## **Introduction to R Session 8: Introduction to R Packages**

The ggplot2 package is a widely-used data visualization package for enhanced graphics in R. In this session we will use ggplot2 for plotting data from the salary dataset.

The two main "generic" plotting functions of ggplot2 are qplot() and ggplot(). These functions work by trying to 'guess' a useful form of plot, depending on the user-supplied data and desired geometry. In addition to their help pages, detailed information about these (and other) plotting functions in this package can be found at <u>http://ggplot2.org/</u>.

- 1. Using either the drop-down menus or the command line (with the install.packages() and library() commands) install this package and load it into your current R session.
- 2. Some <code>qplot()</code> commands to plot smooth density curves of salary for each gender are given below. Create a similar density plot of salary by rank.

```
qplot(salary, geom="density", fill=gender, data=salary, xlab="Monthly
Salary", ylab="Density")
qplot(salary, geom="density", fill=gender, data=salary, xlab="Monthly
Salary", ylab="Density", alpha=0.5)
```

- 3. By adjusting the geom argument described in the documentation for gplot() use gplot() to plot a histogram of salaries, and a histogram of salaries across rank. Finally, create a histogram of salary by gender within each rank (hint: use the interaction() command).
- 4. The ggplot() command extends the basic idea of qplot; the user has to specify 'aesthetic mappings' (via the aes() command) that describe how variables in the data are mapped to visual properties, after which other aspects can be added. For example, for a boxplot of salary by rank gender, we can use

```
ggplot(data=salary, aes(x = rank, y = salary, fill = gender) ) +
geom boxplot()
```

Another 'add-on' to the plot it to break it break it down by another variable, using +facet\_wrap(~variablename). Using the help page for facet\_wrap() to help you, create boxplots of salary by gender within each rank across fields.

5. [For keen people!] Illustrate the distribution of salary by gender within each rank for the different starting years.