

R Bootcamp Day 2

Quarto

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What is Quarto?

What is Quarto?

Quarto

- Publishing system based on Pandoc
 - Input a markdown document, render to anything supported by Pandoc
 - HTML, PDF, Word, Beamer, GFM, MediaWiki, etc.
- Built by Posit, PBC (formerly RStudio)
- 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

Rendering Behind-the-Scenes



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

The .qmd file

Two main components:

1. YAML header
2. Specify title, authors, and frontmatter
3. Identify output type (e.g., PDF, PowerPoint, HTML)
4. Style the document (e.g., pick fonts `mainfont: Libre Franklin`)
2. Body
3. Contains text
4. Include LaTeX equations `$x^2$` becomes x^2
5. Write code chunks in R, Python, Julia, Observable, etc.
6. Include raw chunks with format-specific code (e.g., HTML or Typst blocks)

Why Quarto?

- Common input format for many output types
- Many journal templates for general and social sciences
 - Lowers the barrier on resubmitting elsewhere
- Reproducible writing
 - Avoid copying data or hard-coding statistics
 - Place code + text together
- Write in Markdown instead of pure LaTeX (or Typst or HTML ...)
- Markdown formats work well with version control
- Makes it ideal for problem sets and general academic work

Output formats

- Articles: PDF (LaTeX, Typst), Word
- Slides: Beamer, RevealJS, PowerPoint
- Websites: Dashboards, Static HTML, or Shiny
- Books: PDF and HTML
- All other formats supported by Pandoc (e.g., Wiki, Markdown, JATS, InDesign, ePub)

Including Text, Tables, Figures, and Code

Writing 101 in Quarto

Quarto builds on Pandoc's flavor of Markdown

- Code blocks are fenced with backticks ``code`` becomes `code`
- Italics with `*italics*`
- Bold with `**bold**`
- Headers with `#` Header Level 1, `##` Header Level 2, etc.
- Lists with `- item` or `1. item`
- Links with `[text](url)` or `<url>`
- LaTeX math with `$math$` for inline or `$$math$$` for display
- Reference figures, tables, and sections with `@fig-label`, `@tbl-label`, and `@sec-label`
- Reference citations with `[@citation]` for parenthetical or `@citation` for prose

Including figures

Basic figures can be included with `![]()` syntax:

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



Figure 1: Caption

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

Including code

Control code chunk behavior with options:

- `#| echo: false` - Hide code, show output only
- `#| eval: false` - Show code but don't run it
- `#| warning: false / message: false` - Suppress warnings or messages
- `#| fig-width: 8 / #| fig-height: 6` - Control figure dimensions
- `#| label: fig-myplot` - Add cross-reference labels
- `#| cache: true` - Cache expensive computations

Demo

Demo

Writing a Problem Set

```
quarto create project
```

Quarto Extensions

Selected academic journal templates

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

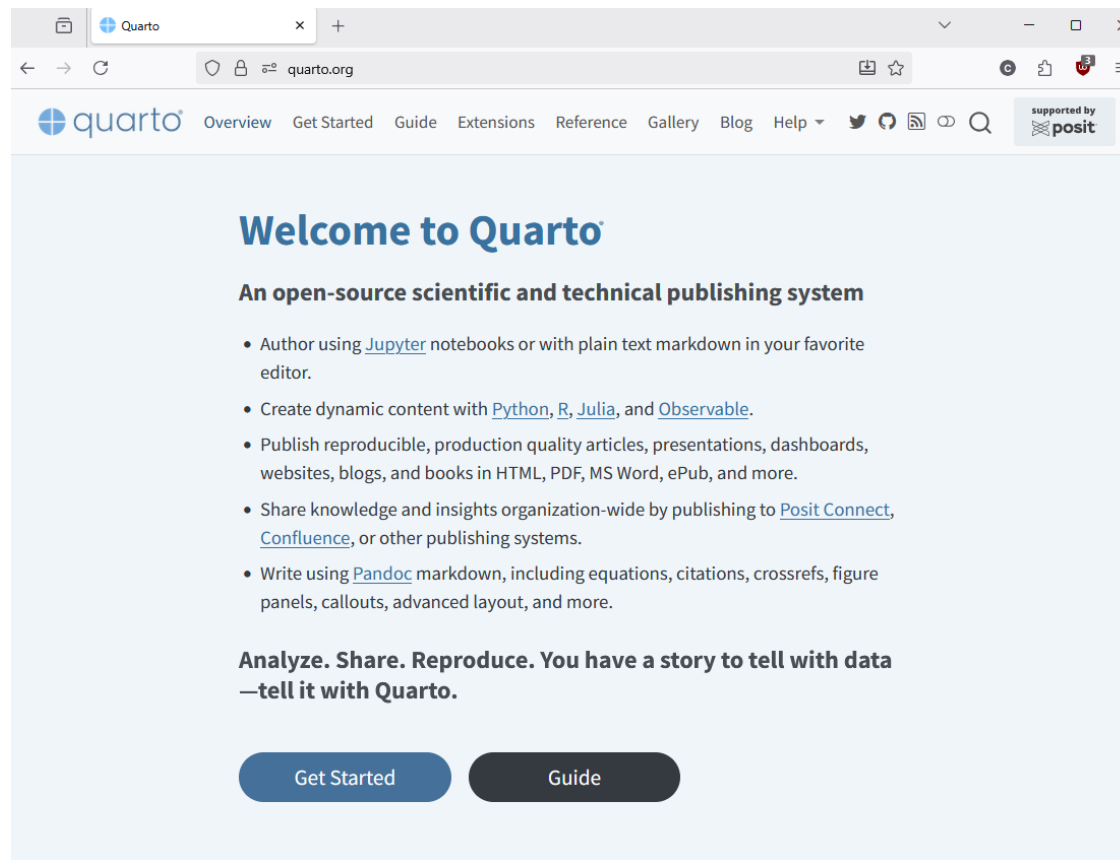
Journal Articles

Workflow for academic writing:

1. Start with a preprint template: `quarto use template christopherkenny/ctk-article`
2. Write the paper in Markdown with embedded code
3. Switch to a journal template: `quarto use template quarto-journals/jss`
4. Add any journal-specific things to the header
5. Render to PDF: `quarto render manuscript.qmd`
6. Submit generated PDF (+ source files)
7. Get desk rejected
8. Reformat by importing next template `quarto add template christopherkenny/nature`

Resources

Quarto Documentation



Extension Listings

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.

