toxicological phenomena in the light of normal cellular and biochemical processes,
- explain the central principles regarding philosophy of science and bioethics,

Regarding skills and ability

- identify and discuss strengths and limitations of different methods to study toxicological effects, and their areas of application,

- analyse and discuss scientific articles in the field of toxicology,
- orally present scientific articles according to principles of scientific communication,

Regarding judgement and approach

- review and critically assess scientific presentations.

## Content

The course contains cell biology and biochemistry from a toxicological perspective, and mechanisms of toxicity. The course includes methods used in toxicology (in vitro, in vivo, in silico, epidemiology) and how toxic compounds can impair sustainable development in a global perspective. The course also covers basic applied scientific communication as well as basic philosophy of science and bioethics.

## Teaching methods

Teaching will be in the form of lectures, seminars, workshops, journal clubs and group assignments.

## Examination

The examination consists of oral assignments, graded Pass/Fail, and a written examination graded Pass with distinction/Pass/Fail. The grade for the course is based on the written examination.

Compulsory participation

Seminars, workshops, group assignments, and journal clubs 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.

## Transitional provisions

## Other directives

The course language is English.

## Literature and other teaching aids

### Mandatory literature

**Casarett and Doull's toxicology : the basic science of poisons**

*Klaassen, Curtis D.*

Ninth edition. : New York : McGraw-Hill Education, [2019] - xiii, 1620 pages

ISBN:9781259863745 LIBRIS-ID:x6d58hkqv7v7v3bk

URL: [Länk](#)

[Library search](#)

Handouts and other assigned literature.