

Writing Reproducible Reports and Articles with Quarto

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Data-Driven Social Science

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SOCIAL SCIENCE
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Today's Plan

- What is Quarto?
- Including Text, Tables, and Figures
- Including Code
- Quarto Extensions
- Academic Websites
- Resources

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- Publishing system based on Pandoc
 - Input a markdown document, render to anything supported by Pandoc
 - HTML, PDF, Word, Beamer, GFM, MediaWiki, etc.
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- Syntax builds on RMarkdown, but language agnostic
 - Existing `.Rmd` files and most Jupyter notebooks can be run by Quarto
- Reproducible system to combine code and text together

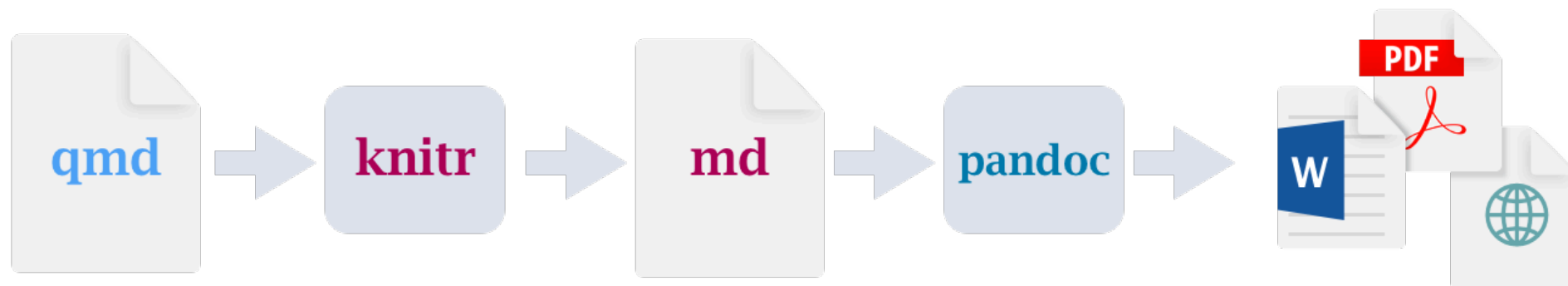


Figure from <https://quarto.org/docs/faq/rmarkdown.html>

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 3. Style the document (e.g., pick fonts `mainfont: Libre Franklin`)
2. Body
 1. Contains text
 2. Include LaTeX equations `x^2` becomes x^2
 3. Write code chunks in R, Python, Julia, Observable, etc.
 4. Include raw chunks with format-specific code (e.g., HTML or Typst blocks)

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 - Avoid copying data or hard-coding statistics
 - Place code + text together
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- Markdown formats work well with version control

What is Quarto?

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- Books: PDF and HTML
- All other formats supported by Pandoc (e.g., Wiki, Markdown, JATS, InDesign, ePub)

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- Major publishers: Taylor and Francis, Cambridge University Press, Springer, Elsevier
- Social sciences: Annual Reviews, APSR, BJPS, PA, PSRM, Perspectives, APA, and more

Including Text, Tables, and Figures

Quarto builds on Pandoc's flavor of Markdown

- Code blocks are fenced with backticks ``code`` becomes `code`
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- LaTeX math with `$math$` for inline or `$$math$$` for display
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- Reference citations with `[@citation]` for parenthetical or `@citation` for prose

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- Can be styled with CSL for all formats
- Additional customization available for LaTeX: `natbib`, `biber`, `biblatex`
- Can also use Pandoc's implementation of CiteProc
 - Similar to the citation system in Word

Including figures

Including Text, Tables, and Figures

Basic figures can be included with `` syntax:

```
![Caption](DDSS-stacked_PU_shield_black.png)
```



Figure 1: Caption

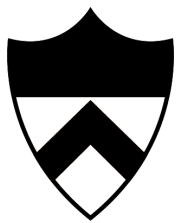
```
::: {#fig-subfig layout-ncol=2}

! [A] (DDSS-stacked_PU_shield_black.png)

! [B] (DDSS-stacked_PU_shield_black.png)

More Captions

:::
```



(a) A



(b) B

Figure 1: More Captions

Making a table

Tables use “pipe” syntax:

```
| University | Color |  
|:-----|:-----:|  
| Princeton | #E98338 |  
| Harvard   | #A51C30 |  
| Cornell    | #B31B1B |  
| Brown     | #ED1C24 |
```

```
: Red and orange university colors {#tbl-colors}
```

University	Color
Princeton	#E98338
Harvard	#A51C30
Cornell	#B31B1B
Brown	#ED1C24

Red and orange university
colors

Raw content (e.g. HTML in a webpage) can be included with a special block:

```
```{=typst}  
#set text(fill: blue)
Some example text.
```
```

Some example text.

Including Code

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- R: Native support with knitr engine
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- R: Native support with knitr engine
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- Observable JS: Standalone support for interactive graphs
- Other languages: Any language with a Jupyter kernel (e.g., Stata)
 - I have heard that this works surprisingly well!
- Other languages: Custom support via knitr for select languages (e.g., **rust** via **rextendr**)

Control code chunk behavior with options:

- `#| echo: false` - Hide code, show output only
-
-
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- `#| warning: false / message: false` - Suppress warnings or messages
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- `#| fig-width: 8 / #| fig-height: 6` - Control figure dimensions
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- `#| label: fig-myplot` - Add cross-reference labels
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- `#| label: fig-myplot` - Add cross-reference labels
- `#| cache: true` - Cache expensive computations

Quarto Extensions

Extend Quarto's functionality with extensions:

- Formats: Custom output formats (e.g., journal templates, custom PDFs)
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Install with: `quarto add username/extension-name`

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- Revealjs plugins: Enhanced slide presentations

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Centralized brand configurations

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Define once, apply everywhere:

- Colors (primary, secondary, palettes)
- Typography (fonts, sizes)
- Logos and images
- Apply across HTML, PDFs, slides, websites

Example: christopherkenny/princeton-brand.yml

```
meta:
  name:
    full: Princeton University
    short: Princeton
  link:
    home: https://www.princeton.edu/
    twitter: https://x.com/Princeton
    linkedin: https://www.linkedin.com/school/princeton-university/
    facebook: https://www.facebook.com/PrincetonU/
  founded: 1746

color:
  palette:
    princeton-orange: "#e98338"
```

```
deep-blue: "#092264"

typography:
  fonts:
    - family: "Princeton Monticello Display"
      source: file
      files:
        - path: https://drive.google.com/file/d/19HUI52fQbbQtvuUKUV5h0hJtaf6
          NJIUQ
          weight: regular

  logo:
    images:
      primary:
        path: assets/PU_mark.png
```

Workflow for academic writing:

1. Start with a preprint template: `quarto use template christopherkenny/ctk-article`
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

Workflow for academic writing:

1. Start with a preprint template: `quarto use template christopherkenny/ctk-article`
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7. Get desk rejected
8. Reformat by importing next template `quarto add template christopherkenny/nature`

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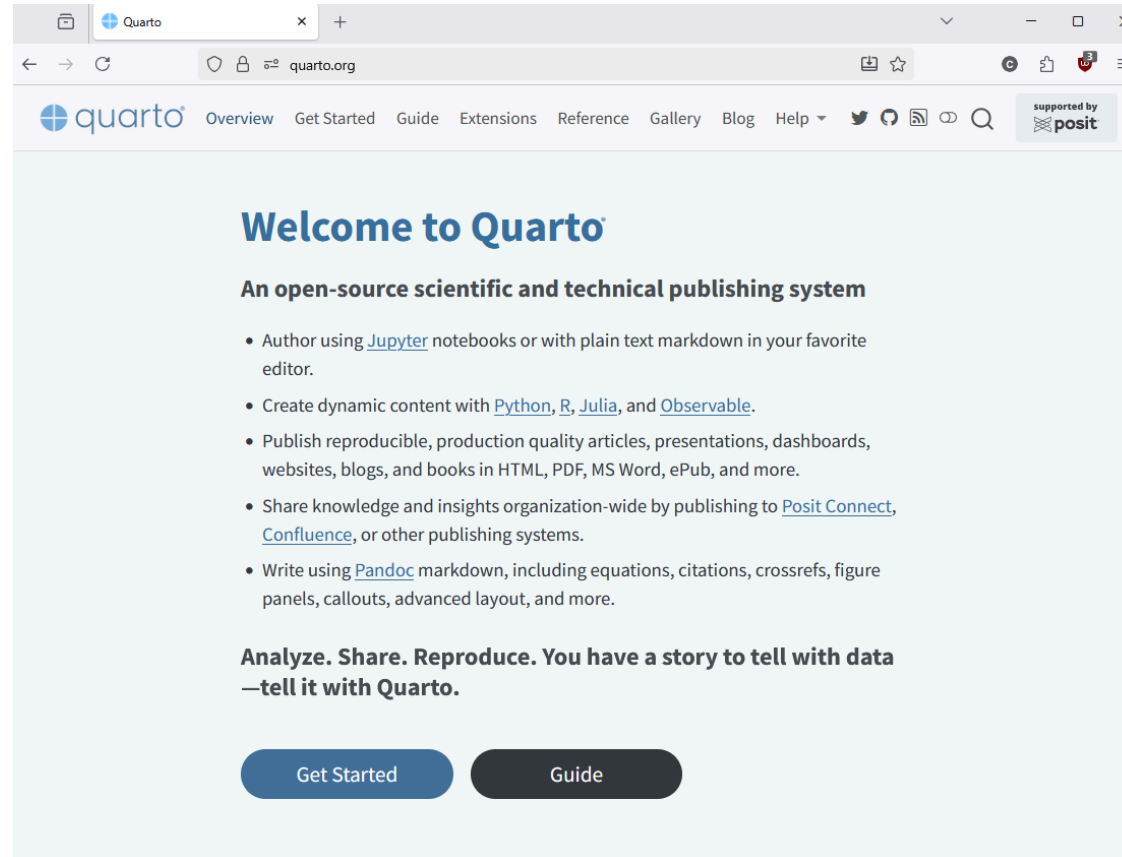
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- Easy to use formats (e.g., Typst) have simple partials
- Complex formats (e.g., HTML, LaTeX, revealjs) break out more pieces

Academic Websites

```
quarto create project
```

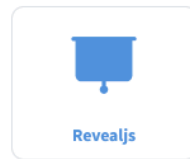
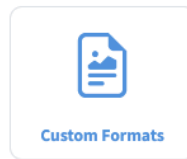
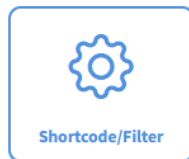
Resources



Quarto Extensions

Extensions are a powerful way to modify and extend the behavior of Quarto. Below is a listing of available extensions (please [let us know](#) if you have an extension you'd like to see added to the list).

See the articles on [Creating Extensions](#) to learn how to develop your own extensions.



Using or making filters <https://quarto.org/docs/extensions/filters.html>

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Making your own extensions <https://christophertkenny.com/posts/2023-07-01-creating-quarto-journal-articles/> and <https://quarto.org/docs/extensions/>

Written in Quarto

These Slides

Resources

Written in Quarto

Using Typst + Polylux via [christopherkenny/projector](https://github.com/christopherkenny/projector)

Written in Quarto

Using Typst + Polylux via [christopherkenny/projector](#)

Source available:

<https://github.com/christopherkenny/quarto-workshop-fall2025/blob/main/quarto-workshop-fall2025.qmd>