A thesis submitted for the degree of *Doctor of Philosophy*

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ANU Thesis

Quarto Template

Your Name

Research School of Spectacular Sciences

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Doctor of Philosophy Thesis

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Preface

This thesis template is intended for honours, masters or PhD students at the Australian National University (ANU) who wish to write their thesis using the Quarto document format. It is highly recommended for students who code using Python, R or Julia and have many computational or analysis results in their thesis.

> **Note**
>
> This thesis template is available on GitHub at github.com/anuopensci/quarto-anu-thesis.

Benefits

The benefits of using Quarto document include:

- It allows you to write your thesis in a simple markup language called Markdown. This means that you can focus on writing your thesis without having to worry about formatting.
- The document can be output to a variety of formats including PDF, HTML, Word, and LaTeX.
- Code can be easily embedded in the document and executed. This means that you can include the results of your analysis in your thesis without having to manually copy and paste them. This is a good reproducible and scientific practice.
- You can easily integrate with aspects of GitHub (edit, reporting an issue, etc).

The above outlined benefits can also be considered as best practice. Version controlling and collaborative writing (via Git and GitHub) are important in managing multiple versions of your thesis and in collaborating with your supervisory team. Embedding code in your thesis is a good practice in reproducible research. Making your thesis in HTML format can allow for interactive web elements to be embedded while PDF format can be for general distribution and printing.

Getting started

There are several systems that you are expected to know to use this template. These include:

- Markdown syntax for writing
- Quarto or R Markdown syntax (note that these works for Python or Julia too) for embedding code
- (Optional) Git and GitHub for hosting

Frequently asked questions

What about Overleaf?

ANU has a professional account for Overleaf, which is great for those that use LaTeX regularly. Unfortunately, there is no equivalent system with track changes in Quarto. You can output the tex file from Quarto document and use this in Overleaf. The changes made in this tex document however has to be manually transferred back to the Quarto document. If your main output is mainly mathematical and you have little to no code outputs, Overleaf is probably a better choice.

Abstract

Disclaimer

This thesis is composed of my original work, and contains no material previously published or written by another person except where due reference has been made in the text. I have clearly stated the contribution by others to jointly-authored works that I have included in my thesis.

I have clearly stated the contribution of others to my thesis as a whole, including statistical assistance, study design, data analysis, significant technical procedures, professional editorial advice, financial support and any other original research work used or reported in my thesis. The content of my thesis is the result of work I have carried out since the commencement of my higher degree by research candidature and does not include a substantial part of work that has been submitted to qualify for the award of any other degree or diploma in any university or other tertiary institution. I have clearly stated which parts of my thesis, if any, have been submitted to qualify for another award.

Your Name
2024-01-24

Publications

Accepted or in-press publication in this thesis.

Submitted manuscripts included in this thesis.

Other publications during candidature.

Acknowledgements

I would like to express my sincere gratitude to my dog, Chuckles, for eating my research notes multiple times. If it wasn't for you, I would have finished this thesis earlier.

Chapter 1

Introduction

Reproducible research is an essential paradigm that promotes the idea that scientific investigations should be transparent, verifiable, and accessible to others. In an era where the scientific community faces concerns about the replicability of research findings, adopting reproducible research practices becomes imperative.

Chapter 2

Method

This report underscores the transformative impact of reproducible research on the scientific landscape, promoting a commitment to openness and accountability for the benefit of the entire research community.

References

JJ Allaire. *quarto: R Interface to 'Quarto' Markdown Publishing System*, 2023. URL https://CRAN.R-project.org/package=quarto. R package version 1.3.

Appendix A

Tools

This thesis was written using Quarto 1.4.545 [Allaire, 2023] and the following system and R packages:

```
- Session info -------------------------------------------------------------
 setting  value
 version  R version 4.3.1 (2023-06-16)
 os       macOS Sonoma 14.2.1
 system   aarch64, darwin20
 ui       X11
 language (EN)
 collate  en_US.UTF-8
 ctype    en_US.UTF-8
 tz       Australia/Sydney
 date     2024-01-24
 pandoc   3.1.1 @ /Applications/RStudio.app/Contents/Resources/app/quarto/bin/tools/

- Packages -----------------------------------------------------------------
 package     * version date (UTC) lib source
 cli           3.6.2   2023-12-11 [1] CRAN (R 4.3.1)
 digest        0.6.33  2023-07-07 [1] CRAN (R 4.3.0)
 evaluate      0.23    2023-11-01 [1] CRAN (R 4.3.1)
 fastmap       1.1.1   2023-02-24 [1] CRAN (R 4.3.0)
 htmltools     0.5.7   2023-11-03 [1] CRAN (R 4.3.1)
 jsonlite      1.8.8   2023-12-04 [1] CRAN (R 4.3.1)
 knitr         1.45    2023-10-30 [1] CRAN (R 4.3.1)
 later         1.3.2   2023-12-06 [1] CRAN (R 4.3.1)
```

```
 processx      3.8.3   2023-12-10 [1] CRAN (R 4.3.1)
 ps            1.7.5   2023-04-18 [1] CRAN (R 4.3.0)
 quarto        1.3     2023-09-19 [1] CRAN (R 4.3.1)
 Rcpp          1.0.12  2024-01-09 [1] CRAN (R 4.3.1)
 rlang         1.1.3   2024-01-10 [1] CRAN (R 4.3.1)
 rmarkdown     2.25    2023-09-18 [1] CRAN (R 4.3.1)
 rstudioapi    0.15.0  2023-07-07 [1] CRAN (R 4.3.0)
 sessioninfo   1.2.2   2021-12-06 [1] CRAN (R 4.3.0)
 xfun          0.41    2023-11-01 [1] CRAN (R 4.3.1)
 yaml          2.3.8   2023-12-11 [1] CRAN (R 4.3.1)

 [1] /Library/Frameworks/R.framework/Versions/4.3-arm64/Resources/library
```
