

BIOR41, Biology: Ecotoxicology, 15 credits

Biologi: Ekotoxikologi, 15 högskolepoäng

Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2007-04-12 and was last revised on 2019-02-12. The revised syllabus applies from 2019-02-12, autumn semester 2019.

General Information

The course is elective for a Degree of Bachelor of Science or Degree of Master (120 credits) in biology and environmental sciences.

Language of instruction: English

Main field of studies

Biology

Environmental Science

Depth of study relative to the degree requirements

A1N, Second cycle, has only first-cycle course/s as entry requirements

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Learning outcomes

The general aim of the course is that the students should understand and master basic ecotoxicological theory and practice.

Knowledge and understanding

On completion of the course the student shall be able to:

- give an overview of the history of the ecotoxicological subject area
- account for the ecotoxicological terminology
- account for the most important groups of pollutants as well as which properties and functional groups that characterise these

- explain the basic mechanisms for how different types of pollutants are transported and distributed in the environment
- describe important processes of transformation and where these take place
- explain basic toxicological concepts as well as how they can be applied in ecotoxicology
- explain the basic principles of how pollutants directly and indirectly can generate effects at ecosystem level

Competence and skills

On completion of the course the student shall be able to:

- apply basic laboratory environmental chemistry and toxicology
- analyse ecotoxicological data
- create, use, explain and present simple models for how a potential pollutant can influence a given ecosystem
- present and report ecotoxicological projects orally and in writing

Judgement and approach

On completion of the course the student shall be able to:

- apply a scientific view on ecotoxicological issues
- review and evaluate ecotoxicological data and facts critically

Course content

Central for the course is to give a holistic perspective on pollutants including everything from dispersion, chemical properties and persistence to effects on cells, organisms and ecosystems.

Subareas that are included in the course:

- toxicology: biochemical and physiological mechanisms for distribution responses and effects
- ecological mechanisms for effects/injuries
- properties and distribution of pollutants in the environment
- transformation processes (transformation, decomposition, metabolism)
- toxicological and ecotoxicological testing methods
- risk analysis

The course starts with a review of scientific theory. Here, the students practice scientific methodology, hypothesis formation and hypothesis testing.

Two laboratory sessions are carried out during the course. The first laboratory session is presented orally and the other both orally and in writing, including critical review and defence. In connection with both laboratory sessions, related scientific articles are distributed. The contents of these are presented orally. A computer group exercise with basic modelling of distribution of persistent pollutants and biomagnification is performed and orally presented. A literature group project runs during the course. This project is presented in writing and orally with critical review at the end of the course. Each group may also write a question to a written examination based on the

literature project of the group.

Course design

The teaching consists of lectures, group work, demonstrations, laboratory sessions and independent projects. Participation in group work, demonstrations, laboratory sessions, projects as well as associated parts, is compulsory.

Assessment

The examination takes place continuously during the course through compulsory components as well as through a written examination at the end of the course. For students who have not passed the regular examination, an additional examination in close connection to the end of the course is offered.

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.

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass, Pass with distinction.

To pass the entire course, approved examination and approved compulsory parts are required.

The final grade is decided through a weighing of the result of the examination and the student's efforts during the compulsory components of the course.

Entry requirements

For admission to the course, 90 credits scientific studies including knowledge equivalent to BIOC02 Ecology 15 credits and 15 credits in chemistry, is required. English 6/English B.

Subcourses in BIOR41, Biology: Ecotoxicology

Applies from H19

- 1901 Theory, 7,5 hp
Grading scale: Fail, Pass, Pass with distinction
- 1902 Laboratory work and exercises, 7,5 hp
Grading scale: Fail, Pass, Pass with distinction

Applies from V08

- 0701 Ecotoxicology, 15,0 hp
Grading scale: Fail, Pass, Pass with distinction