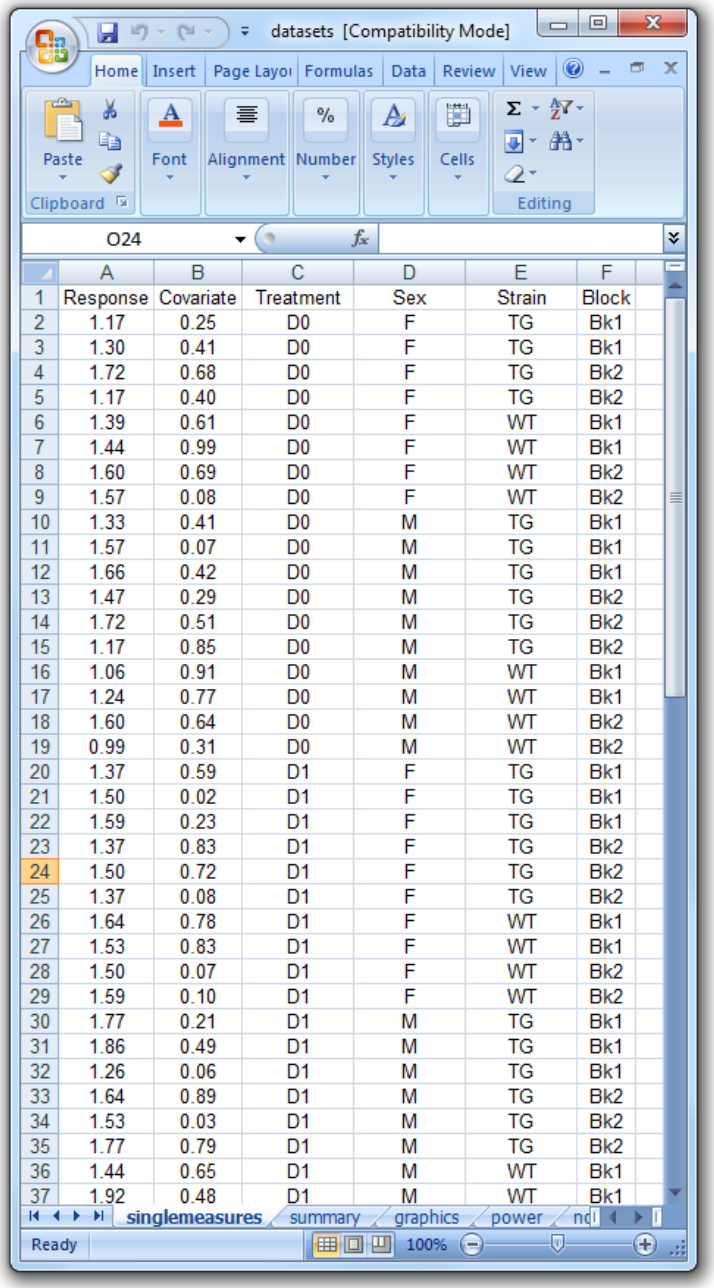
Thank you for downloading InVivoStat. We hope you find it easy to use and informative! This wizard gives a short introduction to the package and shows you how to perform statistical analyses using InVivoStat.



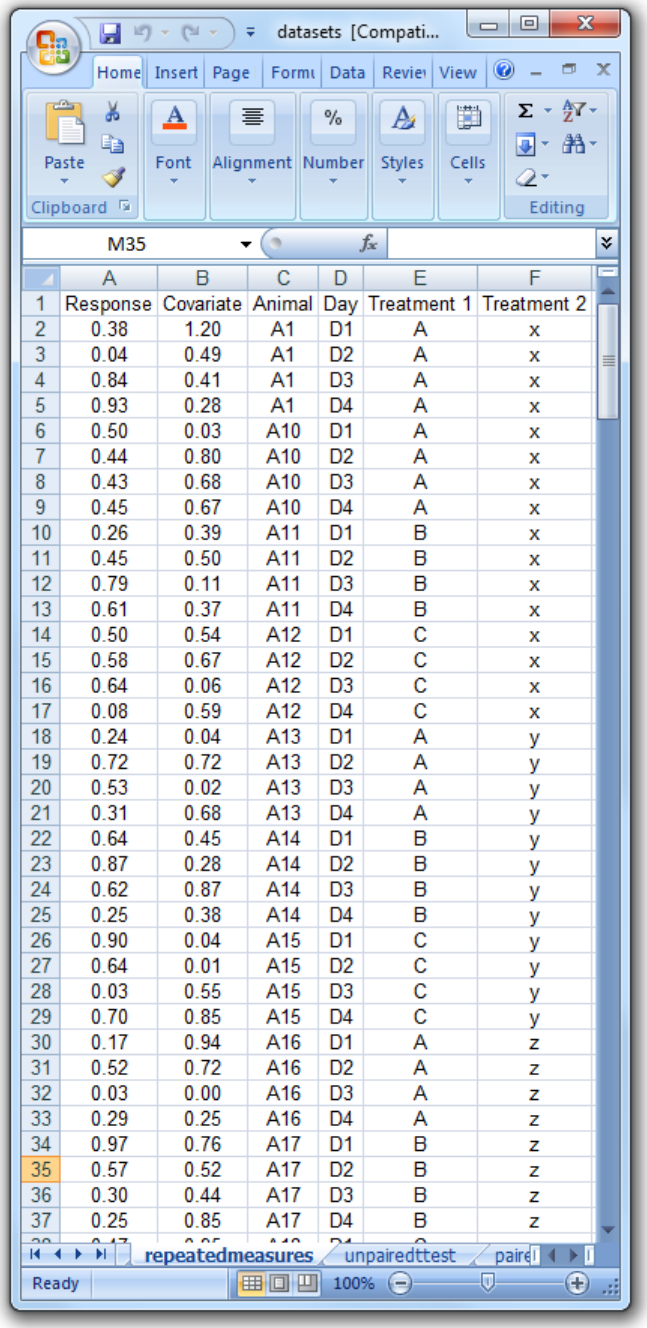
	A	B	C	D	E	F
1	Response	Covariate	Treatment	Sex	Strain	Block
2	1.17	0.25	D0	F	TG	Bk1
3	1.30	0.41	D0	F	TG	Bk1
4	1.72	0.68	D0	F	TG	Bk2
5	1.17	0.40	D0	F	TG	Bk2
6	1.39	0.61	D0	F	WT	Bk1
7	1.44	0.99	D0	F	WT	Bk1
8	1.60	0.69	D0	F	WT	Bk2
9	1.57	0.08	D0	F	WT	Bk2
10	1.33	0.41	D0	M	TG	Bk1
11	1.57	0.07	D0	M	TG	Bk1
12	1.66	0.42	D0	M	TG	Bk1
13	1.47	0.29	D0	M	TG	Bk2
14	1.72	0.51	D0	M	TG	Bk2
15	1.17	0.85	D0	M	TG	Bk2
16	1.06	0.91	D0	M	WT	Bk1
17	1.24	0.77	D0	M	WT	Bk1
18	1.60	0.64	D0	M	WT	Bk2
19	0.99	0.31	D0	M	WT	Bk2
20	1.37	0.59	D1	F	TG	Bk1
21	1.50	0.02	D1	F	TG	Bk1
22	1.59	0.23	D1	F	TG	Bk1
23	1.37	0.83	D1	F	TG	Bk2
24	1.50	0.72	D1	F	TG	Bk2
25	1.37	0.08	D1	F	TG	Bk2
26	1.64	0.78	D1	F	WT	Bk1
27	1.53	0.83	D1	F	WT	Bk1
28	1.50	0.07	D1	F	WT	Bk2
29	1.59	0.10	D1	F	WT	Bk2
30	1.77	0.21	D1	M	TG	Bk1
31	1.86	0.49	D1	M	TG	Bk1
32	1.26	0.06	D1	M	TG	Bk1
33	1.64	0.89	D1	M	TG	Bk2
34	1.53	0.03	D1	M	TG	Bk2
35	1.77	0.79	D1	M	TG	Bk2
36	1.44	0.65	D1	M	WT	Bk1
37	1.92	0.48	D1	M	WT	Bk1

To begin with your dataset needs to be formatted correctly.

There are two main formats, depending on whether or not the response is measured repeatedly for each animal.

In both formats the responses are placed in a single column (within the dataset) with separate ‘indicator’ columns denoting animal characteristics, treatment factors and other nuisance variables.

In this scenario each animal is measured once and each row of the dataset corresponds to an animal.



	A	B	C	D	E	F
1	Response	Covariate	Animal	Day	Treatment 1	Treatment 2
2	0.38	1.20	A1	D1	A	x
3	0.04	0.49	A1	D2	A	x
4	0.84	0.41	A1	D3	A	x
5	0.93	0.28	A1	D4	A	x
6	0.50	0.03	A10	D1	A	x
7	0.44	0.80	A10	D2	A	x
8	0.43	0.68	A10	D3	A	x
9	0.45	0.67	A10	D4	A	x
10	0.26	0.39	A11	D1	B	x
11	0.45	0.50	A11	D2	B	x
12	0.79	0.11	A11	D3	B	x
13	0.61	0.37	A11	D4	B	x
14	0.50	0.54	A12	D1	C	x
15	0.58	0.67	A12	D2	C	x
16	0.64	0.06	A12	D3	C	x
17	0.08	0.59	A12	D4	C	x
18	0.24	0.04	A13	D1	A	y
19	0.72	0.72	A13	D2	A	y
20	0.53	0.02	A13	D3	A	y
21	0.31	0.68	A13	D4	A	y
22	0.64	0.45	A14	D1	B	y
23	0.87	0.28	A14	D2	B	y
24	0.62	0.87	A14	D3	B	y
25	0.25	0.38	A14	D4	B	y
26	0.90	0.04	A15	D1	C	y
27	0.64	0.01	A15	D2	C	y
28	0.03	0.55	A15	D3	C	y
29	0.70	0.85	A15	D4	C	y
30	0.17	0.94	A16	D1	A	z
31	0.52	0.72	A16	D2	A	z
32	0.03	0.00	A16	D3	A	z
33	0.29	0.25	A16	D4	A	z
34	0.97	0.76	A17	D1	B	z
35	0.57	0.52	A17	D2	B	z
36	0.30	0.44	A17	D3	B	z
37	0.25	0.85	A17	D4	B	z

The second commonly used format is needed when animals are measured repeatedly, perhaps over time.

In this dataset all the responses are placed in one column. Also required is a column indicating the animal (there are multiple rows per animal), a column indicating the repeated factor level (i.e. the Day variable) and also columns to indicate the Treatment factors.

Introduction to InVivoStat - InVivoStat

InVivoStat My Data Statistics My Analyses

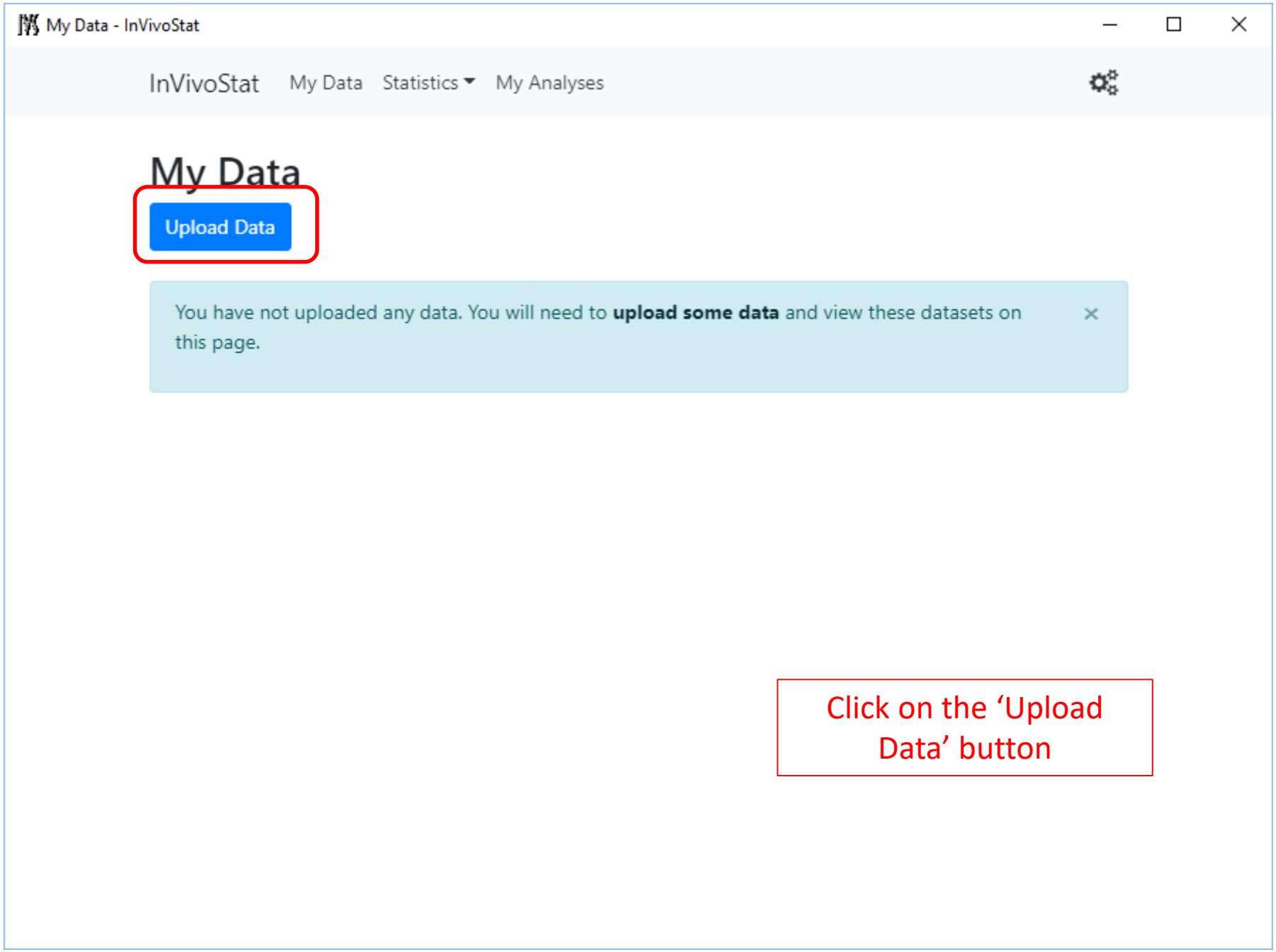
InVivoStat

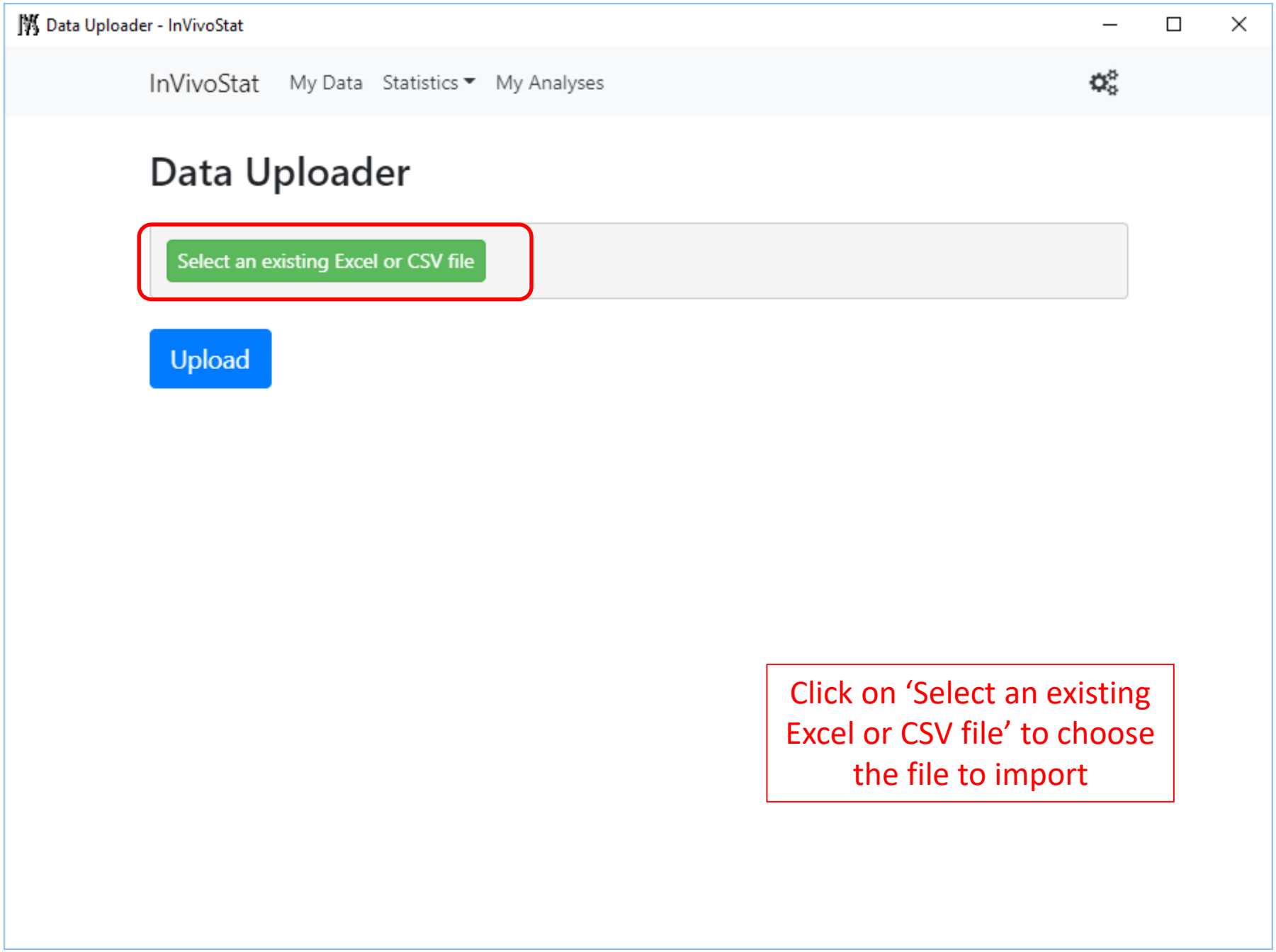
About InVivoStat

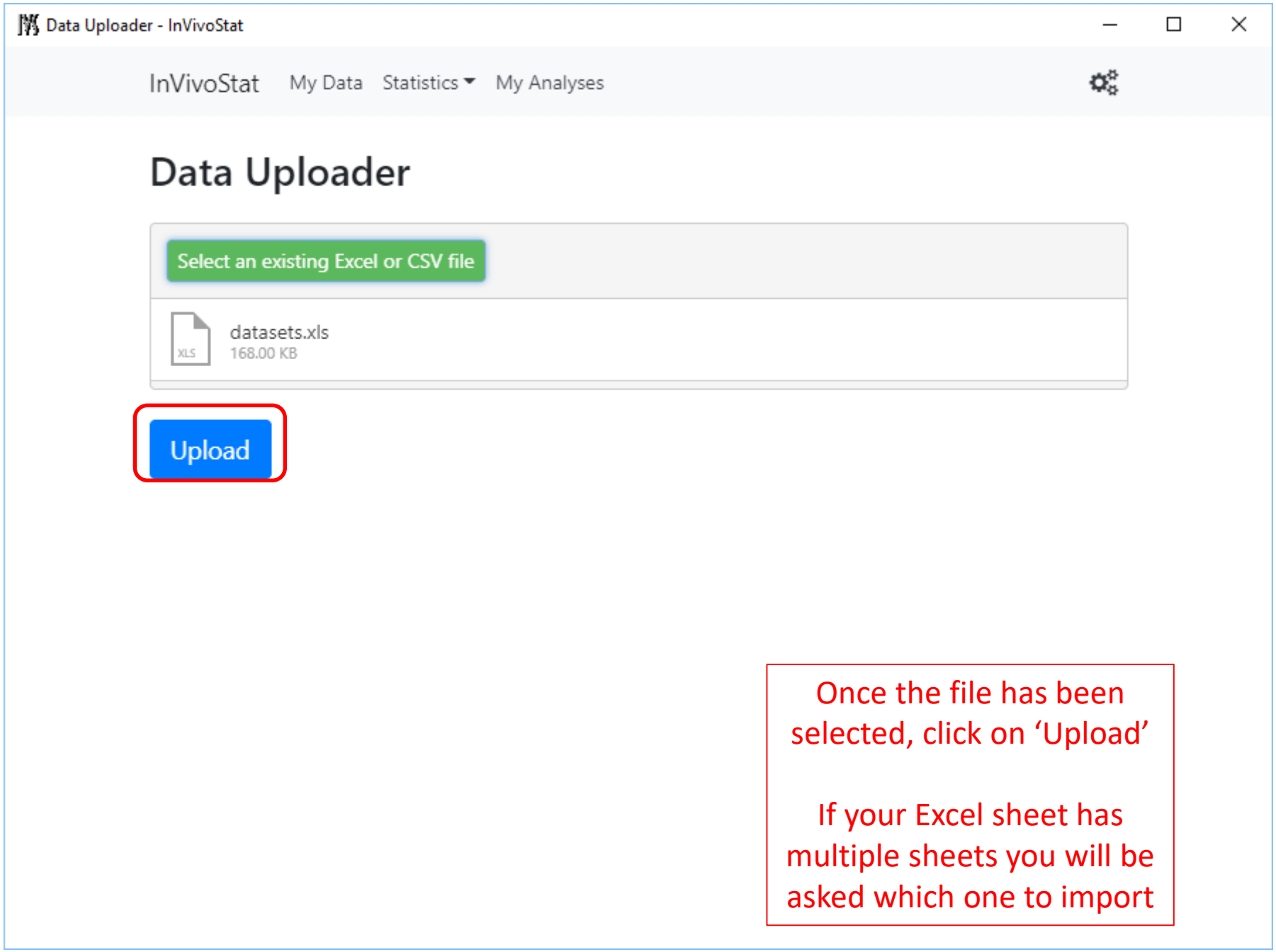
InVivoStat is a powerful, free to use, statistical software package which uses R as its statistics engine. It is designed specifically for scientists conducting animal experiments. The package combines complex and powerful statistical tools (within R) with a user interface that is both easy to use and intuitive to the non-statistician.

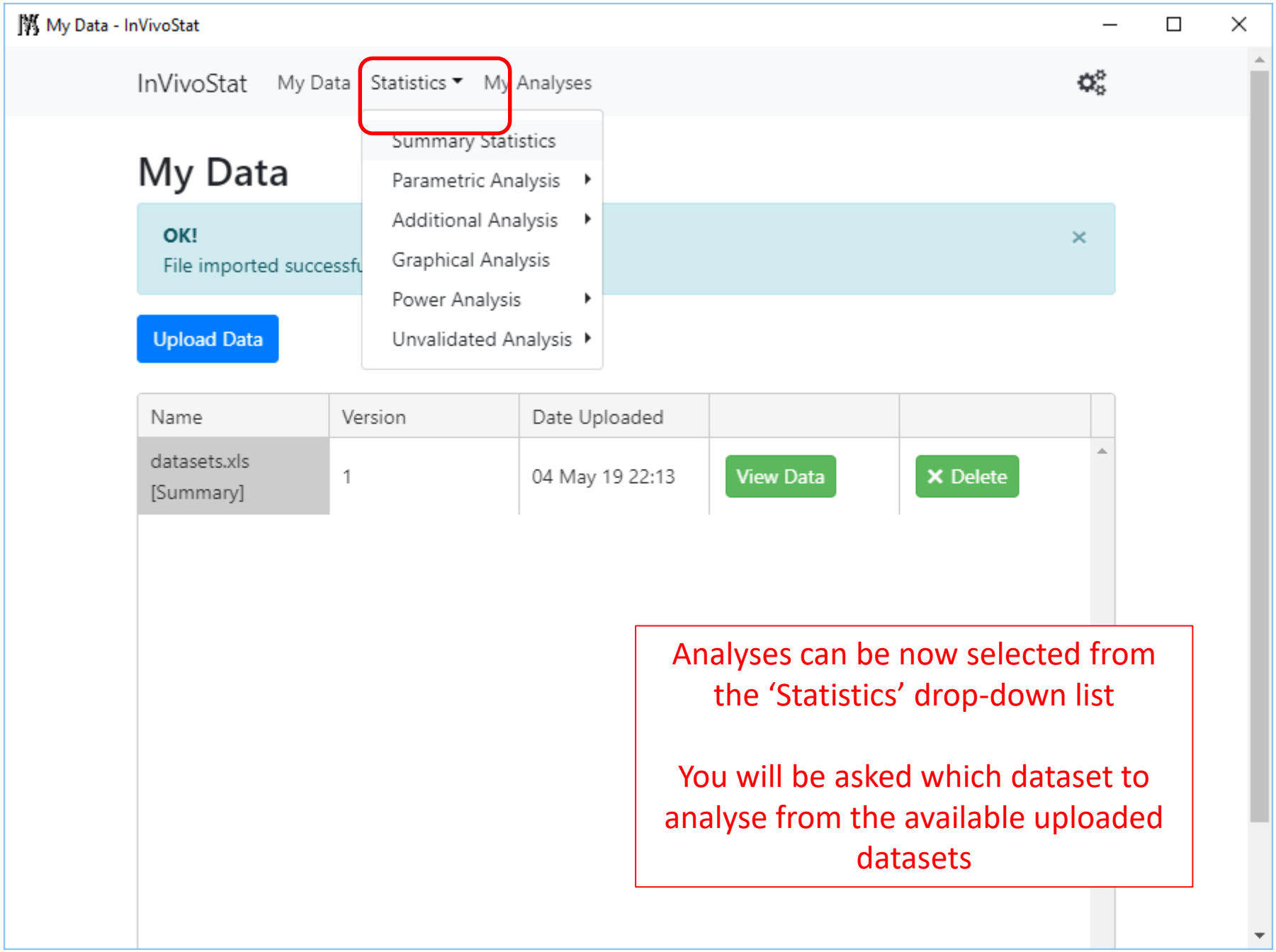
Getting Started User Guide

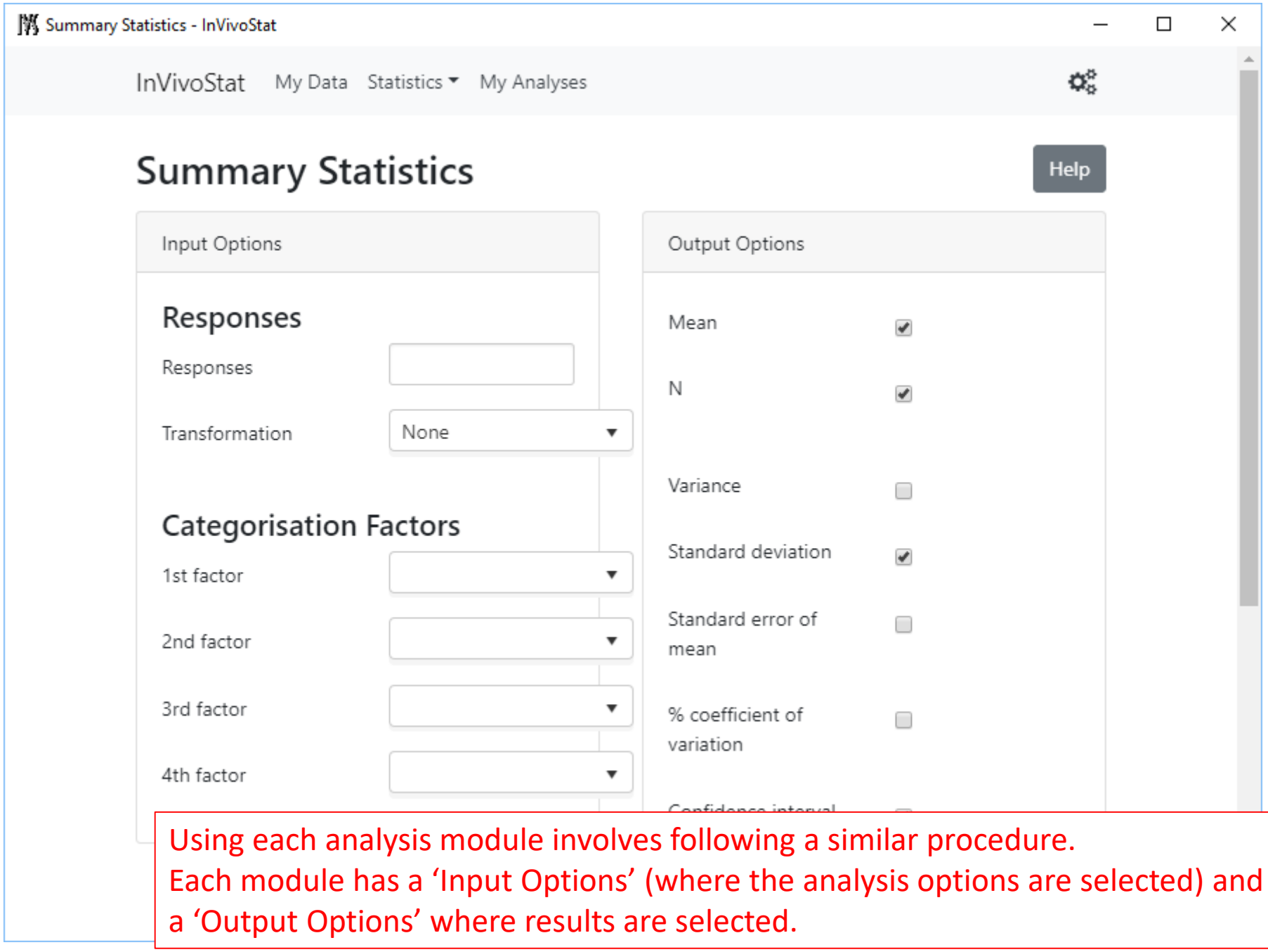
To start using InVivoStat, first you need to upload your dataset. Do this by clicking on the 'My Data'

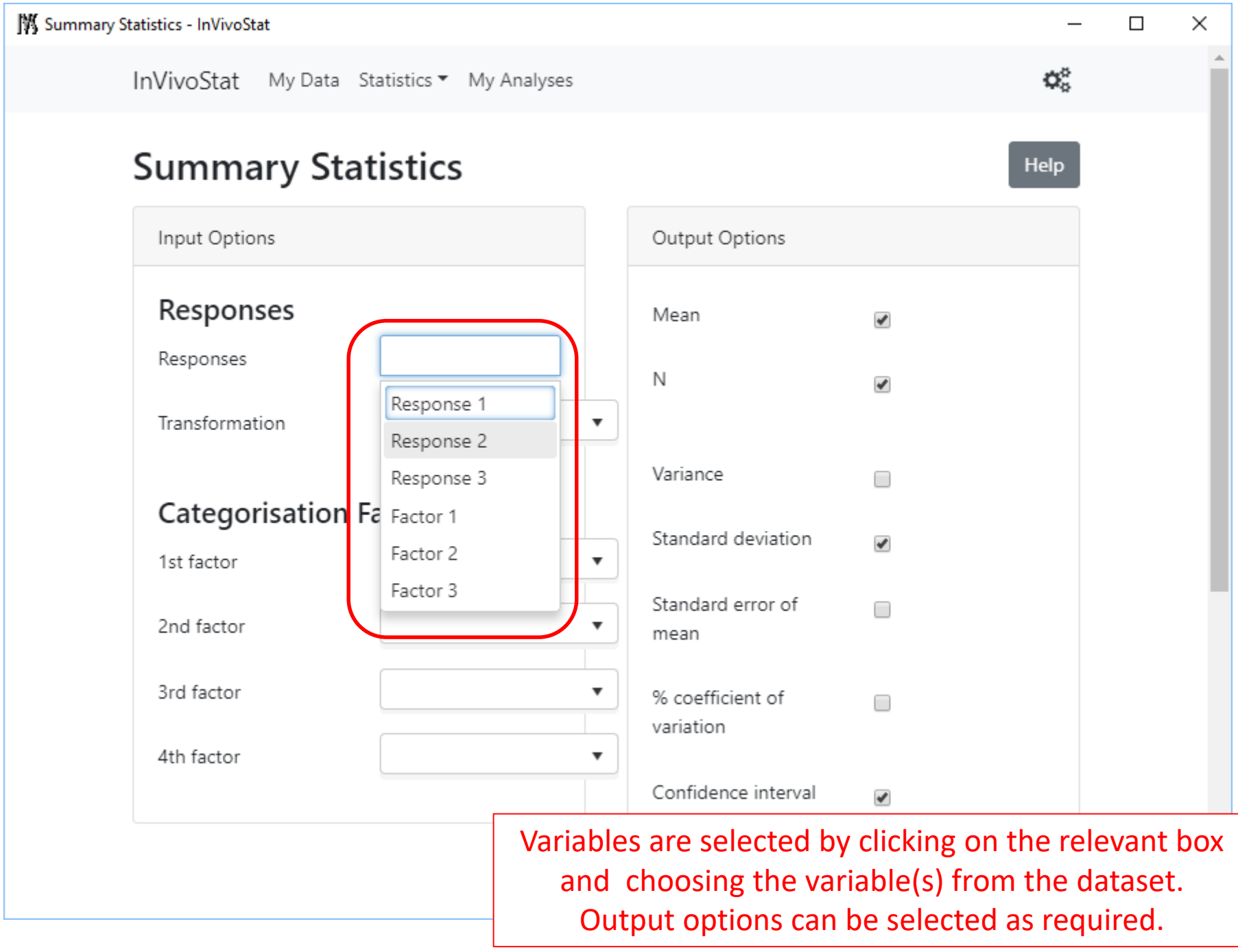

My Data - InVivoStat
InVivoStat
My Data
Statistics
My Analyses
My Data
Upload Data
You have not uploaded any data. You will need to upload some data and view these datasets on this page.
Click on the 'Upload Data' button

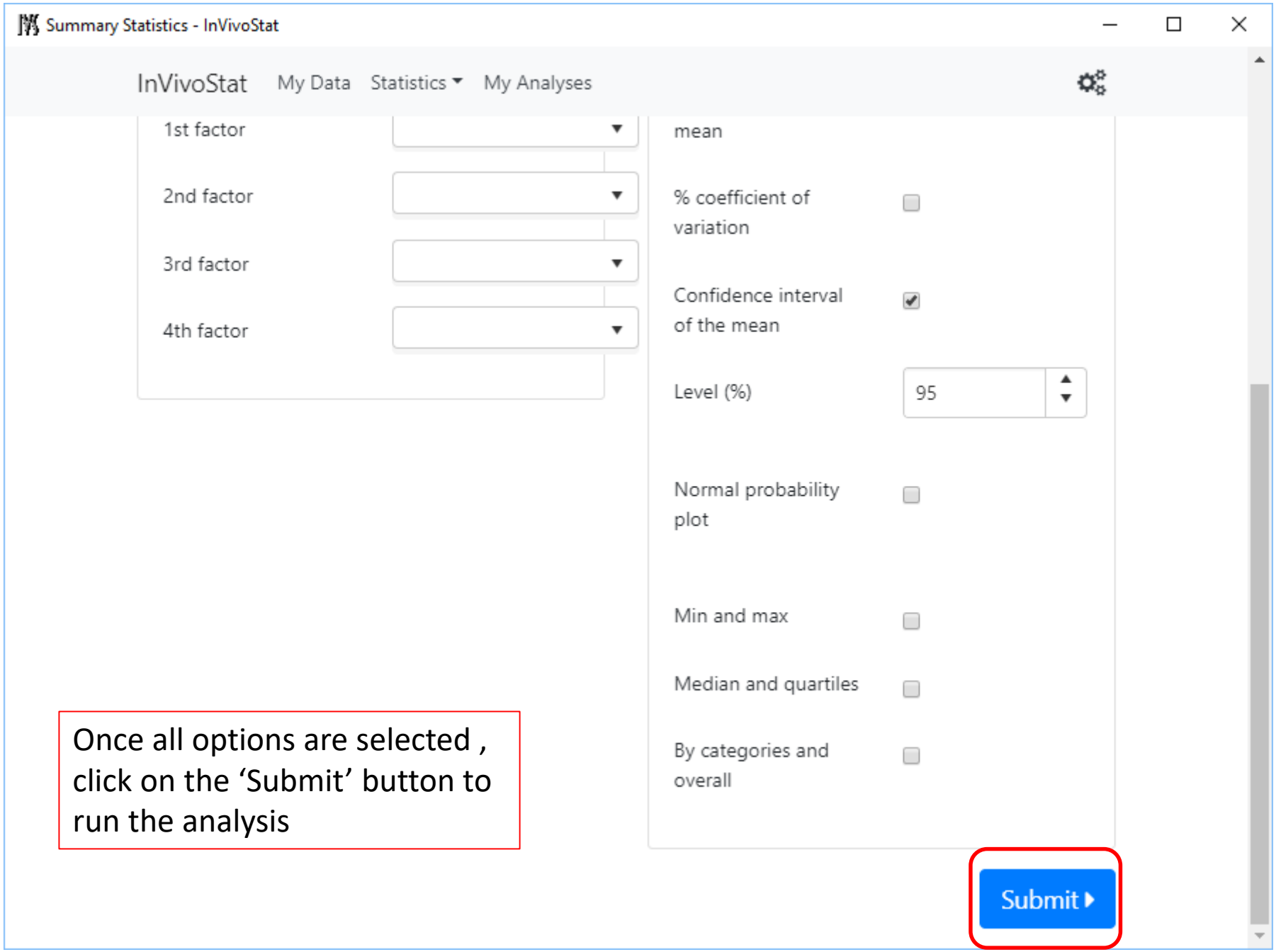

Data Uploader - InVivoStat
InVivoStat
My Data
Statistics
My Analyses
Data Uploader
Select an existing Excel or CSV file
Upload
Click on 'Select an existing Excel or CSV file' to choose the file to import


Data Uploader - InVivoStat
InVivoStat
My Data
Statistics
My Analyses
Data Uploader
Select an existing Excel or CSV file
datasets.xls
168.00 KB
Upload
Once the file has been selected, click on 'Upload'
If your Excel sheet has multiple sheets you will be asked which one to import


My Data - InVivoStat
InVivoStat
My Data
Statistics
My Analyses
Summary Statistics
Parametric Analysis
Additional Analysis
Graphical Analysis
Power Analysis
Unvalidated Analysis
My Data
OK!
File imported successfu
Upload Data
Name
Version
Date Uploaded
datasets.xls [Summary]
1
04 May 19 22:13
View Data
Delete
Analyses can be now selected from the ‘Statistics’ drop-down list
You will be asked which dataset to analyse from the available uploaded datasets


Summary Statistics - InVivoStat
InVivoStat
My Data
Statistics
My Analyses
Summary Statistics
Help
Input Options
Responses
Responses
Transformation
None
Categorisation Factors
1st factor
2nd factor
3rd factor
4th factor
Output Options
Mean
N
Variance
Standard deviation
Standard error of mean
% coefficient of variation
Using each analysis module involves following a similar procedure.
Each module has a ‘Input Options’ (where the analysis options are selected) and a ‘Output Options’ where results are selected.


Summary Statistics - InVivoStat
InVivoStat
My Data
Statistics
My Analyses
Summary Statistics
Help
Input Options
Responses
Responses
Transformation
Response 1
Response 2
Response 3
Factor 1
Factor 2
Factor 3
Categorisation Fa
1st factor
2nd factor
3rd factor
4th factor
Output Options
Mean
N
Variance
Standard deviation
Standard error of mean
% coefficient of variation
Confidence interval
Variables are selected by clicking on the relevant box and choosing the variable(s) from the dataset.
Output options can be selected as required.


Summary Statistics - InVivoStat
InVivoStat
My Data
Statistics
My Analyses
1st factor
2nd factor
3rd factor
4th factor
mean
% coefficient of variation
Confidence interval of the mean
Level (%)
95
Normal probability plot
Min and max
Median and quartiles
By categories and overall
Submit
Once all options are selected , click on the 'Submit' button to run the analysis

View Results - InVivoStat

InVivoStat My Data Statistics My Analyses

View Analysis Log | Export to Pdf | Re-analyse

InVivoStat Summary Statistics

Variable selection

Responses Response 1,Response 2 are analysed in this module.

Summary statistics

Summary statistics for Response 1

Response	Mean	N	Variance	Std dev	Lower 95% CI	Upper 95% CI
Response 1	0.6092	32	0.0586	0.2420	0.5219	0.6964

Summary statistics for Response 2

Response	Mean	N	Variance	Std dev	Lower 95% CI	Upper 95% CI
Response 2	0.4732	32	0.1161	0.3408	0.3503	0.5960

For more information on the theoretical approaches that are implemented
and Clark (2014).

Statistical references

The output includes numerical results alongside information on the analysis employed and how to interpret the results generated.

Statistical references

Bate ST and Clark RA. (2014). The Design and Statistical Analysis of Animal Experiments. Cambridge University Press.

R references

R Development Core Team (2013). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL http://www.R-project.org.

Barret Schloerke, Jason Crowley, Di Cook, Heike Hofmann, Hadley Wickham, Francois Briatte, Moritz Marbach and Edwin Thoen (2014). GGally: Extension to ggplot2. R package version 0.4.5. http://CRAN.R-project.org/package=GGally

Erich Neuwirth (2011). RColorBrewer: ColorBrewer palettes. R package version 1.0-5. http://CRAN.R-project.org/package=RColorBrewer

H. Wickham. ggplot2: elegant graphics for data analysis. Springer New York, 2009.

Kamil Slowikowski (2018). ggrepel: Automatically Position Non-Overlapping Text Labels with 'ggplot2'. R package version 0.8.0. https://CRAN.R-project.org/package=ggrepel

H. Wickham. Reshaping data with the reshape package. Journal of Statistical Software, 21(12), 2007.

Hadley Wickham (2011). The Split-Apply-Combine Strategy for Data Analysis. Journal of Statistical Software, 40(1), 1-29. URL http://www.jstatsoft.org/v40/i01/.

Hadley Wickham (2012). scales: Scale functions fo
project.org/package=scales

Lecoutre, Eric (2003). The R2HTML Package. R News, Vol 3, N. 3, Vienna, Austria.

The output also includes statistical references

View Results - InVivoStat

InVivoStat My Data Statistics My Analyses

View Analysis Log | Export to Pdf | Re-analyse

InVivoStat Summary Statistics

Variable selection

Responses Response 1,Response 2 are analysed in this module.

Summary statistics

Summary statistics for Response 1

Response	Mean	N	Variance	Std dev	Lower 95% CI	Upper 95% CI
Response 1	0.6092	32	0.0586	0.2420	0.5219	0.6964

Summary statistics for Response 2

Response	Mean	N	Variance	Std dev	Lower 95% CI	Upper 95% CI
Response 2	0.4732	32	0.1161	0.3408	0.3503	0.5960

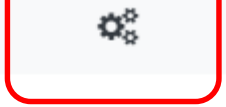
For more information on the theoretical approach
and Clark (2014).

Statistical references

The HTML output can be saved directly, or a pdf copy of the output generated

View Results - InVivoStat

InVivoStat My Data Statistics My Analyses



Statistical references

Bate ST and Clark RA. (2014). The Design and Statistical Analysis of Animal Experiments. Cambridge University Press.

R references

R Development Core Team (2013). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL http://www.R-project.org.

Barret Schloerke, Jason Crowley, Di Cook, Heike Hofmann, Hadley Wickham, Francois Briatte, Moritz Marbach and Edwin Thoen (2014). GGally: Extension to ggplot2. R package version 0.4.5. http://CRAN.R-project.org/package=GGally

Erich Neuwirth (2011). RColorBrewer: ColorBrewer palettes. R package version 1.0-5. http://CRAN.R-project.org/package=RColorBrewer

H. Wickham. ggplot2: elegant graphics for data analysis. Springer New York, 2009.

Kamil Slowikowski (2018). ggrepel: Automatically Position Non-Overlapping Text Labels with 'ggplot2'. R package version 0.8.0. https://CRAN.R-project.org/package=ggrepel

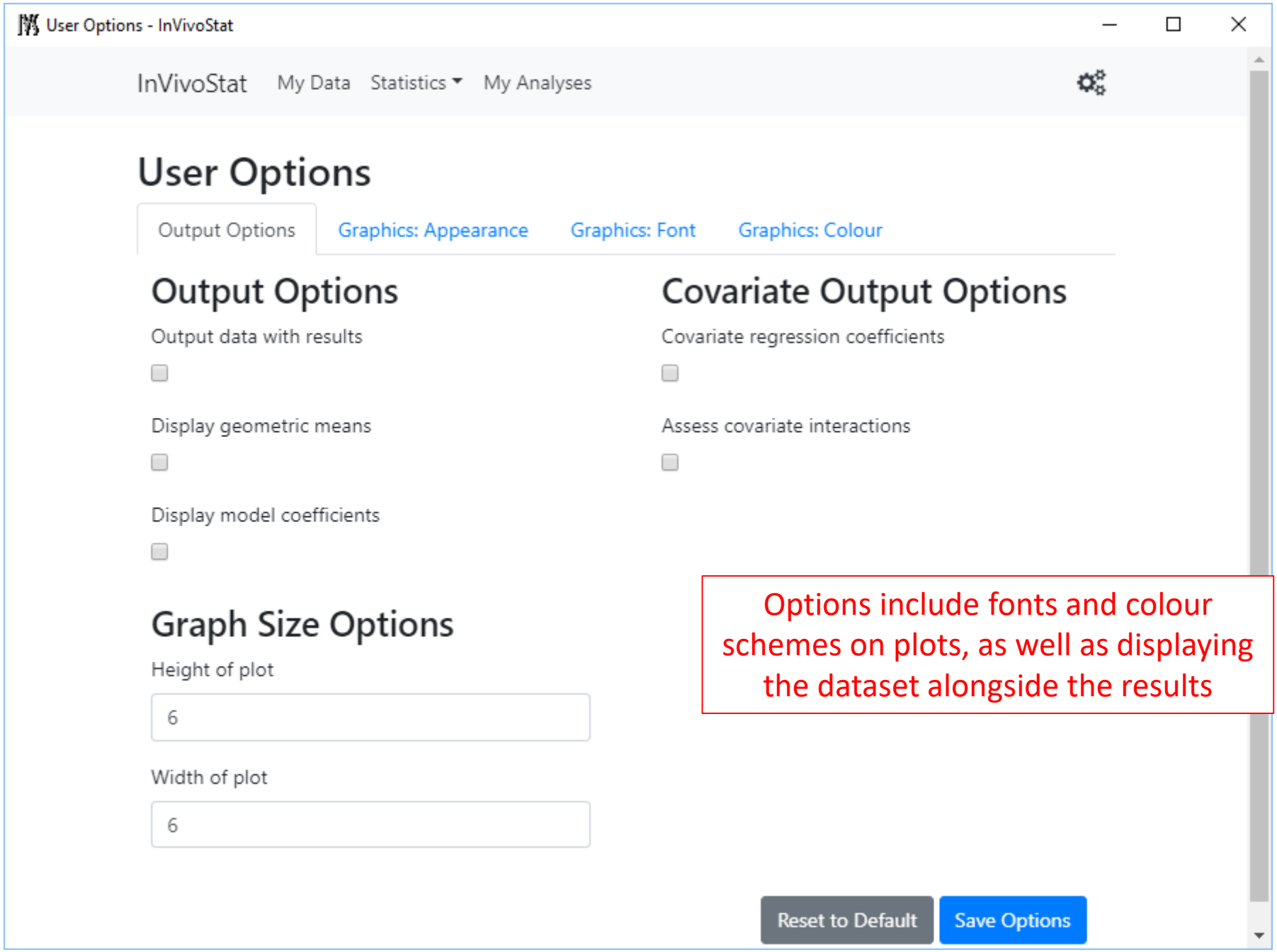
H. Wickham. Reshaping data with the reshape package. Journal of Statistical Software, 21(12), 2007.

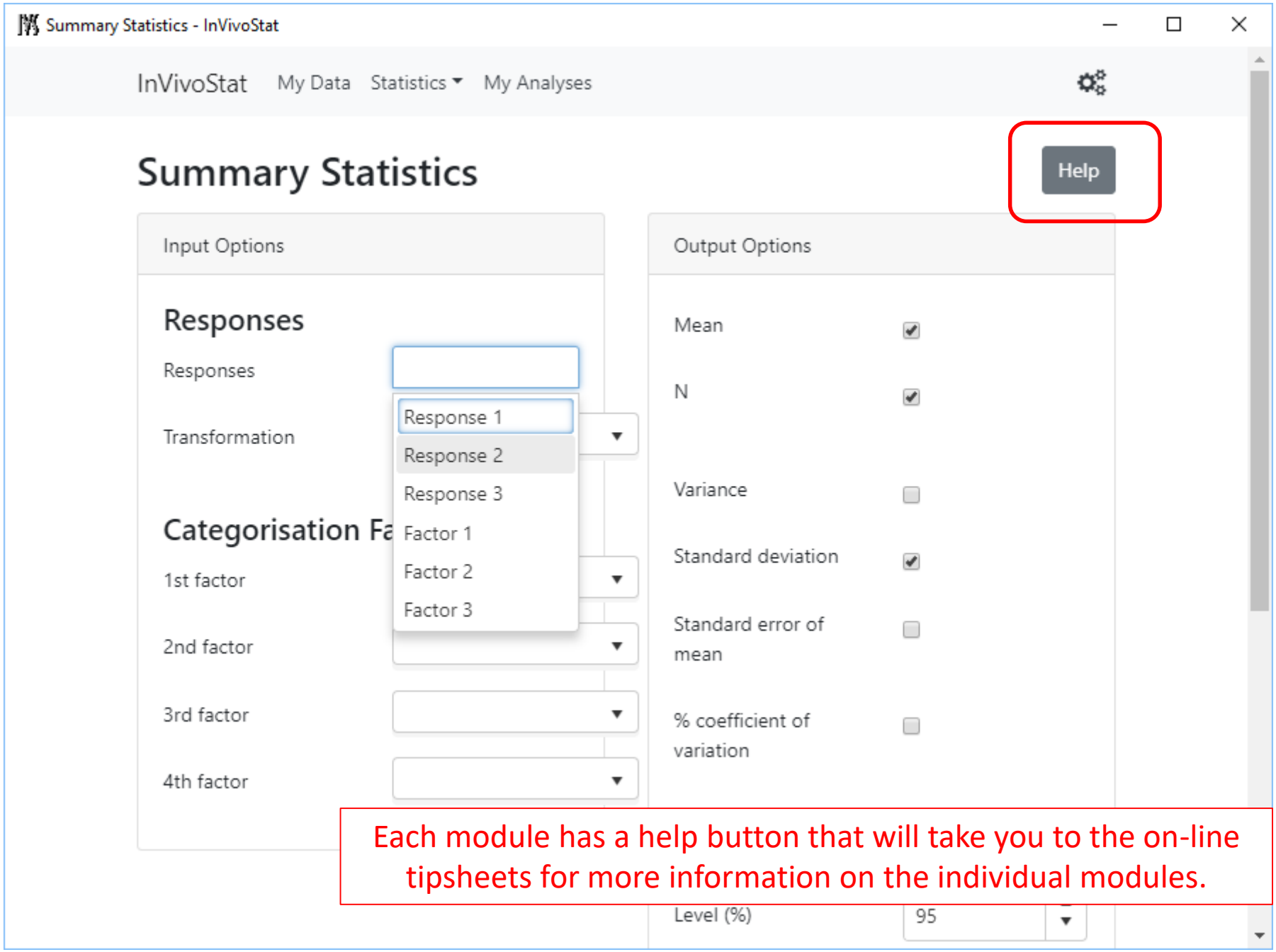
Hadley Wickham (2011). The Split-Apply-Combine
Software, 40(1), 1-29. URL http://www.jstatsoft.org

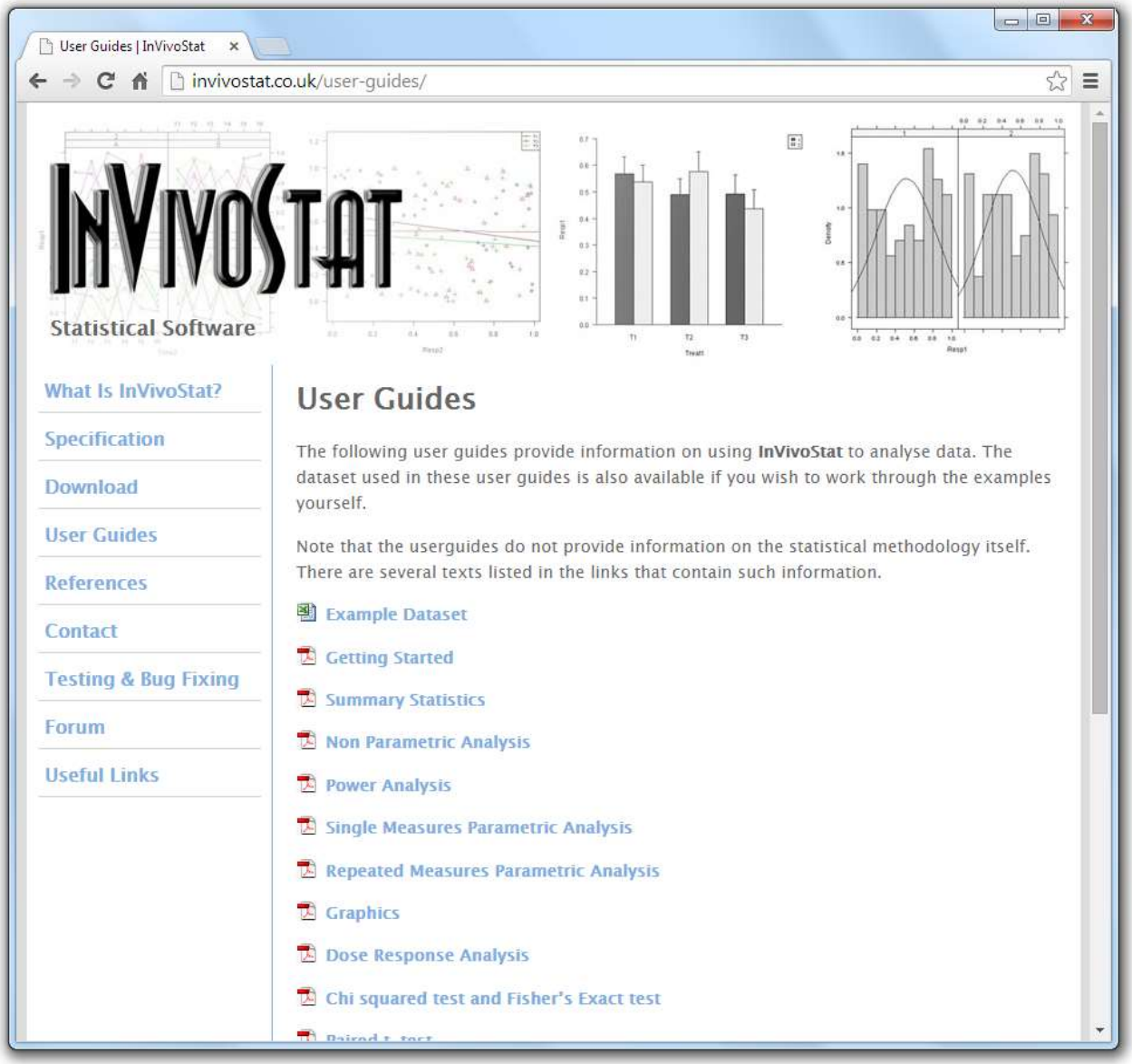
Hadley Wickham (2012). scales: Scale functions fo
project.org/package=scales

Lecoutre, Eric (2003). The R2HTML Package. R News, Vol 3, N. 3, Vienna, Austria.

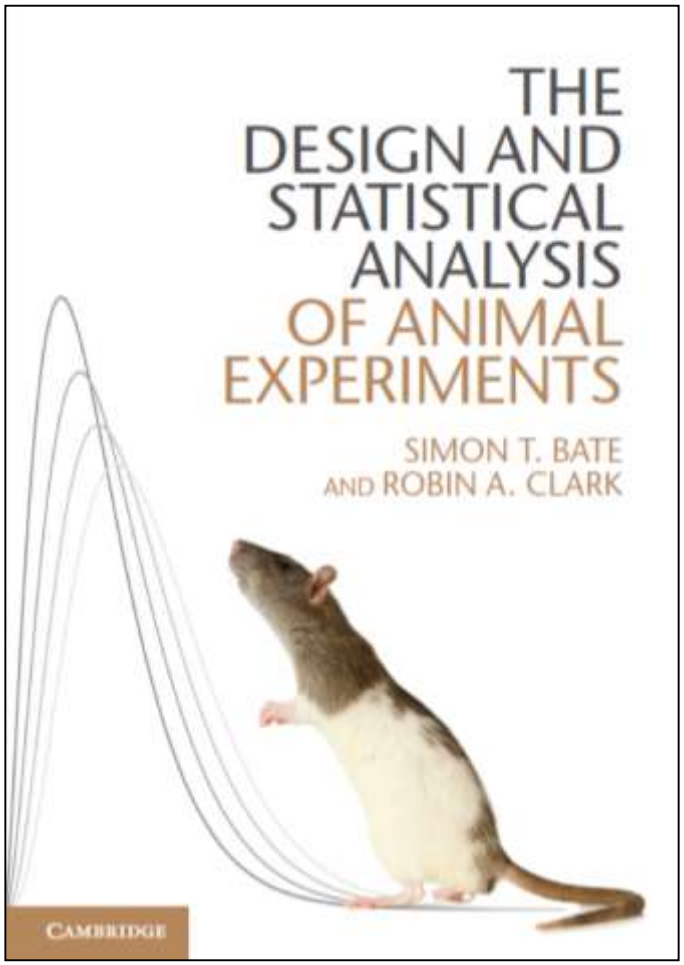
Other default output options, such as the default properties of the graphical plots and other numerical output selections, can be changed here


User Options - InVivoStat
InVivoStat
My Data
Statistics
My Analyses
User Options
Output Options
Graphics: Appearance
Graphics: Font
Graphics: Colour
Output Options
Output data with results
Display geometric means
Display model coefficients
Covariate Output Options
Covariate regression coefficients
Assess covariate interactions
Graph Size Options
Height of plot
6
Width of plot
6
Options include fonts and colour schemes on plots, as well as displaying the dataset alongside the results
Reset to Default
Save Options


Summary Statistics - InVivoStat
InVivoStat
My Data
Statistics
My Analyses
Summary Statistics
Help
Input Options
Responses
Responses
Transformation
Response 1
Response 2
Response 3
Factor 1
Factor 2
Factor 3
Categorisation Fa
1st factor
2nd factor
3rd factor
4th factor
Output Options
Mean
N
Variance
Standard deviation
Standard error of mean
% coefficient of variation
Level (%)
95
Each module has a help button that will take you to the on-line tipsheets for more information on the individual modules.



Tipsheets are available for all of InVivoStat's modules at the website.



Further information regarding the methodology implemented within InVivoStat can be found in:

The Design and Analysis of Animal Experiments
Bate and Clark
Cambridge University Press (2014)