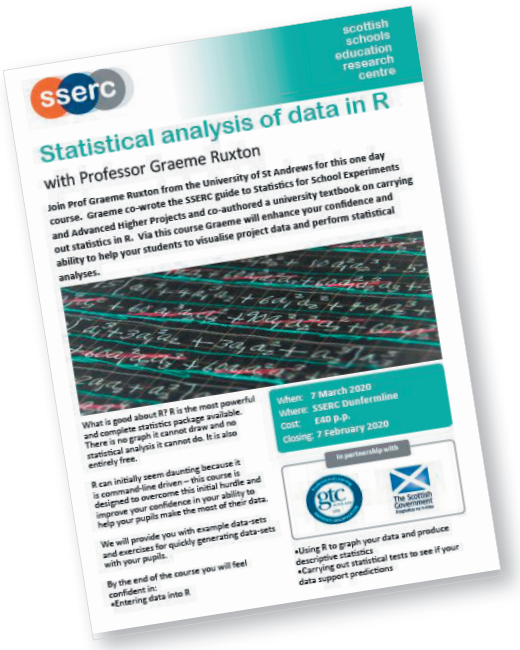
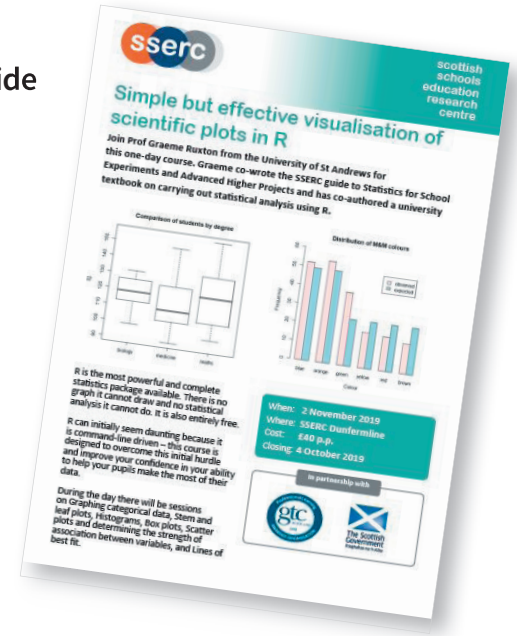
Graphing and statistical analysis with R

Graphing is a really important skill in the sciences. Graphs provide an excellent way to organise data but, more importantly, such visual aids can be really useful when it comes to interpreting data and looking for patterns. One relatively easy way to get professional-looking graphs is through using the software package known as R.

Statistical analysis can provide more information about data beyond that derived from visual representation in graphs. If you skimp on statistics, you are missing a trick in getting the maximum information from your hard-won data. In addition, thinking about ways to present data graphically and to statistically analyse data leads you to thinking about the best experimental design to collect that data. The software package R carries out the sometimes complex and repetitive statistical calculations for you, freeing up your time to think about the science.



R is entirely free to download and use without any restriction. You can download it onto any computer and as many computers as you want, you never need to enter any credit card details, you will never be charged, and it will never stop working. There is no catch. It is also a very powerful and well-designed package that more and more professional scientists use. If your students go on to university, the most commonly used package for statistical analysis that they encounter will be R. Don't be fooled by the fact that it is free: R is the Rolls-Royce option for statistical analysis. Once you download it and open it, you will see a large window with a ">" cursor, just type in commands here (and press return after each) and it will do all your calculations for you. As well as being the most comprehensive and reliable statistics package in the known universe, it is also the most flexible graph-drawing package. Another bonus is that it is completely free to anyone and works on both PC and Mac, regardless of operating system. You can also save the code you use to produce any graph and come back to edit or reproduce it whenever you like.



We are fortunate in SSERC to have teamed up with Professor Graeme Ruxton from the University of St Andrews. Graeme co-authored our Statistics for School Biology Experiments [1]. We are delighted to be able to report that Graeme has offered to deliver two courses at SSERC during the coming academic year - one on graphing using R (2 November 2019), and the other on statistical analysis of data using R (7 March 2020).

We do hope that you will be able to join us. Further details at plotting data and statistical analysis. <<

References

[1] Ruxton, G.D. and Stafford, J. (2015) Statistics for School Biology Experiments and Advanced Higher Projects. Available at https://www.sserc.org.uk/wp-content/uploads/2018/06/Statistics-book-final.pdf (accessed 5 August 2019).