



# **PNG0057, Ecosystem functioning: From Theory to Application, 3.0 Hp**

## **Syllabus**

Valid from: HT2014

### **Level within study regulation:**

Third cycle

### **Subject:**

- Biology

### **Grading scale:**

Pass / Failed

### **Course language:**

Swedish

### **Entry requirements:**

Students should have an undergraduate degree in environmental science, ideally at an advanced level. Some sections of the course will address deeper aspects of ecological theory, and thus previous courses in basic ecology would be very beneficial, though parts of the course will also be suitable for students with a more limited ecological background who are nevertheless interested in the topic of ecosystem functioning.

### **Objectives:**

After the course, students should be able to:

- Discuss and evaluate different definitions of ecosystem functioning
- Relate ecosystem functioning to ecosystem services
- Apply the key theoretical underpinnings of ecosystem functioning research in developing or extending a functional perspective on their own research topics
- Identify methods for quantifying ecosystem functioning that are appropriate for their own research topic
- Assess the value of applying ecosystem functioning in bioassessment, particularly in relation to their own research topic, and discuss advantages and possible pitfalls of these approaches

### **Content:**

The concept of “ecosystem functioning” has over the last two decades stimulated research focussed on what ecosystems do, as opposed to what they are composed of, and is increasingly important in policy and management because of its strong linkages with ecosystem services. Focussing on ecosystem functioning in inland waters (lakes and streams) and soils (forest and agricultural), this course will cover basic definitions, the relationship between ecosystem functioning and ecosystem services, and several currently topical themes in ecosystem functioning research. These include the roles of functional traits and calculation of functional diversity, underpinnings in metabolic theory, and an overview of biodiversity-ecosystem functioning research. Throughout, a range of practical methods for quantifying ecosystem functioning will be covered, as will the application of these methods in biomonitoring and environmental assessment.

### **Modes of assessment:**

To receive full credits for the course, participants should:

- Read the literature provided before the course. The literature consists of recent publications connected to the lectures.
- Give an oral presentation (10-15 minutes) that explains how their own research might be extended by incorporating some of the concepts or methodologies covered in the course. Thus, for students whose projects already focus on some aspect ecosystem functioning, their presentation should explain how new concepts and/or methodological approaches could extend the scope of their research.
- Actively participate in the workshop discussions

- Attend all sessions. While it is permissible to miss sessions, the points awarded will be down weighted according to the number of sessions missed. Note that if there are more than 15 students interested in taking the course, priority will be given to students able to attend all sessions. - If a student has failed an examination, the examiner has the right to issue supplementary assignments. This applies if it is possible and there are grounds to do so.
- The examiner can provide an adapted assessment to students entitled to study support for students with disabilities following a decision by the university. Examiners may also issue an adapted examination or provide an alternative way for the students to take the exam.
- If this syllabus is withdrawn, SLU may introduce transitional provisions for examining students admitted based on this syllabus and who have not yet passed the course.
- For the assessment of an independent project (degree project), the examiner may also allow a student to add supplemental information after the deadline for submission. Read more in the Education Planning and Administration Handbook.

### **Organisation:**

Department of Aquatic Science and Assessment

## **Supplementary information**

### **Other information:**

- The right to participate in teaching and/or supervision only applies for the course instance the student was admitted to and registered on.
- If there are special reasons, students are entitled to participate in components with compulsory attendance when the course is given again. Read more in the Education Planning and Administration Handbook.