Practical for GLM's

*Ponder a bit about these problems and which model you should use. Then analyze the data! Remember to check that data do not violate the assumptions of your models – for example, check the residuals! Note that we only wish that you **hand in a few pages of text**– summarizing your findings perhaps with a simple table and your interpretation of the results (with words!). Plots and graphs are not needed in your hand-in, even if you print them for your own use during the group discussion. Use the software of your choice – perhaps try different packages and compare?*

1. When buying a used Volvo car a number of years ago, I searched a site for used cars ads and came up with the data regarding requested price, mileage of the cars and year of make for this particular Volvo model. The question is: what are the relative roles of mileage and year of make in determining the price of a used Volvo? Which has strongest statistically independent effect? Evaluate this question statistically!
Data file: Volvo.xls

2. You have done a survey of the number of moss species in equal sized plots of three types of forest patches in central Sweden (in total 14 forest patches). You want to know if the number of moss species differ in different forest types in this region, and if so how.
Data file: Forest.xls

3. You are interested in the effects of food type and temperature on the expression pattern of a group of genes in *Drosophila melanogaster*. You have designed a crossed factorial experiment to evaluate this, with 4 food types at three temperatures and one conglomerate measure of gene expression. Evaluate your question statistically.
Data file: Gene.xls

4. You have treated moose with three different types of drugs (derived from secondary compounds from plants), and want to know what the effects are of this treatment on gut parasite prevalence. You have four moose for each treatment level, and these four moose belong to each of two families. Evaluate this question statistically.
Data file: Drug.xls

5. You are interested in whether the changes in population size in a plant species over time during 1983-1990 were different in populations treated with different types of fertilizers. To this end, you have gathered population sensus data for 57 populations from 1983, 1986 and 1990. Evaluate your question using this data!
Data file: Population.xls

6. You have performed an orthogonally crossed experiment on the effects of two factors on seed set in a plant. You now wish to evaluate the effects of these two factors statistically, but you also suspect that the amount of plant biomass in each replicate (leaf mass) may strongly affect seed set - variance in leaf mass may introduce noise in you seed set data. Evaluate the data from this experiment.
Data file: Seed set.xls