Housekeeping

- Contact details
<table>
<thead>
<tr>
<th>Office</th>
<th>Office hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steffen Klaere</td>
<td>303.219</td>
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<tr>
<td>Alan Lee</td>
<td>303S.265</td>
</tr>
</tbody>
</table>

- Class representatives
<table>
<thead>
<tr>
<th>Course</th>
<th>aucklanduni.ac.nz</th>
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</thead>
<tbody>
<tr>
<td>Wanshan (Serena) Liang</td>
<td>330</td>
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<tr>
<td>Jun Ma</td>
<td>762</td>
</tr>
</tbody>
</table>

- Assignment 1 is due August 7
- Discussion forum on CECIL.

Getting RStudio

http://www.rstudio.com/

http://r-project.org/

Tutorial

- These will cover computing details
  - Held in Room 303S.G75
    - First Tutorial: Fri 10-11
    - Second Tutorial: Fri 1-2
    - Third Tutorial: Fri 4-5
  - Start FRIDAY, AUGUST 1.
Today's Lecture: Graphics in R

Common Bivariate Trellis Plots

Description
This help page documents several commonly used high-level graphics functions in R, including scatter plots, box plots, line plots, bar plots, etc. Each function has an internal function structure, which is broken down into several sub-function structures, as specified in the high-level function documentation. The documentation for each function is included in the high-level function documentation.

For current and past versions of this document, enter the corresponding web address to display the documentation.
Loading data into R

```r
my.df <- read.table(file.choose(), header=T, sep="\t", fill=T)
```

- R expects data such that rows are sample points and columns are variables.
- Columns can be separated by different symbols, " " for space, "\t" for tab delimited, or "," for comma separated.
- Excel spreadsheets need to be exported to any of the above types before imported into R.
- If import into R fails, attempt importing into Excel to test integrity of document.
- Once this works do data manipulations in R!

Data manipulation in R

- A variable can have a different type, e.g., integer, double, date, or character. The type determines how R treats the variable. Use command typeof to check type.
- Transforming variables to new values is simple in R. E.g., cylindrical volume of cherry trees:
  ```r
cylinder.volume <- pi*cherry.df$diameter^2
                   *cherry.df$height/4.
```
- What is the unit?
In the following we will use the examples from the previous lectures to look at the different forms of visualising data.

- Either use the base package function `plot`
- or load the library `lattice` for some great trellis graphics.

Over to RStudio

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### Scatterplots

![Scatterplot Example](image)

### Going 3D

- Package `scatterplot3d`
- `contour`, `persp` for contour and surface plots
- `pairs` for pairwise comparisons
- `cloud` for lattics
- `reg3d` for rotating plots from R330

### Trellis vs. Coplot

![Trellis and Coplot Examples](image)