

PNG0057 Ecosystem functioning: From Theory to Application

Post graduate course, 3 ETCS

Swedish University of Agricultural Sciences,
Uppsala Campus (Ultuna)

September 2025 (lectures 8-12th)

Enrolment by email to: brendan.mckie@slu.se



Course overview:

The concept of “ecosystem functioning” has over the last four 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 terrestrial ecosystems (soils, riparian habitats, agricultural and forest landscapes), 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 (including practical exercises in R), multifunctionality, 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 research and environmental assessment. The course consists of one week of reading and one week of lectures and exercises.

Preliminarily confirmed lecturers include:

- Prof. Brendan G. McKie, SLU (General concepts, biodiversity and ecosystem functioning research, functioning in ecosystem assessment)
- Prof. Ryan Sponseller, Umeå University (Whole ecosystem functioning: streams to catchments)
- Dr Francine Hughes (Reader in wetland ecology), Angela Ruskin University, Cambridge (Ecosystem functioning and services in restored wetlands)
- Dr. André Frainer, University of the Arctic, Tromsø (Quantifying functional diversity, including workshop in R)
- Assoc. Prof. Danny Lau, SLU (Biomarkers as tools for investigation of the functioning of food webs)
- Assoc. Prof. Eva Krabb, SLU (Functioning of soil ecosystems under global change)
- Assoc. Prof. Micael Jonsson, Umeå University (Forest multifunctionality)
- Prof. Sara Hallin, SLU (Microorganisms and ecosystem functioning)
- Assoc. Prof. Mohammad Bahram, SLU (Land use and the functioning of soils)

The above lecturer list might change at short notice, and further lecturers might be invited