R and Statistics Workshop
Room LG103, Learning Gateway,
University of Cumbria, Fusehill St Campus, Carlisle
4-5 September 2017

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The BSAS R and Statistics Workshop is a practical techniques course aimed at postgraduate students in the animal sciences that want to learn the statistical software and programming language 'R', and refresh their knowledge of statistics and experimental design. It is also open to ordinary BSAS members. The course assumes no background in programming or R, and aims to make statistics clear, straightforward and fun.

Each of the two days will begin with a short introduction to the material followed by three computer-based tutorials in Room LG103 of the Learning Gateway Building. Participants will receive a set of theory notes and practical exercises to work through in each session under the guidance of the tutors.

Course Programme

Monday 10th September
10:45 Coffee, Calva Bar
11:30 Introduction   BSAS CEO, Bruce Beveridge
                          Davina Hill, Course leader, University of Cumbria

SESSION 1
11:45-13:30: Monday 10th September: Getting started in R
Introduction
This session will help participants to familiarise themselves with the R software environment and to learn the basics of writing script.

13:30 Lunch in Skiddaw Dining Room

SESSION 2
14:30-16:30 Monday 10th September: Data processing in R
Participants will learn how to import data into the R environment from Excel, use functions to describe data, and produce graphics using R.

16:30 Coffee Break, Calva Bar

SESSION 3
17:00-18:30 Monday 10[h] September: Distributions and correlations
Building on the programming skills gained so far, participants will learn how to examine the distribution of data and how data can be transformed. They will produce scripts to assess whether variables are correlated.

18:30 Book into accommodation (Carrock Halls Block 3)

Tuesday 11th September
08:30 - 09:00 Breakfast in Skiddaw Dining Room

SESSION 4
09:00-11:00 Tuesday 11th September: Comparing groups
Introduction to experimental design

During the computer-based session, participants will program statistical tests to compare groups, with emphasis on understanding the assumptions of different tests and which test to choose. They will learn how to compare variances between two or more categories.

11:00 Coffee Break, Calva Bar

SESSION 5
11:25-13:00 Tuesday 11th September: Regression Analysis
Participants will learn how to perform simple and multiple regression analyses and to check the validity of a statistical model. They will focus on the assumptions of regression analysis and learn how to interpret model outputs.

13:00 Lunch in Skiddaw Dining Room

SESSION 6
13:50-15:50 Tuesday 11th September: ANOVA and ANCOVA
Participants will learn how to carry out a one-way analysis of variance (ANOVA) and multiple comparison tests. They will learn about the Kruskal-Wallis test, a non-parametric alternative to ANOVA. Finally, they will learn how to run a multi-factorial ANOVA and an analysis of co-variance (ANCOVA).

15:50-16:00: Workshop closes

16:00 Finish and depart

Note our schedule may change during the workshop to accommodate participants' needs so be prepared for changes as we go!