

# Lecture Note on Terwilliger Algebra

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# About this lecturenote

This note is created by `bookdown` package on RStudio.

1. Log-in to my GitHub Account
2. Go to RStudio/bookdown-demo repository: <https://github.com/rstudio/bookdown-demo>
3. Use This Template
4. Input Repository Name
5. Select Public - default
6. Create repository from template
7. From Code download ZIP
8. Move the extracted folder into a favorite directory
9. Open RStudio Project in the folder
10. Use Terminal in the bottom left pane
  - confirm that the current directory is the home directory of the project by `pwd`
11. (failed to proceed by ssh)
12. Use Console
  1. `library(usethis)`
  2. `use_git()`
  3. `use_github()` — Error
  4. `gh_token_help()`
  5. `create_github_token()`: create a token in the github page. Copy the token
  6. `gitcreds::gitcreds_set()`: paste the token, the token is to be expired in 30 days
13. Use Terminal
  1. `git remote add origin https://github.com/icu-hsuzuki/t-algebra.git`
  2. `git push -u origin main`
  3. type in the password of the computer
14. Use GIT in R Studio



# Chapter 1

## Lecture 1

[Wednesday, January 20, 1993]style="float:right"

A graph (undirected, without loops or multiple edges) is a pair  $\Gamma = (X, E)$ , where

$$X = \text{finite set (of vertices)} \tag{1.1}$$

$$E = \text{set of (distinct) 2-element subsets of } X \text{ (= edges of ) } \Gamma. \tag{1.2}$$

vertices  $x$  and  $y \in X$  are adjacent if and only if  $xy \in E$ .





## Chapter 2

# Literature

Here is a review of existing methods.



# Chapter 3

## Methods

We describe our methods in this chapter.

Math can be added in body using usual syntax like this

### 3.1 math example

$p$  is unknown but expected to be around  $1/3$ . Standard error will be approximated

$$SE = \sqrt{\left(\frac{p(1-p)}{n}\right)} \approx \sqrt{\frac{1/3(1-1/3)}{300}} = 0.027$$

You can also use math in footnotes like this<sup>1</sup>.

We will approximate standard error to  $0.027^2$

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<sup>1</sup>where we mention  $p = \frac{a}{b}$

<sup>2</sup> $p$  is unknown but expected to be around  $1/3$ . Standard error will be approximated

$$SE = \sqrt{\left(\frac{p(1-p)}{n}\right)} \approx \sqrt{\frac{1/3(1-1/3)}{300}} = 0.027$$



## Chapter 4

# Applications

Some *significant* applications are demonstrated in this chapter.

### 4.1 Example one

### 4.2 Example two



## Chapter 5

# Final Words

We have finished a nice book.