



Course syllabus

Faculty of Health and Life Sciences

Department of Biology and Environmental Science

4BI502 Sötvattensekologi, avancerad kurs, 7,5 högskolepoäng

Freshwater Ecology, Advanced Level, 7.5 credits

Main field of study

Biology

Subject Group

Biology

Level of classification

Second Level

Progression

A1N

Date of Ratification

Approved 2014-12-19

Revised 2020-06-08 by Faculty of Health and Life Sciences. revision of literature.

The course syllabus is valid from autumn semester 2020

Prerequisites

Bachelor degree and Biology 60 credits, including Ecology 15 credits and Chemistry 15 credits, or corresponding.

Objectives

At the completion of this course, students should be able to:

- describe and exemplify elementary principles of hydrology and hydrogeochemistry of fundamental importance for the distribution and abundance of aquatic organisms
- demonstrate competence in basic field and laboratory methods in freshwater ecology
- use identification keys and name important groups of organisms in freshwater habitats
- account for the occurrence of major groups of organisms including their role in the functions of freshwater ecosystems
- use databases and compile information about lakes and streams for classifications of ecological status
- communicate, and critically discuss, basic principles and conclusions from research in Freshwater Ecology with specialists, the public and decision makers
- individually plan and execute a project work where a current problem within the field of freshwater ecology is thoroughly discussed, and to present the results orally and in a written report

Content

The course is divided in two parts:

Module 1 Freshwater Ecology; Theory 3 credits

- Ecohydrology and hydrogeochemistry in the river basin
- Habitats and organisms in lakes and streams
- Populations and ecosystem processes
- Aquatic environmental objectives, monitoring and measures

Module 2 Practical assignments 4.5 credits

- River basins. Database assignment with calculations of run off, lake volume and retention.
- Water quality. Methods for sampling and analysis. Environmental status criteria.
- Aquatic organisms. Methods for sampling, identification and analysis of distribution and abundance of macrophytes, plankton and benthic invertebrates. Status classification.
- Individual project including defining problem, gathering and analysis of data, compilation of results and conclusions, and oral and written presentation.
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Type of Instruction

Lectures, seminars, field and laboratory exercises.

The participation in seminars, practical exercises and assignments is mandatory.

Examination

The course is assessed with the grades A, B, C, D, E, Fx or F.

The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in a pass. The grade F means that the student's performance is assessed as fail.

Examination of Part 1 is usually based on one or more individual knowledge tests. A second examination will be offered within six weeks during the semester. Examination opportunities can be limited to five.

Part 1 is assessed with the grades A-F.

Part 2 is examined by evaluation of laboratory- and field assignments, by oral and written presentations of the project work. Part 2 is assessed with the grades U and G. Assessment of whole course is determined of Part 1.

Examination criteria to pass the course are defined by the objectives.

Repeat examination is offered in accordance with Local regulations for courses and examination at the first and second-cycle level at Linnaeus University. If the university has decided that a student is entitled to special pedagogical support due to a disability, the examiner has the right to give a customised exam or to have the student conduct the exam in an alternative way.

Course Evaluation

During the implementation of the course or in close conjunction with the course, a course evaluation is to be carried out. Results and analysis of the course evaluation are to be promptly presented as feedback to the students who have completed the course. Students who participate during the next course instance receive feedback at the start of the course. The course evaluation is to be carried out anonymously.

Other

Grade criteria for the A–F scale are communicated to the student through a special document. The student is to be informed about the grade criteria for the course by the start of the course at the latest.

Required Reading and Additional Study Material

Mandatory course literature

Brönmark, C. & Hansson, L.A. (2017). *The biology of lakes and ponds*. Oxford University Press. 368s. ISBN: 9780198713609; ISBN-10: 0198713606

Identification literature, scientific articles and a compendium with instructions for field- and laboratory assignments will be provided during the course.

Supplementary literature

Sand-Jensen, Kaj, Friberg, Nikolai & Murphy, John. (2006) *Running Waters*. National Environmental Research Institute, Denmark.

Will be provided during the course

Shaw B., Mechenich C. & Klessig L. Understanding lake data. Available as PDF on <http://dnr.wi.gov/lakes/publications/under/>(23 February 2010)