Best Practices for the Political Scientist

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A Quick Overview. . .

1. Code well

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2. Write using plain text

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2. Write using plain text
3. Use a version control system

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- These source files (for example, .R for R scripts or .do for Stat do-files) should be liberally commented
- Comments explain what you are doing to your future self, collaborators, and others

Comment example

```
# This code creates Fig 1
# I use the mtcars dataset (included with R)
library(ggplot2)
ggplot(mtcars, aes(mpg, wt)) +
  geom_point() +
  geom_smooth(method="lm") # Adds OLS line with SEs
ggsave("fig/fig1.pdf")
```

- Save this code snippit as `fig1.R` (or similar)

Literate programming and reproducible research

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- Previous example - have two files for one plot in a paper
  - The paper itself (document.tex or similar)
  - the script to create the figure (fig1.R or similar)
- What if we could combine these to have everything in one easy-to-read file?
  - This is what literate programming is all about!

Literate programming example (using knitr)

```
\begin{section}
This is an example paragraph, writte in \LaTeX.
Using knitr, we can include R code in the following manner
I can reference the figure number by calling ref:
Figure \ref{fig:mpg-and-weight}.
% NTS - updating that figure with squared x doesn't change
\begin{figure}
\centering
<<fig1plot>>=
# I use the mtcars dataset (included with R)
library(ggplot2)
ggplot(mtcars, aes(mpg, wt)) +
  geom_point() +
  geom_smooth(method="lm") # Adds OLS line with SEs
@
\caption{Miles per gallon and weight}
\label{fig:mpg-and-weight}
\end{figure}
```