Course syllabus for

Toxicity testing, 15 credits

Toxicitetstestning, 15 hp
This course has been cancelled, for further information see Transitional provisions in the last version of the syllabus.

Course code	4TX024
Course name	Toxicity testing
Credits	15 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	Programme Committee 7
Decision date	2015-04-09
Course syllabus valid from	Autumn 2015

Specific entry requirements

At least the grade Pass for the courses Introduction to toxicology, Target organ toxicology, Health risk assessment of chemicals, Toxicokinetics, Biochemical and molecular toxicology, and Laboratory animal science in theory and practice within the Master's Programme in Toxicology.

Objectives

The course aims at giving the student knowledge and skills in all parts of toxicity testing in vivo and the application of the 3Rs (Reduce, Refine, Replace animal testing).

After the course, the student shall be able to:

Regarding knowledge and understanding

- describe and explain all parts included in toxicity studies in vivo, from handling of laboratory animals, observations and analyses, to compilation and statistical analysis of data, and critical analysis and interpretation of results,

Regarding competence and skills

- critically, independently, and creatively identify and formulate examples of areas for application of the 3Rs in the area of toxicity testing,

- formulate a protocol (Standard Operating Procedure, SOP) for a toxicity study in vivo in accordance with harmonized and validated international guidelines and Good Laboratory Practice (GLP),
- choose and use appropriate statistical methods for analysis of results from toxicity studies in laboratory animals,
- write a specific part, and contribute to the discussion, conclusion and finalization, of a report of a toxicity study according to standardized structure and style, as well as to international guidelines and GLP,

Regarding judgement and approach

- reflect on the complexity of toxicology when interpreting results and drawing conclusions in toxicity studies of chemical substances,
- demonstrate a professional and ethical attitude to carrying out toxicity studies in vivo.

Content

The course is divided into the following parts:

Biostatistics, 2 hp Probability theory, probability distributions, inference methods, confidence intervals, significance analysis, variance analysis, non-parametric methods, analysis of qualitative data, regression and correlation. **Toxicity testing, planning and performance, 3 hp** Planning a toxicity study in rodents in accordance with Good Laboratory Practise (GLP), international guidelines for standardised testing of chemicals (e g OECD-guidelines), the 3Rs (Reduce, Refine, Replace) and Standard Operating Procedures (SOP). **Toxicity testing, reporting, 5 hp** Compilation and evaluation of results. Report writing. **Integration of toxicity testing, 5 hp** Integration of planning, performing, analysing and reporting a toxicity study of a chemical substance in rodents, according to international guidelines for standardised testing, GLP, as well as according to present legislation regarding work with experimental animals and the 3Rs.

Teaching methods

Teaching will be in the form of lectures, problem-solving individually or in groups, seminars, group discussions, computer exercises and oral and written presentations.

Examination

Biostatistics (2 credits). The examination consists of a written examination. Graded Pass with distinction/Pass/Fail.

Toxicity testing, planning and performance (3 credits). The examination consists of written assignments. Graded Pass/Fail.

Toxicity testing, reporting (5 credits). The examination consists of a report that is written in groups. Graded Pass/Fail.

Integration of toxicity testing (5 credits). The examination consists of a written exam. Graded Pass with distinction/Pass/Fail.

The final grade of the course is based on the grade for the parts Biostatistics and Integration of toxicity testing. For the grade Pass in the course a Pass is required for all parts.

During the current semester, a regular examination session and one re-examination are given for each part.

Compulsory participation
All practical parts, group exercises including presentations, and some lectures (indicated in the schedule)

are compulsory. The course director 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 course director's instructions, the student's results for respective part will not be registered in LADOK.

Transitional provisions

After each course occasion there will be at least six occasions for the examination within a two-year period from the end of the course.

Other directives

The course language is English.

Course evaluation will be carried out in accordance with the guidelines established by the Board of Higher Education.

Oral evaluation in the form of course council meetings will be carried out during the course.

Literature and other teaching aids

Mandatory literature

Handbook of laboratory animal science. : Essential principles and practices
Hau, Jann; Schapiro, Steven Jay

3. ed. : Boca Raton : CRC Press, cop. 2011 - 723 s.
ISBN:978-1-4200-8455-9 (vol.1) LIBRIS-ID:12096142
Library search

Hayes, A. Wallace; Kruger, Claire L.
Hayes' principles and methods of toxicology

6. ed. : - xxvi, 2157 p.
ISBN:9781842145364 (hardcover : alk. paper) LIBRIS-ID:16954170
Library search

Hand-outs and reports.