9. Citations and Bibliography

Citing correctly in scientific documents

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Scientific documents require correct citations. Quarto supports a powerful citation system that automatically generates the bibliography and can apply different citation styles (APA, Vancouver, etc.).

The basic principle

Citations in Quarto work like this:

1. **Create a bibliography file**: A `.bib` file contains all literature sources
2. **Reference in YAML**: The file is specified in the header
3. **Cite in text**: Use `@key` or `[@key]` to cite
4. **Bibliography appears automatically**: At the end of the document

The bibliography file

BibTeX format

Literature sources are stored in BibTeX format. A `.bib` file is a text file with entries like these:

```
@article{horst2020,
  author = {Horst, Allison M. and Hill, Alison Presmanes and Gorman, Kristen B.},
  title = {palmerpenguins: Palmer Archipelago (Antarctica) penguin data},
  journal = {R package version 0.1.0},
  year = {2020},
  doi = {10.5281/zenodo.3960218}
}

@book{wickham2023,
  author = {Wickham, Hadley and Çetinkaya-Rundel, Mine and Grolemund, Garrett},
  title = {R for Data Science},
  edition = {2nd},
  year = {2023},
  publisher = {O'Reilly Media},
  url = {https://r4ds.hadley.nz/}
}

@inproceedings{gorman2014,
  author = {Gorman, Kristen B. and Williams, Tony D. and Fraser, William R.},
  title = {Ecological Sexual Dimorphism and Environmental Variability within a
Community of Antarctic Penguins (Genus Pygoscelis)},
  booktitle = {PLOS ONE},
  year = {2014},
  volume = {9},
  number = {3},
  doi = {10.1371/journal.pone.0090081}
}
```

Save this file as `references.bib` in your project folder.

Entry types

Type	Usage
`@article`	Journal articles
`@book`	Books
`@inproceedings`	Conference papers
`@techreport`	Technical reports
`@online`	Websites
`@misc`	Miscellaneous

Exporting from reference managers

Most reference managers can export BibTeX:

- **Zotero**: Right-click → Export → BibTeX
- **Mendeley**: File → Export → BibTeX
- **EndNote**: File → Export → BibTeX

> 💡 Tip
>
> With **Zotero** and the **Better BibTeX** plugin, you can create an automatically synchronized `.bib` file. Every change in Zotero is automatically written to the file.

Including the bibliography

In the YAML header:

```yaml
---
title: "Penguin Analysis"
bibliography: references.bib
---
```

For multiple files:

```yaml
bibliography:
  - references.bib
  - additional_refs.bib
```

Citing in text

Basic syntax

Syntax	Output	Usage
`@horst2020`	Horst et al. (2020)	In sentence
`[@horst2020]`	(Horst et al., 2020)	At sentence end
`[-@horst2020]`	(2020)	Year only

Examples

```
The data come from the palmerpenguins package @horst2020.

The penguins were observed on three islands [@gorman2014].

As Gorman [-@gorman2014] showed, the species differ significantly.
```

Becomes:

> The data come from the palmerpenguins package Horst et al. (2020).
>
> The penguins were observed on three islands (Gorman et al., 2014).
>
> As Gorman (2014) showed, the species differ significantly.

Multiple sources

```
Several studies support this [@horst2020; @gorman2014; @wickham2023].
```

Becomes: (Gorman et al., 2014; Horst et al., 2020; Wickham et al., 2023)

Specifying page numbers

```
As described [@wickham2023, pp. 42-45]...
```

Citation styles (CSL)

What is CSL?

Citation Style Language (CSL) defines how citations are formatted. There are thousands of styles for different journals and disciplines.

Setting a style

```
---
bibliography: references.bib
csl: apa.csl
---
```

Finding styles

Most styles are available in the Zotero Style Repository:

1. Search for a style (e.g., "Nature", "APA", "Vancouver")
2. Download (`.csl` file)
3. Save in your project folder
4. Reference in YAML

Commonly used styles:

Style	File	Example
APA 7th	`apa.csl`	(Author, 2020)
Vancouver	`vancouver.csl`	[1]

3

Style	File	Example
Nature	`nature.csl`	1.
Chicago	`chicago-author-date.csl`	(Author 2020)

Bibliography heading

By default, the bibliography appears at the end with the heading "References". To customize it:

```
# References
```

If this is the last heading in the document, the bibliography appears below it.

Or in YAML:

```
---
reference-section-title: "Bibliography"
---
```

Practical example

Project structure

```
my_report/
├── report.qmd
├── references.bib
└── apa.csl
```

YAML header

```
---
title: "Morphology of Adelie Penguins"
author: "Research Team"
date: today
format: docx
bibliography: references.bib
csl: apa.csl
lang: en
---
```

Document content

```
# Introduction

The Palmer penguins are a commonly used example dataset
for data analysis [@horst2020]. The original data were collected by
@gorman2014.

# Methods

The analysis was performed in R [@wickham2023].

# Results

...

# References
```

Practical tips

Keep citation keys consistent

Use a consistent scheme for keys:

- `authoryear` → `gorman2014`
- `author_year` → `gorman_2014`
- `AuthorYear` → `Gorman2014`

Validate the bibliography

Before final rendering, check:

- Are all keys present in the `.bib` file?
- Are all entries complete (year, author, title)?
- Are all sources cited in the text?

> 💡 Tip
>
> RStudio/Positron shows auto-completion of available keys when typing `@`.

> 💡 Exercise: Set up citations
>
> 1. Create a `references.bib` file with at least two entries
> 2. Include the file in the YAML header
> 3. Cite both sources in the text (once with `@key`, once with `[@key]`)
> 4. Add a "References" heading at the end
> 5. Render to Word and check the result

Further resources

- Quarto Citations — Official documentation
- Zotero Style Repository — CSL styles
- Better BibTeX for Zotero — Automatic BibTeX synchronization

What is next

In Chapter 10, we will learn how to use parameters to generate the same report for different datasets — e.g., a penguin report for each of the three species.

Bibliography