



KUANT GUIDES

Guide No.

XXXX

A Template for KUant Guides written with Sweave

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This is abstract of the template \LaTeX document for the preparation of KUant Guides (<http://quant.ku.edu>). The abstract should include a general explanation of the guide's topic.

This template uses Sweave. Please read the template guide for ordinary \LaTeX before you try this one that uses Sweave. The two things build on each other.

If you are looking at the source code for this document, you will see a set of Sweave defaults. These things are subject to change, as we revise the style to match the KUant Guide requirements.

A KUant Guide is a brief (less than 10 pages) illustration of software usage for a particular task.

If you want to prepare a KUant Guide using Sweave in \LaTeX , you should edit the file KUant-sweave.lyx. If you want to do the same, but using the "raw" \LaTeX markup, then the file to start with is KUant-sweave.Rnw. Supposing you know what to do with an R Sweave document, that will be easy for you to manage.

How will I finesse the two column style? I'll use small print for the output and make small figures.

Do you worry that this will look bad? I sure do. But it appears it may be OK! I've set the default figure size at 3 inches square. That part appears OK.

To present the code chunks, I am using the \LaTeX Listings package. We need to talk about that. Even if I make the text small, I get "line wrap."

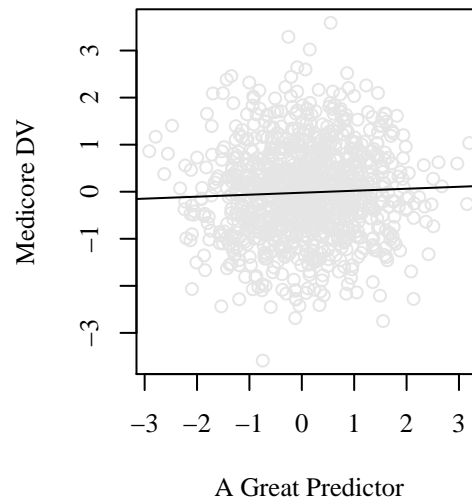
Without further ado, here's some R that is Sweaved.

```
1 x <- rnorm(1000)
2 y <- rnorm(1000)
3 ml <- lm (y ~ x)
4 summary(ml)
```

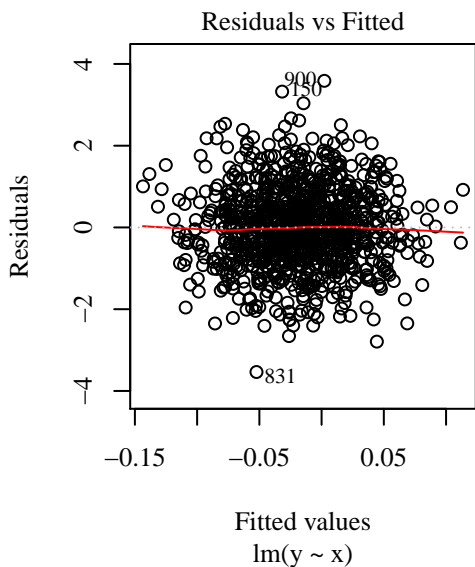
```
1 Call:
2 lm(formula = y ~ x)
3
4 Residuals:
5     Min       1Q   Median       3Q      Max
6 -3.5360 -0.6237 -0.0258  0.6166  3.5875
7
8 Coefficients:
9             Estimate Std. Error t value Pr(>|t|)
10 (Intercept) -0.02094    0.03098  -0.676    0.499
```

```
x      0.04209    0.03185    1.322
0.187
Residual standard error: 0.9776 on 998
degrees of freedom
Multiple R2: 0.001747, Adjusted R2:
0.0007471
F-statistic: 1.747 on 1 and 998 DF,
p-value: 0.1866
```

```
1 plot(y ~ x, xlab="A Great Predictor",
2      ylab="Medicore DV", col="gray90")
abline(ml)
```



```
1 plot(ml, which=1)
```



It is tempting to make the margins of the graphs smaller and smaller, so that the label on the y axis touches the left edge of the column. But some graphs “clip” content if we do that.

Oh, one more thing. This uses Frank Harrell’s Sweave style, which works nicely in my opinion. That’s how I learned about beautifying output listings.

Conclusion

I wanted to insert some bibliographic citations, so that future users might have a fully working example. So, without further ado Aitkin (1999), and Albert (2007, p. 57), as well as others (Jackman, 2009; McCullagh, 2008; McCullagh & Nelder, 1983).

The other problem I need to work on is the usage of Sweave for R document preparation. I’m not sure how well that will integrate into this format.

References

- Aitkin, M. (1999). A general maximum likelihood analysis of variance components in generalized linear models. *Biometrics*, 55(1), 117–128.
- Albert, J., Ed. (2007). *Bayesian Computation with R*. New York, NY: Springer New York.
- Jackman, S. (2009). *Bayesian Analysis for the Social Sciences*. Chichester, UK: John Wiley and Sons.
- McCullagh, P. (2008). Sampling bias and logistic models. *Journal of the Royal Statistical Society. Series B (Statistical Methodology)*, 70(4), 643–677.
- McCullagh, P. & Nelder, J. A. (1983). *Generalized Linear Models*. Number 37 in Monographs on statistics and applied probability. London: Chapman and Hall.