

GVPT Data Science Camp

Data Presentation

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August 27, 2026

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- ▶ Learn how to combine code, results, and figures into one document

Learning Objectives

- ▶ Learn how to combine code, results, and figures into one document
- ▶ Introduction to markdown, Quarto, Overleaf, and $\text{\LaTeX}$

Quarto and Markdown

The screenshot displays the Quarto web application interface. On the left, the source code editor shows a document titled "Hello, Quarto" with the following metadata and R code:

```

---
title: "Hello, Quarto"
format: html
editor: visual

{r}
#| label: load-packages
#| include: false

library(tidyverse)
library(palmerpenguins)
    
```

Below the code editor, the rendered document is shown. It includes the title "Hello, Quarto", a section "Meet Quarto" with a link to <https://quarto.org>, and a section "Meet the penguins" with a description of the `palmerpenguins` data and a link to `r` documentation. The text mentions that the data contains size measurements for 344 penguins from three species observed on three islands in the Palmer Archipelago, Antarctica. A small illustration of three penguins (Chinstrap, Gentoo, and Adelie) is shown next to the text.

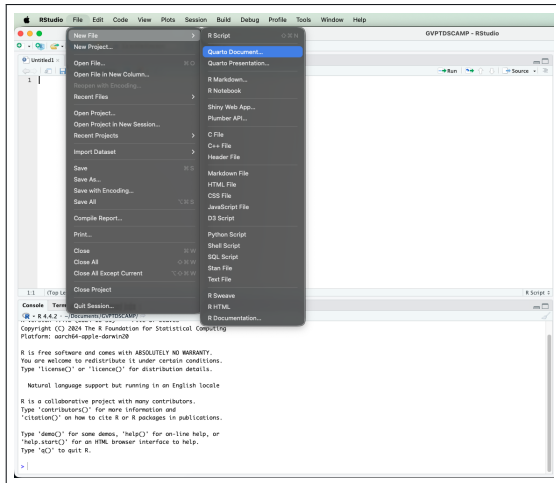
At the bottom of the rendered document, there is a section titled "Flipper and bill length" with the subtitle "Dimensions for penguins at Palmer Station LTER". It includes a scatter plot showing the relationship between flipper length (mm) on the x-axis and bill length (mm) on the y-axis. The plot is faceted by penguin species: Adelle (orange dots) and Chinstrap (purple dots). The legend indicates that the species are Adelle and Chinstrap.

On the right side of the interface, the "Environment" pane shows the loaded packages: tidyverse and palmerpenguins. The "History" pane shows the execution history of the R code. The "Connections" pane shows the connections to the data sources. The "Build" pane shows the build process. The "Git" pane shows the git status. The "Tutorial" pane shows the tutorial progress. The "Files" pane shows the files in the project. The "Plots" pane shows the plots generated by the code. The "Packages" pane shows the installed packages. The "Help" pane shows the help documentation. The "Viewer" pane shows the rendered document. The "Presentation" pane shows the presentation slides. The "Publish" button is visible at the bottom right.

Source: Quarto

- ▶ A simple and easy-to-use markup language to format your documents

Create a Quarto Document



Create a Quarto Document

New Quarto Document

 Document

 Presentation

 Interactive

Title:

Author:

☒ **HTML**
Recommended format for authoring (you can switch to PDF or Word output anytime)

☐ **PDF**
PDF output requires a LaTeX installation (e.g. <https://yihui.org/tinytex/>)

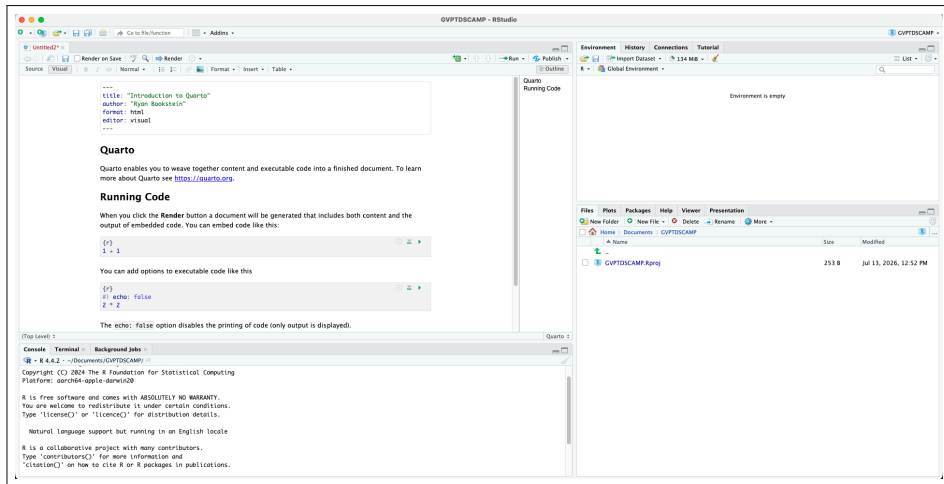
☐ **Word**
Previewing Word documents requires an installation of MS Word (or Libre/Open Office on Linux)

Engine:

Editor: ☒ Use visual markdown editor 

 [Learn more about Quarto](#)

Create a Quarto Document



- ▶ Every Quarto document opens with a header between two rows of `---` that sets the title, author, and output format

```
---  
title: "Introduction to Quarto"  
author: "Your Name"  
format: html  
---
```

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```
---  
title: "Introduction to Quarto"  
author: "Your Name"  
format: html  
---
```

- ▶ Change `format: html` to `format: pdf` for a PDF

- ▶ Rendering to PDF needs a $\text{\LaTeX}$ installation. Run this once, in the RStudio console:

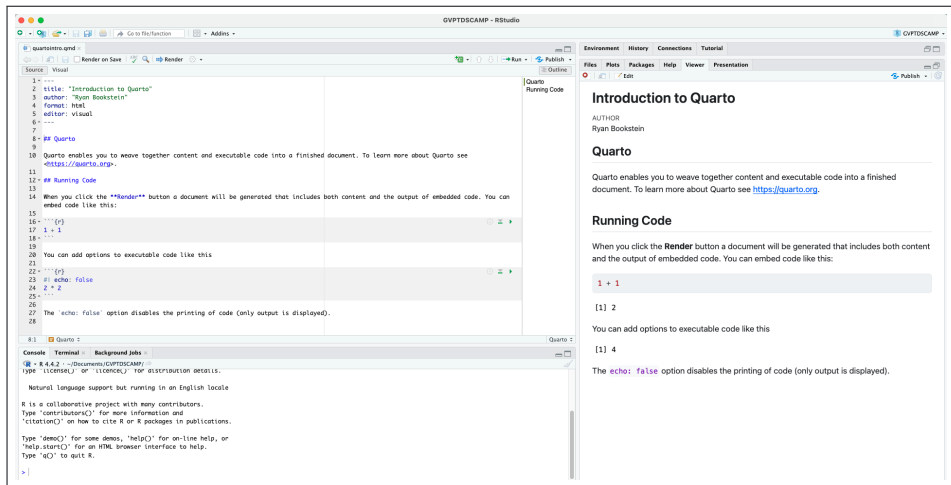
```
install.packages("tinytex")  
tinytex::install_tinytex()
```

- ▶ Rendering to PDF needs a $\text{\LaTeX}$ installation. Run this once, in the RStudio console:

```
install.packages("tinytex")  
tinytex::install_tinytex()
```

- ▶ Restart RStudio afterwards. HTML output needs nothing extra

Rendering Your Document



- ▶ Code chunks start with ````{r}` and end with `````

```
```{r}
#| echo: true

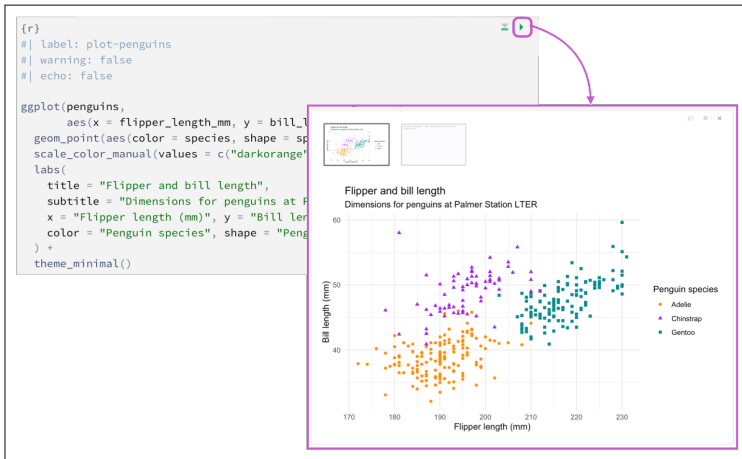
library(tidyverse)
```
```

- ▶ You can control how code chunks render and are displayed

```
```{r}  
#| echo: true
#| warning: false

library(tidyverse)
```
```

Code Chunks in Quarto



Source: Quarto

Overleaf and $\text{\LaTeX}$

- ▶ Overleaf is an online $\text{\LaTeX}$ editor used to write, edit, and publish scientific documents

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- ▶ $\text{\LaTeX}$ is a high-quality document preparation system and markup language

Creating an Overleaf Account

- ▶ Open your browser and navigate to overleaf.com/edu/umd

Creating an Overleaf Account

- ▶ Open your browser and navigate to overleaf.com/edu/umd
- ▶ Click Log In or Register

Creating an Overleaf Account

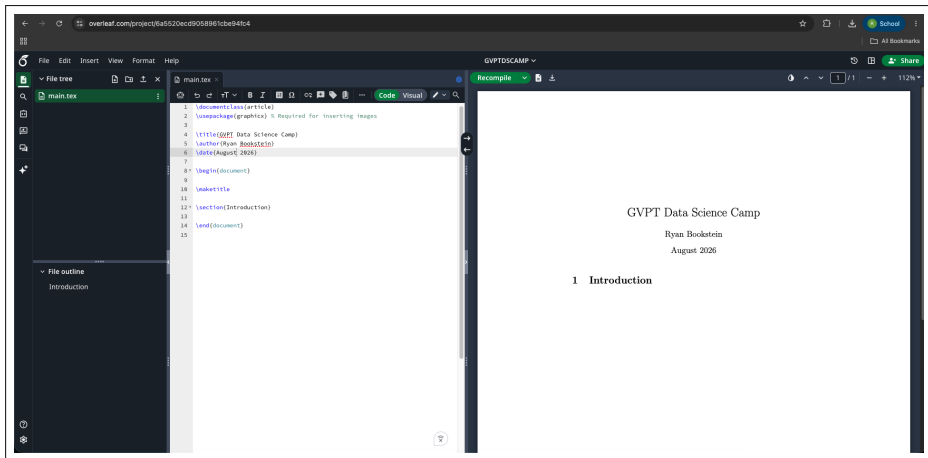
- ▶ Open your browser and navigate to overleaf.com/edu/umd
- ▶ Click Log In or Register
- ▶ Select the option to login through your institution (SSO) and use your UMD Directory ID and password to link your account

- ▶ Navigate to your project dashboard

- ▶ Navigate to your project dashboard
- ▶ Select New project, Blank project

- ▶ Navigate to your project dashboard
- ▶ Select New project, Blank project
- ▶ Name it

- ▶ Navigate to your project dashboard
- ▶ Select New project, Blank project
- ▶ Name it
- ▶ Select Create



Setting Up Your Document

- ▶ Every Overleaf document requires a “preamble” at the top to define the page layout

```
\documentclass{article}

\title{GVPT Data Science Camp}
\author{Ryan Bookstein}
\date{August 2026}

\begin{document}
\maketitle

\section{Introduction}
Hello World! This is my first Overleaf document.

\end{document}
```

- ▶ Unlike other word processors, you do not highlight text to format it. Wrap the text in commands to achieve desired formatting

```
\textbf{GVPT Data Science Camp.}
```

```
\textit{GVPT Data Science Camp.}
```

- ▶ Keep your document organized by using built-in sectioning commands

```
\section{Introduction}  
This is the introduction.  
  
\subsection{Background}  
Here is some background information.
```

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- ▶ Rendered that document to HTML and PDF

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- ▶ Rendered that document to HTML and PDF
- ▶ Set up an Overleaf account and wrote your first $\text{\LaTeX}$ document

- ▶ Build your presentation for this afternoon in either Quarto or Overleaf — whichever you found more comfortable

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- ▶ Bring the rendered file, not just the source

Questions?