Course syllabus

Tillämpad ekotoxikologi
Applied Ecotoxicology

EXTQ15, 15 credits, A (Second Cycle)

Valid for: 2023/24
Faculty: Faculty of Engineering, LTH
Decided by: PLED W
Date of Decision: 2023-03-27

General Information

Elective for: W4-ms
Language of instruction: The course will be given in Swedish

Aim

The aim is for students to have an understanding for ecotoxicological theory, methods and practice.

Learning outcomes

Knowledge and understanding
For a passing grade the student must

- have a grounding in ecotoxicological theory, methods and practice
- understand ecological and physical-chemical conditions leading to the occurrence of environmental pollutants and their effects in nature
- be familiar with cutting edge research in ecotoxicology
- be able to identify and quantify different groups of environmental pollutants in air, water, earth and biota
- be familiar with multivariate data processing methods as well as toxicological statistics
- be familiar with national legislation, regulations and procedures for the control of chemical products and also identify the major actors within the subject area and what responsibilities they have

Competences and skills
For a passing grade the student must

- be able to collect, critically analyse, process, summarise and present ecotoxicological information, independently and in groups
- be able to describe methods for determining the risks posed by chemicals to health and the environment
- be able to present ecotoxicological information to interest groups, orally and in writing
- be able to plan and carry out ecotoxicological experiments, routine tests and monitoring of environmental pollutants
- be able to evaluate critically ecotoxicological issues and attitudes.
- have experience of oral and written presentation as well as making of posters.

Contents

The course consists of two main sections, the first of which is theoretical in character. Basic understanding of theory and context is tested in the compulsory examination which follows. In the second section, students work individually or in groups on applied subjects. In-depth scientific studies and laboratory work as well as projects of a more interdisciplinary and popular character are carried out by students under the supervision of teaching staff.

All students will carry out, individually or in groups, a major applied project related to a real work situation. These "practical projects" can and should be run in co-operation with business, government departments and/or research departments depending on students' ambitions regarding future careers.

Central to the course is an overall perspective on environmental pollutants. Here aspects addressed range from spread, chemical characteristics and persistence to effects from the cell to the ecosystem level as well as risk management in the community. The course includes environmental-chemical ecotoxicology, effect oriented ecotoxicology and applied ecotoxicology. Environmental-chemical and effect-oriented ecotoxicology provide the theoretical base necessary for the understanding and interpretation of ecotoxicology-related environmental problems. The-applied material is of direct societal or technical relevance to the solving or handling of ecotoxicology-related problems.

Other subjects included are:

- biochemical and physiological response/effect mechanisms
- ecological effect/damage mechanisms
- inherent characteristics of environmental pollutants and their fate in nature.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)
Assessment: Final assessment takes the form of an evaluation of each student's contribution to the various course elements. The course concludes with a presentation of the applied projects which are also graded. Students who fail the ordinary examination will have an opportunity to re-sit the examination shortly afterwards. In order to pass the course the student is required to have acceptable practical reports / have acceptable hand-in exercises / have acceptable project reports and to have participated in all compulsory course elements. The final grade for the course is determined by the aggregated results of the different parts of the examination.

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.

Admission

Admission requirements:

- 105 ECTS credits program studies
- VVRA01 Hydrology and Aquatic Ecology
- EXTA01 Terrestrial Ecology

The number of participants is limited to: No
The course overlaps following course/s: BIO791, BIOR52, TEK097

Reading list

- According to a list determined by the department, available at least eight weeks before the start of the course, see the web-page for Undergraduate Studies in Biology. http://www.biol.lu.se/biologi.

Contact and other information

Course coordinator: Olof Berglund, Olof.Berglund@biol.lu.se
Course homepage: https://www.biologi.lu.se/utbildning/grund-och-avancerad-utbildning/kurser/kurser-avancerad-niva/biologiska-kurser-pa-avancerad-niva-for-teknologer
Further information: Problem-based teaching, study visits including interviews, laboratory work and reporting, and applied work are important course elements that train students for future professional tasks. Participation in all elements of the course except lectures is compulsory.