



## DEPARTMENT OF BIOLOGICAL AND ENVIRONMENTAL SCIENCES

### ES2520 Master Thesis in Ecotoxicology, 60 credits

Miljövetenskap: Examenskurs i ekotoxikologi, 60 högskolepoäng

*Second Cycle*

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#### Confirmation

This course syllabus was confirmed by Faculty of Science on 2007-11-01 and was last revised on 2024-03-13 by Department of Biological and Environmental Sciences to be valid from 2024-03-13, spring semester of 2024.

*Field of education:* Science 100%

*Department:* Department of Biological and Environmental Sciences

#### Position in the educational system

The course consists of a degree project in ecotoxicology at second cycle level, of 60 credits (hec), and can be included in the Master Program in Ecotoxicology, N2TOX.

The course can be part of the following programme: 1) Ecotoxicology, Master's Programme (N2TOX)

#### *Main field of studies*

Environmental Science

Chemistry

Biology

#### *Specialization*

A2E, Second cycle, contains degree project for Master of Arts/Master of Science (120 credits)

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#### Entry requirements

Degree of Bachelor of Science and completed courses in Fundamentals in Ecotoxicology (ES2615), Environmental Impact Assessment (ES2419), Chemical Risk Assessment

(ES2413), Ecotoxicology/Physiology (BIO435) and Ecotoxicology/Ecology (BIO430). A minimum of 45 credits on these, or similar, courses have to be passed.

Applicants must also prove their knowledge of English corresponding to English 6/English B from Swedish upper secondary school. For more information, see English language requirements on [Universityadmissions.se](http://Universityadmissions.se).

### **Learning outcomes**

On successful completion of the course the student should be able to

- Show deepened general theoretical knowledge in the degree subject and for the subject relevant scientific methodology, included understanding in safety, environmental and ethical aspects
- In detail describe the theoretical background of the chosen project in the degree subject
- Independently search and evaluate relevant information for the project
- On a scientific basis analyse and critically interpret other studies in the subject
- Under supervision independently plan and with adequate methods carry out as well as evaluate an experimental or theoretical scientific study
- Carry out assignments within given time frames
- Orally and in writing present and discuss acquired data and conclusions using a scientific language and adequate terminology as well as adapt a presentation to a given audience
- Put the acquired results in a larger context and thereby take consideration to relevant scientific, social and ethical aspects of research and development

The course is sustainability-related, which means that at least one of the learning outcomes clearly shows that the course content meets at least one of the University of Gothenburg's confirmed sustainability criteria.

### **Course content**

The course aims to give an in-depth contact with research and research methodology in the subject area, both practically by independent data collection and analytical work and theoretically by studies of scientific literature in the subject area as well as participation in seminars and group meetings.

The project is usually carried out within one of the ongoing research projects at the department but external projects (e.g. at other departments, industry or public authorities) are also possible. The specialisation of the project is decided in consultation between the student and supervisor, and the work-load should correspond to full-time studies (40 h/week) during one semester. For registration, it is required that the project is approved by the examiner. The work should result in an academic thesis written in Swedish or English according to guidelines that are made available at the beginning of

the course. The thesis should contain a popular summary in Swedish or English.

The course is concluded with a seminar where all course participants present and defend their work. All students are expected to review another student's work (at second cycle level) during the course. A draft of the thesis should be ready before the oral presentation. The final version should be handed in after the presentation at the end of the course.

### **Form of teaching**

The majority of the course time is devoted to practical work where the student works independently under supervision. The practical work includes collection, analysis as well as synthesis of data. The student has the right to on an average at least 45 min of supervision per week throughout the course. Students who do not finish the project within the set time frame can only in exceptional cases expect continued supervision to any larger extent.

Initially, the student should write a study plan that includes a short scientific background of the project, a well delimited aim, general description of planned methods as well as a realistic time plan. The study plan should also state to which extent the student is expected to participate in seminars or other meetings. The study plan should be approved by the supervisor and examiner within approximately 2 weeks from the start of the course.

The student is expected to independently search for and read necessary relevant literature during the course to understand the theoretical background of the project, and when necessary, to propose relevant changes in e.g. methodology or experimental setup.

*Language of instruction:* Swedish and English

### **Assessment**

Examination of the course is based on the written and oral presentation of the work as well as assessment of the performance during the whole project. Approximate dates for presentation and submission are determined at the start of the course. A student who cannot attend the presentation session will be given the possibility to participate at the next regular session. The final version of the thesis is normally submitted after the presentation.

The assessment follows the guidelines determined by the Faculty of Science and includes the following five main criteria: 1. Understanding, 2. Implementation, 3. Results, analysis and interpretation, 4. Oral presentation and communication as well as 5. Written presentation. These are weighted against each other by additional subcriteria, all assessed according to the scale 0 (Non-existent) to 4 (Excellent), where 2 (Sufficient) is equivalent to a pass.

The evaluation should take into consideration the student's ability to, from given guide lines and their own initiative, drive the project and keep deadlines. The quality of achieved results per se must not affect the assessment, unless the quality can be linked to the manner in which the project was carried out. Detailed assessment criteria as well as guidelines for written and oral presentation is available for the students via University of Gothenburg's learning platform.

If a student who has twice received a failing grade for the same examination component wishes to change examiner ahead of the next examination session, such a request should be made to the department in writing and should be approved by the department unless there are special reasons to the contrary (Chapter 6 Section 22 of the Higher Education Ordinance).

If a student has received a recommendation from the University of Gothenburg for study support for students with disabilities, the examiner may, where it is compatible with the learning outcomes of the course and provided that no unreasonable resources are required, decide to allow the student to sit an adjusted exam or alternative form of assessment.

In the event that a course has ceased or undergone major changes, students are to be guaranteed at least three examination sessions (including the ordinary examination session) over a period of at least one year, but no more than two years after the course has ceased/been changed. The same applies to internships and professional placements (VFU), although this is restricted to just one additional examination session.

### **Grades**

The grading scale comprises: Pass with Distinction (VG), Pass (G) and Fail (U). The degree project is graded by the appointed examiner after consultation with the supervisor. The final grade is decided by the total score for the five general assessment criteria (see Forms for assessment above). For the grade Pass (G) on the course as a whole the student must meet the requirements for pass for all five main criteria. For a pass with distinction (VG), the total sum should correspond to at least 85% of the maximal sum.

### **Course evaluation**

On completion of the course, a written and/or oral course evaluation is carried out. A summary of the course evaluation as well as highlighting of potential changes that have been done should be presented at the introduction the next time the course is given.

### **Additional information**

The course may contain laboratory work that includes animals.

Travels to and from field stations can present costs for the student.