



## Course syllabus

Faculty Board of Science and Engineering  
School of Natural Sciences

4BI003 Avancerad akvatisk ekologi, 7,5 högskolepoäng  
Advanced Aquatic System Ecology, 7.5 credits

### **Main field of study**

Biology

### **Subject Group**

Biology

### **Level of classification**

Second Level

### **Progression**

A1N

### **Date of Ratification**

Approved by the Board of the School of Natural Sciences 2010-05-25

The course syllabus is valid from autumn semester 2010

### **Prerequisites**

Holders of a bachelor (3 yrs, 180 ECTS) higher education degree in any of the subject areas: biology, environmental science, chemistry, aquatic microbiology or ecology.

## Expected learning outcomes

Upon course completion individual students will:

- Describe and discuss primary production and microbial metabolism, which govern aquatic ecosystems;
- Identify and formulate evolutionary mechanisms in aquatic systems;
- Assess the relative contribution of natural and human impact on aquatic ecosystems;
- Interpret and analyze scientific literature within the field;
- Communicate key concepts within limnology and marine ecology through both oral and written presentations;
- Use different means of communication and media to present and disseminate scientific results to the general public;
- Manage advanced scientific databases, use digital library techniques to search for scientific information and critically interpret the results;
- Demonstrate the ability to engage in teamwork activities and perform collaborative work
- Understand the concept of plagiarism and how to cite literature references appropriately.

## Content

PART 1 Aquatic Ecology- Biological processes

- Geological, physical and chemical processes in aquatic systems. Sedimentation, waves,

tides, currents, circulation patterns in the ocean, chemical properties of seawater and groundwater.

- Biological processes in aquatic systems. Primary production, microbial production, secondary production, decomposition of organic matter, evolution and diversity.
- Oral discussion of scientific articles.
- Literature review of scientific articles.

#### PART 2 Aquatic Ecology- System overview

- Lakes and streams.
- Estuaries and coastal areas.
- Pelagic zone.
- Deep Sea.
- Coral reefs.
- Polar regions.
- Oral discussion of scientific articles.
- Literature review of scientific articles.

#### PART 3 Aquatic Ecology- Impact

- Ecosystem services and deliverables.
- Fisheries.
- Aquaculture.
- Pollution.
- Climate and global change.
- Conservation and protection of species and landscapes.
- Oral discussion of scientific articles.
- Literature review of scientific articles.

### Type of Instruction

The course is given in English.

Access to the internet and a valid e-mail address are mandatory.

### Examination

The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).

Examination is based on oral and written presentation of a scientific paper, and active participation in seminars.

Examination criteria to pass the course follow the intended learning outcomes.

A first re-examination will be offered within six weeks during the semester. The number of re-examinations is five.

### Course Evaluation

Upon completion, the course will be evaluated by filling out the evaluation form. The result of the individual evaluations are turned into a summary report that will be kept in the department administrative archives. The outcome of the evaluation of the previous year, as well as possible measures taken, will be discussed with the individual responsible for the educational program, as well as with incoming students at the start of the next course.

### Required Reading and Additional Study Material

#### **Obligatory**

Kaiser et al. 2005. Marine ecology. Processes, systems, and impacts. Oxford University Press.

1 ed. ISBN 0-19-924975-X

Lampert, W. & Sommer, U. 1997. Limnology. The ecology of lakes and streams. Oxford University Press. ISBN0-19-509592-8.