

# Resource Folders for An R Companion to Linear Statistical Models

These folders contain all R-related files used to compile *An R Companion to Linear Statistical Models* (referred to as “the Companion” from here on). Also included are data files used in major illustrations, and source-code files for new functions prepared within the Companion. Except for files with the extensions “\*.xls,” “\*.txt” and “\*.csv,” which were prepared using Excel, all files were prepared using R (originally with Version 2.11.1, revisions were made using Version 3.0.1) on an MS Windows operating system. Because of the consistency of R, however, it is expected that the majority of R-code presented in the included R-files will work for different versions of R, and in the various operating systems. In fact, as of 12/15/2014, no conflicts in the code presented in this work have been identified with versions of R up through 3.1.0 in MacIntosh or Windows environments.

For convenience, print these pages for future reference.

## Frequently Asked Questions, Updates, and Errata

In time, it is expected that questions specific to the content of the Companion and its accompanying resource files will be asked. Included in the Companion’s website is an “Errata file” containing a list of corrections, applicable to earlier printings of the Companion. The author (and CRC/Taylor & Francis) welcome questions, and will greatly appreciate alerts to typographical errors. The Errata file is also the place to find information on any corrections to R script specific to the Companion.

## Downloading the Folders

First create a new directory on your computer. Call this directory, for example, `C:\Docs\RCompanion\`. Then, place all of the contents of the website (that is, the folders **Chapter1** through **Chapter15**) in this directory. Note: In the Companion, the “Z-drive” is used instead of the “C-drive.”

## Content Descriptions

Each chapter folder contains a script file of all R-code used to develop the content of the corresponding chapter. For example, the file

```
C:\Docs\RCompanion\Chapter1\Chapter1Script.R
```

contains all code used in developing Chapter 1 of the Companion. In the case of some chapters, additional code (referred to but not included in the Companion) is included in the corresponding script files.

If opened in the R script-editor, the code in these script files can be used to duplicate code, and most output, presented in the Companion. See Section 1.10 of the Companion for directions on how to execute commands in the R script editor.

It is strongly recommended that the main working-directory for your R-work, when using script files for the Companion, be named as mentioned above, that is, `C:\Docs\RCompanion\`. This will ensure that changes in certain commands within the script files will *not* be required. The commands alluded to include a *file-path* argument, the start of which has the appearance “`C:/Docs/RCompanion/...`”. If the main directory is not named as indicated, the above portion of all file-path arguments in relevant commands will need to be changed. See Sections 1.2, 1.4, 1.6, and 1.8 for examples of such commands.

Alternatively, you may select **File** from the RGui toolbar, then choose the appropriate option from **Source R code ...**, **Open script ...**, or **Load workspace ...** and then navigate to the appropriate folder. Another option is to replace the file-path, for example

```
"C:\Docs\RCompanion\Chapter1\Chapter1Script.R"
```

in any file sourcing/loading function by the interactive file-choosing function `file.choose()`. Then, a file choosing window pops up which permits navigation to the appropriate folder.

There are up to two sub-folders within each chapter folder. These sub-folders are named **Functions**, and **Data**.

## Functions

Three of the chapter folders each have a **Functions** sub-folder that contains source-code for functions prepared in the Companion. By running the source-code for a particular function, a function *object* is loaded into the workspace (see Section 2.5 for how this is done). Table 1 provides brief details of these functions. In this table, **Ch.** refers to the chapter folder where the function is located, **File** refers to the script (source-code) filename, **Object** refers to the name of the function object that is loaded into the workspace, **Description** refers to the task the function performs, and **Ref.** indicates the section in the Companion where this function first appears.

**Table 1:** Function Files

Ch.	File	Object	Description	Ref.
5	snazzyhist.R	snazzy.hist	Density histogram with normal density curve.	5.5.2
6	RegBFtTest.R	bf.ttest	Brown-Forsyth $t$ -test for regression models.	6.4.1.2
6	qqcortest.R	qq.cortest	QQ normal probability correlation coefficient test.	6.4.2.1
6	RegBFFTest.R	bf.Ftest	Brown-Forsyth $F$ -test for linear regression models.	6.8.3
7	AnovaBFFTest.R	Anova.bf.FTest	Brown-Forsyth $F$ -test for models with fixed-effects factors.	11.8.4

## Data

Except for the folders for Chapters 1, 2, and 5, all chapter folders have **Data** sub-folders that contain data used for illustrations in the Companion. Filenames for the data contain extensions having one of three forms: “\*.xls,” Excel spreadsheet files; “\*.csv,” Excel comma-separated-variable files; “\*.txt,” text files; and “\*.R,” data files in R source-code. In Table 2, **Ch.** refers to the chapter folder where the data file is located, **File** refers to filename, **Object** refers to name of the data frame object that is contained in the R-file, or loaded from the text or csv file, and **Ref.** indicates the section in the Companion where the data are first referred to.

**Table 2:** Data Files

Ch.	File	Object	Ref.
3	Data03x01.xls; Data03x01.txt; Data03x01.csv	SmallSet	3.4.5
3	Data03x02.xls; Data03x02.txt; Data03x02.csv	CatSet	3.5
3	Data03x03.xls; Data03x03.txt; Data03x03.csv	UniVarSet	3.6.1
4	Data04x01.R	Salmon	4.1
6	Data06x01.R	SimpleRegData	6.1
7	Data07x01.R	XTransReg	7.2.1
7	Data07x02.R	XYTransReg	7.2.2
7	Data07x03.R	RightSkewed	7.3.2
7	Data07x04.R	PolyReg	7.5
7	Data07x05.R	TwoPiece	7.6
7	Data07x06.R	ThreePiece	7.6.3
7	Data07x07.R	CatReg1	7.7.1
7	Data07x08.R	CatReg2	7.7.2
8	Data08x01.R	MultipleReg	8.1
9	Data09x01.R	LOFData	9.2.3
10	Data10x01.R	BoxTidData	10.2.1
10	Data10x01.R	XYTransData	10.2.2
11	Data11x01.R	OneWayData	11.1
12	Data12x01.R	AncovaData	12.1
13	Data13x01.R	BlockData	13.1
13	Data13x02.R	Block2Data	13.6
14	Data14x01.R	TwoWayAdd	14.1
14	Data14x02.R	TwoWayInt	14.6
15	Data15x01.R	CovToBlock	15.4.3