Quarto Tutorial: Part 1

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| Quarto hex sticker |

# What is Quarto?

[Quarto](https://quarto.org/) is a framework for creating “computational documents” - documents that contain text AND code that can be rendered into different formats (e.g., PDF, Word, html, [etc.](https://quarto.org/docs/output-formats/all-formats.html)).

# Next Generation

Quarto is considered the “next generation” of R Markdown. The main difference is that that Quarto does not depend on R. It is “multilingual”, which means it can be used with R, Python, Javascript, and Julia (and potentially other languages as they are developed). This is meant to improve the process of collaborating on scientific and technical documents.

R Markdown will continue to be supported, but new features will mostly only be added to Quarto. Most R Markdown files (and Jupyter notebooks) can be rendered with Quarto without modification.

# Why do we care?

**Reproducible Reports!**

* Keep code and text together - you don’t have to hunt down code used to make a particular figure.
* Don’t have to generate tables and figures in R and then copy / paste them into Word.
* Easy to update tables / figures with new data.
* Can use the same file for different years and / or locations.
  + Example: [Water Quality Reports](https://github.com/dempsey-CMAR/County-Reports/blob/main/County_Report.Rmd)
* Dashboards

# What’s in a .qmd?

* YAML header
  + NOT R code.
  + **Very** sensitive to indentation.
  + Quarto - auto-complete!
* Code chunks
  + Executable code.
  + Can show code and / or results, or “fold” code so readers can choose whether to looks at it.
  + Other chunk options (figure size, label, etc.).
* Text
  + Headings, captions, report text, analysis…
  + Can format with markdown syntax or using the visual editor.
* In-line code
* Images

# Example

We are going to use the [palmerpenguins](https://allisonhorst.github.io/palmerpenguins/) data set to explore making reports with Quarto.

This data set contains size measurements for 344 penguins from three species observed on three islands in the Palmer Archipelago, Antarctica.

Inspired by [Tutorial: Hello, Quarto](https://quarto.org/docs/get-started/hello/rstudio.html)

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# Penguins

penguins

# A tibble: 344 × 8  
 species island bill\_length\_mm bill\_depth\_mm flipper\_…¹ body\_…² sex year  
 <fct> <fct> <dbl> <dbl> <int> <int> <fct> <int>  
 1 Adelie Torgersen 39.1 18.7 181 3750 male 2007  
 2 Adelie Torgersen 39.5 17.4 186 3800 fema… 2007  
 3 Adelie Torgersen 40.3 18 195 3250 fema… 2007  
 4 Adelie Torgersen NA NA NA NA <NA> 2007  
 5 Adelie Torgersen 36.7 19.3 193 3450 fema… 2007  
 6 Adelie Torgersen 39.3 20.6 190 3650 male 2007  
 7 Adelie Torgersen 38.9 17.8 181 3625 fema… 2007  
 8 Adelie Torgersen 39.2 19.6 195 4675 male 2007  
 9 Adelie Torgersen 34.1 18.1 193 3475 <NA> 2007  
10 Adelie Torgersen 42 20.2 190 4250 <NA> 2007  
# … with 334 more rows, and abbreviated variable names ¹​flipper\_length\_mm,  
# ²​body\_mass\_g

# Let’s get started

File -> New File -> Quarto Document

CMAR template!