MEET *R MARKDOWN*

ECON 480 - ECONOMETRICS - FALL 2018

Ryan Safner

September 17, 2018

Manage Your Workflow

Making Your Work Reproducible

R Markdown

Structure of a Document

Manage Your Workflow

- Writing Text

- Writing Text
- Managing citations and bibliography

- Writing Text
- Managing citations and bibliography
- Performing data analysis

- Writing Text
- Managing citations and bibliography
- Performing data analysis
- Making figures and tables

- Writing Text
- Managing citations and bibliography
- Performing data analysis
- Making figures and tables
- Save files for future use

- Writing Text
- Managing citations and bibliography
- Performing data analysis
- Making figures and tables
- Save files for future use
- Monitor changes in documents

- Writing Text
- Managing citations and bibliography
- Performing data analysis
- Making figures and tables
- Save files for future use
- Monitor changes in documents
- Collaborate and share files with coauthors

- Writing Text
- Managing citations and bibliography
- Performing data analysis
- Making figures and tables
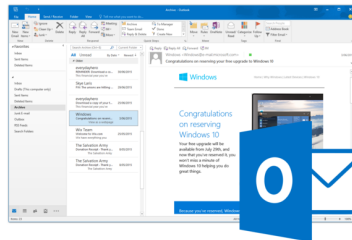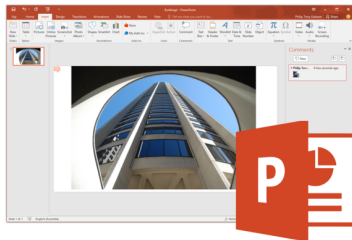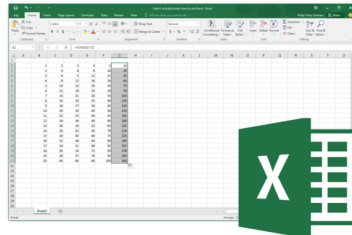- Save files for future use
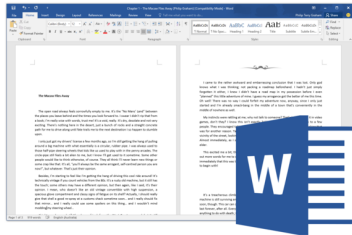- Monitor changes in documents
- Collaborate and share files with coauthors
- Combine all elements into single document for presentation

The Office Model

- Writing Text

- Writing Text
  - Done in Word, the "realest" part of your workflow

- Writing Text
  - Done in Word, the "realest" part of your workflow
- Managing citations and bibliography

- Writing Text
  - Done in Word, the "realest" part of your workflow
- Managing citations and bibliography
  - Often done by hand in Word, perhaps a reference manager plugin

- Writing Text
  - Done in Word, the "realest" part of your workflow
- Managing citations and bibliography
  - Often done by hand in Word, perhaps a reference manager plugin
- Performing data analysis

- Writing Text
  - Done in Word, the "realest" part of your workflow
- Managing citations and bibliography
  - Often done by hand in Word, perhaps a reference manager plugin
- Performing data analysis
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word

HOOD
COLLEGE

- Writing Text
  - Done in Word, the "realest" part of your workflow
- Managing citations and bibliography
  - Often done by hand in Word, perhaps a reference manager plugin
- Performing data analysis
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Making figures and tables

HOOD
COLLEGE

- Writing Text
  - Done in Word, the "realest" part of your workflow
- Managing citations and bibliography
  - Often done by hand in Word, perhaps a reference manager plugin
- Performing data analysis
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Making figures and tables
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word

HOOD
COLLEGE

- Writing Text
  - Done in Word, the "realest" part of your workflow
- Managing citations and bibliography
  - Often done by hand in Word, perhaps a reference manager plugin
- Performing data analysis
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Making figures and tables
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Save files for future use

HOOD
COLLEGE

- Writing Text
  - Done in Word, the "realest" part of your workflow
- Managing citations and bibliography
  - Often done by hand in Word, perhaps a reference manager plugin
- Performing data analysis
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Making figures and tables
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Save files for future use
  - Save Word .docx, Excel .xlsx, etc.

- Writing Text
    - Done in Word, the "realest" part of your workflow
- Managing citations and bibliography
    - Often done by hand in Word, perhaps a reference manager plugin
- Performing data analysis
    - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Making figures and tables
    - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Save files for future use
    - Save Word .docx, Excel .xlsx, etc.
- Monitor changes in documents

- Writing Text
  - Done in Word, the "realest" part of your workflow
- Managing citations and bibliography
  - Often done by hand in Word, perhaps a reference manager plugin
- Performing data analysis
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Making figures and tables
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Save files for future use
  - Save Word .docx, Excel .xlsx, etc.
- Monitor changes in documents
  - Track changes inside Word file

- Writing Text
  - Done in Word, the "realest" part of your workflow
- Managing citations and bibliography
  - Often done by hand in Word, perhaps a reference manager plugin
- Performing data analysis
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Making figures and tables
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Save files for future use
  - Save Word .docx, Excel .xlsx, etc.
- Monitor changes in documents
  - Track changes inside Word file
- Collaborate and share files with coauthors

- Writing Text
  - Done in Word, the "realest" part of your workflow
- Managing citations and bibliography
  - Often done by hand in Word, perhaps a reference manager plugin
- Performing data analysis
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Making figures and tables
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Save files for future use
  - Save Word .docx, Excel .xlsx, etc.
- Monitor changes in documents
  - Track changes inside Word file
- Collaborate and share files with coauthors

HOOD
COLLEGE

5

- Writing Text
    - Done in Word, the "realest" part of your workflow
- Managing citations and bibliography
    - Often done by hand in Word, perhaps a reference manager plugin
- Performing data analysis
    - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Making figures and tables
    - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Save files for future use
    - Save Word .docx, Excel .xlsx, etc.
- Monitor changes in documents
    - Track changes inside Word file
- Collaborate and share files with coauthors

- Writing Text
  - Done in Word, the "realest" part of your workflow
- Managing citations and bibliography
  - Often done by hand in Word, perhaps a reference manager plugin
- Performing data analysis
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Making figures and tables
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Save files for future use
  - Save Word .docx, Excel .xlsx, etc.
- Monitor changes in documents
  - Track changes inside Word file
- Collaborate and share files with coauthors

HOOD
COLLEGE

5

- Writing Text
  - Done in Word, the "realest" part of your workflow
- Managing citations and bibliography
  - Often done by hand in Word, perhaps a reference manager plugin
- Performing data analysis
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Making figures and tables
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Save files for future use
  - Save Word .docx, Excel .xlsx, etc.
- Monitor changes in documents
  - Track changes inside Word file
- Collaborate and share files with coauthors

HOOD
COLLEGE

5

- Writing Text
    - Done in Word, the "realest" part of your workflow
- Managing citations and bibliography
    - Often done by hand in Word, perhaps a reference manager plugin
- Performing data analysis
    - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Making figures and tables
    - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Save files for future use
    - Save Word .docx, Excel .xlsx, etc.
- Monitor changes in documents
    - Track changes inside Word file
- Collaborate and share files with coauthors

- Writing Text
  - Done in Word, the "realest" part of your workflow
- Managing citations and bibliography
  - Often done by hand in Word, perhaps a reference manager plugin
- Performing data analysis
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Making figures and tables
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Save files for future use
  - Save Word .docx, Excel .xlsx, etc.
- Monitor changes in documents
  - Track changes inside Word file
- Collaborate and share files with coauthors

- Writing Text
  - Done in Word, the "realest" part of your workflow
- Managing citations and bibliography
  - Often done by hand in Word, perhaps a reference manager plugin
- Performing data analysis
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Making figures and tables
  - Done in Excel (possibly Stata/SAS/R), then copy/pasted into Word
- Save files for future use
  - Save Word .docx, Excel .xlsx, etc.
- Monitor changes in documents
  - Track changes inside Word file
- Collaborate and share files with coauthors

- "If it ain't broke, don't fix it"

How to draw an owl
1.
2.

- "If it ain't broke, don't fix it"
- I will only offer suggestions that I:

How to draw an owl

1.

2.

- "If it ain't broke, don't fix it"
- I will only offer suggestions that I:
  - Use myself

How to draw an owl
1.
2.

- "If it ain't broke, don't fix it"
- I will only offer suggestions that I:
    - Use myself
    - Will make guides and tutorials for you

How to draw an owl
1.
2.

- "If it ain't broke, don't fix it"
- I will only offer suggestions that I:
    - Use myself
    - Will make guides and tutorials for you
    - Can answer your questions about

How to draw an owl

1.

2.

- "If it ain't broke, don't fix it"
- I will only offer suggestions that I:
  - Use myself
  - Will make guides and tutorials for you
  - Can answer your questions about
- Nothing here is mandatory: if you like your Office model, you can keep it

How to draw an owl

1.

2.

- "If it ain't broke, don't fix it"
- I will only offer suggestions that I:
    - Use myself
    - Will make guides and tutorials for you
    - Can answer your questions about
- Nothing here is mandatory: if you like your Office model, you can keep it
- You just probably never realized there are better alternatives

How to draw an owl

1.

2.

- Why not have them all in a single program and file? *R Markdown*

---

[1]Collaboration and tracking changes in a system exterto the files would require use of a **version control system** like HOOD COLLEGE
git

- Why not have them all in a single program and file? *R Markdown*

  - Writing Text

---
[1] Collaboration and tracking changes in a system exterto the files would require use of a **version control system** like git

- Why not have them all in a single program and file? *R Markdown*
    - Writing Text
    - Managing citations and bibliography

---

[1]Collaboration and tracking changes in a system exterto the files would require use of a **version control system** like HOOD COLLEGE
git

- Why not have them all in a single program and file? *R Markdown*
  - Writing Text
  - Managing citations and bibliography
  - Performing data analysis

---
[1]Collaboration and tracking changes in a system exterto the files would require use of a **version control system** like git

- Why not have them all in a single program and file? *R Markdown*

    - Writing Text
    - Managing citations and bibliography
    - Performing data analysis
    - Making figures and tables

---
[1] Collaboration and tracking changes in a system exterto the files would require use of a **version control system** like git

- Why not have them all in a single program and file? *R Markdown*

    - Writing Text
    - Managing citations and bibliography
    - Performing data analysis
    - Making figures and tables
    - Save files for future use

---

[1]Collaboration and tracking changes in a system exterto the files would require use of a **version control system** like git

- Why not have them all in a single program and file? *R Markdown*

    - Writing Text
    - Managing citations and bibliography
    - Performing data analysis
    - Making figures and tables
    - Save files for future use
    - Monitor changes in documents

---

[1]Collaboration and tracking changes in a system exterto the files would require use of a **version control system** like git

- Why not have them all in a single program and file? *R Markdown*

    - Writing Text
    - Managing citations and bibliography
    - Performing data analysis
    - Making figures and tables
    - Save files for future use
    - Monitor changes in documents
    - Collaborate and share files with coauthors[1]

---

[1]Collaboration and tracking changes in a system exterto the files would require use of a **version control system** like git

- Why not have them all in a single program and file? *R Markdown*

    - Writing Text
    - Managing citations and bibliography
    - Performing data analysis
    - Making figures and tables
    - Save files for future use
    - Monitor changes in documents
    - Collaborate and share files with coauthors[1]
    - Combine all elements into single document for presentation

---

[1]Collaboration and tracking changes in a system exterto the files would require use of a **version control system** like git

- Microsoft Word's *Track Changes* monitors changes made in the .docx file

- Microsoft Word's *Track Changes* monitors changes made in the .docx file
    - Can't go back in the history of all versions of the file, only recent unaccepted changes

- Microsoft Word's *Track Changes* monitors changes made in the .docx file
  - Can't go back in the history of all versions of the file, only recent unaccepted changes
  - Does not back up your files

- Microsoft Word's *Track Changes* monitors changes made in the .docx file
    - Can't go back in the history of all versions of the file, only recent unaccepted changes
    - Does not back up your files

- A **version control system** keeps track of changes made in any file, folder, or project specified and backs up files

- Microsoft Word's *Track Changes* monitors changes made in the .docx file
  - Can't go back in the history of all versions of the file, only recent unaccepted changes
  - Does not back up your files

- A **version control system** keeps track of changes made in any file, folder, or project specified and backs up files
  - Can look at historical versions saved, revert to them, fork into multiple versions

- Microsoft Word's *Track Changes* monitors changes made in the .docx file
  - Can't go back in the history of all versions of the file, only recent unaccepted changes
  - Does not back up your files

- A **version control system** keeps track of changes made in any file, folder, or project specified and backs up files
  - Can look at historical versions saved, revert to them, fork into multiple versions
  - Collaborators can work together on the same or different branches

Making Your Work Reproducible

- Plain text files are meant to be readable by both machines and humans
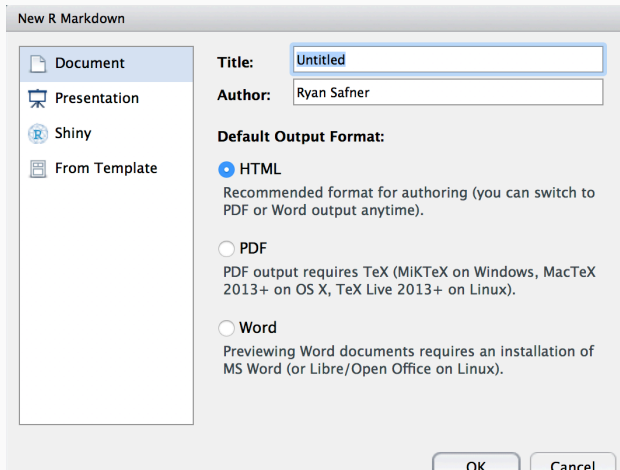
- Make you computer work for you by automating as much as possible

- Make you computer work for you by automating as much as possible
- Minimize error and risk of loss, especially in otherwise repetitive processes

R Markdown
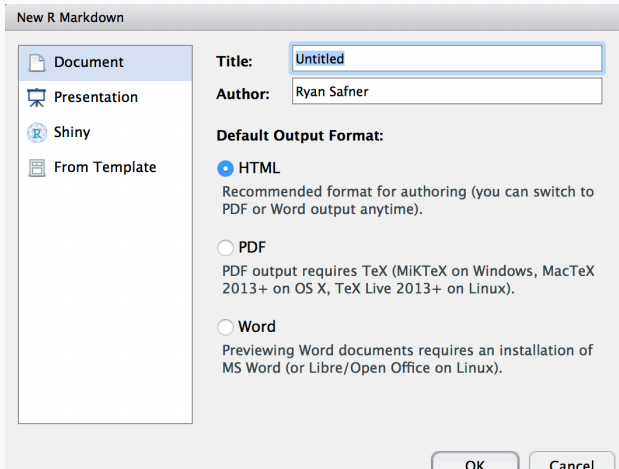
· `File -> New File -> R Markdown...`

- `File -> New File -> R Markdown...`
- Options:

- Two main options: `html` and `pdf`

- Two main options: `html` and `pdf`
  - Other types, for presentations: `beamer`, `ioslides`, `slidy` (I use `beamer`)

- Two main options: `html` and `pdf`
  - Other types, for presentations: `beamer`, `ioslides`, `slidy` (I use `beamer`)
- `html`: renders a webpage, viewable on any browser

- Two main options: `html` and `pdf`
  - Other types, for presentations: `beamer`, `ioslides`, `slidy` (I use `beamer`)
- `html`: renders a webpage, viewable on any browser
  - the default, easiest to produce and share

- Two main options: `html` and `pdf`
    - Other types, for presentations: `beamer`, `ioslides`, `slidy` (I use `beamer`)

- `html`: renders a webpage, viewable on any browser
    - the default, easiest to produce and share
    - can create interactive elements (gifs, plots, animations)

- Two main options: `html` and `pdf`
  - Other types, for presentations: `beamer`, `ioslides`, `slidy` (I use `beamer`)

- `html`: renders a webpage, viewable on any browser
  - the default, easiest to produce and share
  - can create interactive elements (gifs, plots, animations)
  - requires internet connection

HOOD
COLLEGE

- Two main options: `html` and `pdf`
  - Other types, for presentations: `beamer`, `ioslides`, `slidy` (I use `beamer`)

- `html`: renders a webpage, viewable on any browser
  - the default, easiest to produce and share
  - can create interactive elements (gifs, plots, animations)
  - requires internet connection

- `pdf`: renders a pdf document, viewable in any pdf viewer

HOOD
COLLEGE

- Two main options: `html` and `pdf`
  - Other types, for presentations: `beamer`, `ioslides`, `slidy` (I use `beamer`)

- `html`: renders a webpage, viewable on any browser
  - the default, easiest to produce and share
  - can create interactive elements (gifs, plots, animations)
  - requires internet connection

- `pdf`: renders a pdf document, viewable in any pdf viewer
  - most common document format around

HOOD
COLLEGE

- Two main options: `html` and `pdf`
  - Other types, for presentations: `beamer`, `ioslides`, `slidy` (I use `beamer`)

- `html`: renders a webpage, viewable on any browser
  - the default, easiest to produce and share
  - can create interactive elements (gifs, plots, animations)
  - requires internet connection

- `pdf`: renders a pdf document, viewable in any pdf viewer
  - most common document format around
  - may require `LaTeX` distribution to render

HOOD
COLLEGE

- Two main options: `html` and `pdf`
  - Other types, for presentations: `beamer`, `ioslides`, `slidy` (I use `beamer`)

- `html`: renders a webpage, viewable on any browser
  - the default, easiest to produce and share
  - can create interactive elements (gifs, plots, animations)
  - requires internet connection

- `pdf`: renders a pdf document, viewable in any pdf viewer
  - most common document format around
  - may require LaTeX distribution to render
  - can't create interactive elements

HOOD
COLLEGE

Structure of a Document

- The top of a document contains the YAML, separated by `---` above and below

- The top of a document contains the YAML, separated by `---` above and below
- Contains the metadata about a document, at minimum the `title`, `author`, and `date` (all can be left blank), and the `output` type (which cannot be blank)

- The top of a document contains the YAML, separated by `---` above and below
- Contains the metadata about a document, at minimum the `title`, `author`, and `date` (all can be left blank), and the `output` type (which cannot be blank)
    - `output` types: pdf document, html document, pdf slides (beamer), html slides (ioslides, slidy)

- The top of a document contains the YAML, separated by `---` above and below
- Contains the metadata about a document, at minimum the `title`, `author`, and `date` (all can be left blank), and the `output` type (which cannot be blank)
    - `output` types: pdf document, html document, pdf slides (beamer), html slides (ioslides, slidy)
- Can be customized extensively (just look at mine)

- The top of a document contains the YAML, separated by `---` above and below
- Contains the metadata about a document, at minimum the `title`, `author`, and `date` (all can be left blank), and the `output` type (which cannot be blank)
  - `output` types: pdf document, html document, pdf slides (beamer), html slides (ioslides, slidy)
- Can be customized extensively (just look at mine)
  - making slides often requires more customization vs. making a pdf/html document

HOOD
COLLEGE

- You can create a "chunk" of R code with three apostrophes above and below your code

- You can create a "chunk" of R code with three apostrophes above and below your code
  - After the first pair of apostrophes, signify you want to use R with {r}

- You can create a "chunk" of R code with three apostrophes above and below your code
  - After the first pair of apostrophes, signify you want to use R with {r}
  - You can choose to name your chunk (for your own reference only) with a comma after r in the brackets, and then your name (no spaces!)

- You can create a "chunk" of R code with three apostrophes above and below your code
  - After the first pair of apostrophes, signify you want to use R with $\{r\}$
  - You can choose to name your chunk (for your own reference only) with a comma after r in the brackets, and then your name (no spaces!)
  - You can then add additional options (with a comma after r), frequently used:

- You can create a "chunk" of R code with three apostrophes above and below your code
  - After the first pair of apostrophes, signify you want to use R with {r}
  - You can choose to name your chunk (for your own reference only) with a comma after r in the brackets, and then your name (no spaces!)
  - You can then add additional options (with a comma after r), frequently used:
    - echo=TRUE or FALSE, only displays R outputs if FALSE, also displays the code inputted if TRUE

- You can create a "chunk" of R code with three apostrophes above and below your code

    - After the first pair of apostrophes, signify you want to use R with {r}
    - You can choose to name your chunk (for your own reference only) with a comma after r in the brackets, and then your name (no spaces!)
    - You can then add additional options (with a comma after r), frequently used:

        - echo=TRUE or FALSE, only displays R outputs if FALSE, also displays the code inputted if TRUE
        - eval=TRUE or FALSE, if you want to display your code, but not run it

HOOD COLLEGE

- You can create a "chunk" of R code with three apostrophes above and below your code

    - After the first pair of apostrophes, signify you want to use R with {r}
    - You can choose to name your chunk (for your own reference only) with a comma after r in the brackets, and then your name (no spaces!)
    - You can then add additional options (with a comma after r), frequently used:

        - echo=TRUE or FALSE, only displays R outputs if FALSE, also displays the code inputted if TRUE
        - eval=TRUE or FALSE, if you want to display your code, but not run it
        - fig.height and/or fig.width = a number, for displaying figures in documents

- You can create a "chunk" of R code with three apostrophes above and below your code

  - After the first pair of apostrophes, signify you want to use R with {r}
  - You can choose to name your chunk (for your own reference only) with a comma after r in the brackets, and then your name (no spaces!)
  - You can then add additional options (with a comma after r), frequently used:

    - echo=TRUE or FALSE, only displays R outputs if FALSE, also displays the code inputted if TRUE
    - eval=TRUE or FALSE, if you want to display your code, but not run it
    - fig.height and/or fig.width = a number, for displaying figures in documents
    - results=asis common for exporting tables (like stargazer regression outputs) into .tex or html

- You can create a "chunk" of R code with three apostrophes above and below your code

  - After the first pair of apostrophes, signify you want to use R with `{r}`
  - You can choose to name your chunk (for your own reference only) with a comma after `r` in the brackets, and then your name (no spaces!)
  - You can then add additional options (with a comma after `r`), frequently used:

    - `echo=TRUE` or `FALSE`, only displays R outputs if `FALSE`, also displays the code inputted if `TRUE`
    - `eval=TRUE` or `FALSE`, if you want to display your code, but not run it
    - `fig.height` and/or `fig.width` = a number, for displaying figures in documents
    - `results=asis` common for exporting tables (like `stargazer` regression outputs) into .tex or html

  - See here for a full list

- You can create a "chunk" of R code with three apostrophes above and below your code

  - After the first pair of apostrophes, signify you want to use R with `{r}`
  - You can choose to name your chunk (for your own reference only) with a comma after `r` in the brackets, and then your name (no spaces!)
  - You can then add additional options (with a comma after `r`), frequently used:

    - `echo=TRUE` or `FALSE`, only displays R outputs if `FALSE`, also displays the code inputted if `TRUE`
    - `eval=TRUE` or `FALSE`, if you want to display your code, but not run it
    - `fig.height` and/or `fig.width` = a number, for displaying figures in documents
    - `results=asis` common for exporting tables (like `stargazer` regression outputs) into .tex or html

  - See here for a full list

- If you just want to type code into your document/slides (and not run it), one apostrophe on either side of the code, `like this`

Resources to read in rough order of importance and level of sophistication (most important-least sophisticated to least important-most sophisticated)

1. R Studio's R Markdown Cheatsheet for a quick overview of R markdown

Resources to read in rough order of importance and level of sophistication (most important-least sophisticated to least important-most sophisticated)

1. R Studio's R Markdown Cheatsheet for a quick overview of R markdown
2. R Studio's Overview of R Markdown for some tutorials

Resources to read in rough order of importance and level of sophistication (most important-least sophisticated to least important-most sophisticated)

1. R Studio's R Markdown Cheatsheet for a quick overview of R markdown
2. R Studio's Overview of R Markdown for some tutorials
3. R Studio's R Markdown Reference Guide for more specific options and issues

HOOD COLLEGE

Resources to read in rough order of importance and level of sophistication (most important-least sophisticated to least important-most sophisticated)

1. R Studio's R Markdown Cheatsheet for a quick overview of R markdown
2. R Studio's Overview of R Markdown for some tutorials
3. R Studio's R Markdown Reference Guide for more specific options and issues
4. Kieran Healey's The Plain Person's Guide to Plain Text Social Science on managing workflow with plain text files, R, and Git

Resources to read in rough order of importance and level of sophistication (most important-least sophisticated to least important-most sophisticated)

1. R Studio's R Markdown Cheatsheet for a quick overview of R markdown
2. R Studio's Overview of R Markdown for some tutorials
3. R Studio's R Markdown Reference Guide for more specific options and issues
4. Kieran Healey's The Plain Person's Guide to Plain Text Social Science on managing workflow with plain text files, R, and Git
5. Yihui Xie's (and coauthors) R Markdown: the Definitive Guide on R Markdown syntax and customization options

Resources to read in rough order of importance and level of sophistication (most important-least sophisticated to least important-most sophisticated)

1. R Studio's R Markdown Cheatsheet for a quick overview of R markdown
2. R Studio's Overview of R Markdown for some tutorials
3. R Studio's R Markdown Reference Guide for more specific options and issues
4. Kieran Healey's The Plain Person's Guide to Plain Text Social Science on managing workflow with plain text files, R, and Git
5. Yihui Xie's (and coauthors) R Markdown: the Definitive Guide on R Markdown syntax and customization options
6. Hadley Wickham's (and Garrett Grolemund) R for Data Science on how to use R and R Markdown for data science work

Resources to read in rough order of importance and level of sophistication (most important-least sophisticated to least important-most sophisticated)

1. R Studio's R Markdown Cheatsheet for a quick overview of R markdown
2. R Studio's Overview of R Markdown for some tutorials
3. R Studio's R Markdown Reference Guide for more specific options and issues
4. Kieran Healey's The Plain Person's Guide to Plain Text Social Science on managing workflow with plain text files, R, and Git
5. Yihui Xie's (and coauthors) R Markdown: the Definitive Guide on R Markdown syntax and customization options
6. Hadley Wickham's (and Garrett Grolemund) R for Data Science on how to use R and R Markdown for data science work
7. Jenny Bryan's Happy Git with R on how to use git and GitHub with R as a version control system