# Multivariate practical (practical V)

The aim of this practical is to get you to try some common multivariate statistics "hands-on", such that you will get some experience of these forms of statistical models/tools.

1. A number of replicate rats (males and females) were experimentally infected with a pathogen and then treated with either of three different drugs. After a given time period, two distinct assays of the health status of the rats were made (two correlated response variables). Test in a single model whether overall health was significantly affected by sex, drug or their interaction! (**Rats.xls**)

2. A number of cultural and economic characteristics (11) was gathered for 30 different countries. You now wish to visualize how countries relate to one another in the multivariate space described by these 11 variables, by means of a hierarchical cluster analysis – generate and interpret a dendrogram of this data. (**Countries.xls**)

3. A survey was made of the abundance of 102 birds species at 37 sites in southeast Australia. Sites were classified *a priori* into either of five different habitat types. Perform an ordination of your choice of this data, with the explicit aim of plotting sites in a low-dimension space (a plot in two dimensions – i.e. a bivariate plot) such that you can assess whether and how sites of the same habitat type tend to group together in this low-dimension space. (**Birds.xls**) (this data set is also worked in your course book – chapter 18 – it is the Mac Nally data set).