4. Word Templates

Professional formatting with reference documents

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The default Word output from Quarto is functional but generic. The fonts, spacing, and heading styles are unlikely to match your organization's requirements. In this chapter, you will learn how to use Word templates to create professionally formatted documents with consistent branding.

How Word templates work

Quarto uses a "reference document" approach for Word formatting. The idea is simple:

1. You create (or modify) a Word document with the styles you want
2. You tell Quarto to use this document as a template
3. When Quarto renders your `.qmd` file, it applies the styles from your template

Importantly, Quarto does not copy content from your template — only the **style definitions**. This means your template can be a mostly empty document that just defines how Heading 1, Heading 2, Normal text, etc. should look.

Creating your first template

Step 1: Generate a base template

First, let Quarto create a default template that you can modify:

```
quarto pandoc -o my_template.docx --print-default-data-file reference.docx
```

Alternatively, simply render any Quarto document to Word — the resulting `.docx` file can serve as your starting point.

Step 2: Modify styles in Word

Open the template in Microsoft Word and modify the built-in styles. The most important ones are:

Style name	Used for
Normal	Body text
Heading 1	`#` headings
Heading 2	`##` headings
Heading 3	`###` headings
Title	Document title from YAML
Author	Author from YAML
Date	Date from YAML

Style name	Used for
First Paragraph	First paragraph after a heading
Source Code	Code chunks (when shown)
Verbatim Char	Inline code

To modify a style in Word:

1. Open the **Styles pane** (press `Alt+Ctrl+Shift+S` or find it in the Home tab)
2. Right-click on a style name
3. Select **Modify…**
4. Adjust font, size, spacing, color, etc.
5. Click **OK**

> Tip
>
> Pay special attention to **paragraph spacing**. The “Space After” setting for Normal and Heading styles significantly affects readability.

Step 3: Reference the template in your document

Save your modified template (e.g., as `my_template.docx`) in your project folder. Then reference it in your YAML header:

```yaml
---
title: "Penguin Report"
format:
  docx:
    reference-doc: my_template.docx
---
```

When you render, Quarto will apply your custom styles.

Common style modifications

Body text (Normal)

For scientific reports, consider:

- **Font**: Arial, Calibri, or Times New Roman (11–12pt)
- **Line spacing**: 1.15 or 1.5 for readability
- **Space after**: 6–10pt between paragraphs
- **Justification**: Left-aligned or justified

Headings

Create visual hierarchy:

- **Heading 1**: Large (14–16pt), bold, perhaps colored, significant space before
- **Heading 2**: Medium (12–14pt), bold
- **Heading 3**: Same size as body, bold or italic

> **i Note**
>
> If you want numbered headings (1., 1.1., 1.1.1., etc.), configure this in Word's heading styles, not in Quarto. In the style settings, click **Format** → **Numbering** and set up multilevel numbering.

Code appearance

If you show code in your reports (`echo: true`), customize the **Source Code** style:

- Use a monospace font (Consolas, Courier New)
- Consider a light background color
- Smaller font size than body text (9–10pt)

Project organization

For team projects, I recommend keeping templates in a dedicated folder:

```
my_project/
├── report.qmd
├── templates/
│   └── company_template.docx
└── data/
    └── penguins.csv
```

Then reference it with a relative path:

```yaml
format:
  docx:
    reference-doc: templates/company_template.docx
```

A practical example

Here is a complete document using a custom template:

~~~
---
title: "Adelie Penguin Analysis"
author: "Research Team"
date: today
format:
  docx:
    reference-doc: templates/company_template.docx
execute:
  echo: false
  warning: false
  message: false
---

```{r}
#| label: setup
#| include: false
library(tidyverse)
library(palmerpenguins)

adelie <- penguins %>%
  filter(species == "Adelie") %>%
  drop_na()
```

# Executive Summary
~~~

~~~
This report presents an analysis of 146 Adelie penguins from the Palmer Station
dataset. Key findings include morphometric measurements and population
characteristics.

# Methods

Data were collected from three islands in the Palmer Archipelago, Antarctica. We
filtered the dataset to include only Adelie penguins with complete measurements.

# Results

The mean bill length was 38.8 mm (SD = 2.7 mm).

## Distribution by Island

```{r}
#| label: island-counts
adelie %>%
  count(island)
```

# Conclusion

The Adelie penguin population shows consistent morphometric characteristics across
all three islands.
~~~

Troubleshooting

Styles not applying

- Make sure you modified the **built-in styles** in Word, not just the text formatting
- Check that the style names match exactly (e.g., “Heading 1”, not “Überschrift 1” in German Word)
- Re-render after saving the template

Template not found

- Use relative paths from your `.qmd` file location
- Check for typos in the filename
- Ensure the template file is not open in Word (locked files cause errors)

Some elements look wrong

Not everything in Quarto maps to Word styles. Tables and figures have limited style control through templates alone. We will address these in Chapters 5 and 6 using flextable and ggplot2 options.

Exercise: Create your own template

1. Render the example from Chapter 2 to Word
2. Open the resulting `.docx` file
3. Modify the Heading 1 style: make it blue, 16pt, bold
4. Modify the Normal style: change to Arial, 11pt, 1.15 line spacing
5. Save as `my_template.docx`
6. Add `reference-doc: my_template.docx` to your YAML header
7. Re-render and observe the changes

Further resources

- Quarto Word Templates documentation
- Pandoc User's Guide: Custom styles

What is next

Your documents now have professional formatting. But the default table output (like the `count()` result above) still looks like plain console output. In Chapter 5, we will learn how to create publication-ready tables using the flextable package.

Bibliography