

MODERN STATISTICS IN NATURAL SCIENCES, 5 HP (ECTS)

Course leader: Göran Arnqvist, Department of animal ecology.

Aim of the course: To give an introduction to the most commonly applied modern statistical techniques and tools used in our domain. In addition to providing you with an overview of the statistical "tool-box", the course aims at giving an understanding of the philosophy and reasoning behind statistical design and inference.

Target group: Graduate students in biology, earth sciences and other natural sciences. The course assumes that participants have a basic understanding probability theory, statistical distributions, estimation of means and standard errors, confidence intervals and simple hypothesis testing.

Course content: Experimental designs leading to ANOVA or ANCOVA, including block experiments, repeated measurement designs, nested and factorial designs. Multiple regression, including techniques for selecting variables and evaluating models. Generalized linear models (GLIM) with logistic and Poisson regression. Introduction to power analysis, multivariate analysis, resampling and permutation techniques. A short introduction to the free software R will also be included.

Course literature: Quinn, G, & Keough, M. 2002. Experimental Design and Data Analysis for Biologists, Cambridge University Press

The course runs as a part time course (Tuesdays and Thursdays 1PM-3PM) every year from late January to late March. Practicals are an integral part of the course but the course is not built on any particular piece of statistical software (students are free to use their software of choice).

Information about course content and application: Göran Arnqvist, göran.arnqvist@ebc.uu.se

Deadline of application: 1 December