



# SLUkurs

## Syllabus

**PNG0057 Ecosystem functioning: From Theory to Application, 3.0 credits**

## Syllabus approved

2014-05-22

## Subjects

Biology

## Education cycle

Third cycle

## Grading scale

Pass / Failed

The requirements for attaining different grades are described in the course assessment criteria which are contained in a supplement to the course syllabus. Current information on assessment criteria shall be made available at the start of the course.

## Language

English

## Prior knowledge

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.

## **Objective, including learning outcomes**

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.

## **Requirements for examination**

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.

**Additional information**

**Responsible department**

Department of Aquatic Sciences and Assessment