ISRIC Spring School 2016

A Guided Self-Study to R

6 May 2016

The 'Guided Self Study to R' will make use of the tutorial written by Dr. David Rossiter of Cornell University. David has written a number of excellent R tutorials on a variety of subjects. These tutorials can be downloaded from his website: http://www.css.cornell.edu/faculty/dgr2/pubs/list.html#pubs_m_R.

Once you have worked yourself through the 'Introduction to R' tutorial (R_Intro.pdf), you might want to continue with the introductory tutorials on:

- 'Using R with the Mercer & Hall Wheat Yield Dataset'
- 'Statistical Data Analysis'
- 'Geostatistics with gstat/R'

These tutorials have been supplied with the course materials (also available from David Rossiter's website), we encourage you to take a look at these.

The best source for R is the internet. There is a large number of (introductory) tutorials freely available. In case you get stuck because of an error, use google to lookup the error on the internet. You will not be the first to encounter the specific error (and will not be the last). A solution will be out there. Remember, learning R can be a bit of a struggle in the beginning, but R has a steep learning curve. Once you have mastered the basics, you will improve your scripting skills fast.

The 'Introduction to R' tutorial is 141 pages, which is too much to work through in one day. We therefore made a selection of the most relevant parts that are listed on the next page. Of course you are free to work through the other parts as well. Read the tutorial carefully when working yourself through the associated R script.

The R script belonging to the 'Introduction to R' tutorial is stored in file 'R_intro_v1.2.R'. The script has been slightly adapted for the guided self-study; it may contain some code that is not in the tutorial. Furthermore, the script contains several exercises to practice what you have learned (note that the exercises are not in the tutorial). Please make sure you carefully follow the code. Run the code line by line and make sure you understand what happens. Forgetting to run a line may result in errors further down the code.

Enjoy learning R!

Instructions

- Go to: http://www.isric.org/training/introduction-r
- Download the zip file that contains the course materials
- Create a folder on your computer named 'springschool'
- Copy the zip file to the springschool folder and unzip

Introduction to R

reader

Chapter 0

All sections

Chapter 1

All sections

Chapter 2

All sections

Chapter 3

Only sections: 3, 3.3, 3.2 (in this order; use RStudio to run the code in 3.2), 3.5, 3.7, 3.8

Chapter 4

All sections with the exception of:

- 4.6 from the start of 'Matrix Inversion' on page 28
- 4.9 sections "Selecting random elements from an array" and "Splitting on a factor"
- 4.9.1
- 4.10
- 4.11
- 4.16
- 4.17 starting from 'Removing Terms'
- 4.17.1
- 4.17.2
- 4.18.1
- 4.22
- 4.23

Chapter 5

Sections 5, 5.1 (until 5.1.1), 5.2 (until 5.2.4)

Note that another popular package for plotting is ggplot2. A ggplot2 manual is included in the materials.

Chapter 6

Sections 6.1 and 6.3

Chapter 7

Chapter 9