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**南方科技大学**  
SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY

# 本科生毕业设计（论文）

题    目：    南方科技大学毕业论文模板设计

LaTeX 形式 v1.3.1

副标题

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系    别：    数学系

专    业：    信息与计算科学

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2019 年 12 月 8 日

CLC \_\_\_\_\_

Number \_\_\_\_\_

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Available for reference ☐Yes ☐No



**SUSTech** Southern University  
of Science and  
Technology

# Undergraduate Thesis

**Thesis Title:** Graduation Thesis Template

L<sup>A</sup>T<sub>E</sub>X Format v1.3.1

Sub-title

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Date: December 8, 2019

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# 南方科技大学毕业论文模板设计

L<sup>A</sup>T<sub>E</sub>X 形式 v1.3.1

——副标题

梁钰栋

(数学系 指导教师: 高德纳)

[摘要]: 中文的摘要

[关键词]: 关键词 1, 关键词 2

**[ABSTRACT]:** Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

**[Key words]:**  $\text{\LaTeX}$ , R Markdown, pandoc

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The following are useful for understanding R Markdown:

- Authoring Books and Technical Documents with R Markdown
- R Markdown: The Definitive Guide
- R Markdown Cookbook

## 1. Markdown Syntax

**EMTH**, *Italic*, H<sub>2</sub>SO<sub>4</sub>, Fe<sup>2+</sup>, Footnote<sup>1</sup>

- list
- list

1. Numbered list

2. Numbered list

a. Alternative numbered list

b. Alternative numbered list

Inline Math  $a^2 + b^2$ , Math block:

$$\sum_{i=1}^{\infty} \frac{1}{n^2} = \frac{\pi^2}{6}$$

## 2. Markdown extensions by bookdown

Bookdown supply an extension of pandoc, which is already a superset of plain markdwon and TeX.

### 2.1 Cross reference and citation

XIE (2020<sup>1</sup>) supply a neat way to do cross citation of “theorems”(or numbered environment) and proofs(or unnumbered environment), in which you can write anything freely(even recursively)(XIE, 2016<sup>2</sup>; XIE et al., 2020<sup>3</sup>).

Check source code of theorem 2.1, figure 1, table 1 to see how they work.

We refer to here for all supported environments.

**Theorem 2.1** (Fermat’s Last Theorem). *For  $n \geq 2$ , there is no  $a, b, c \in \mathbb{N}^*$  s.t.*

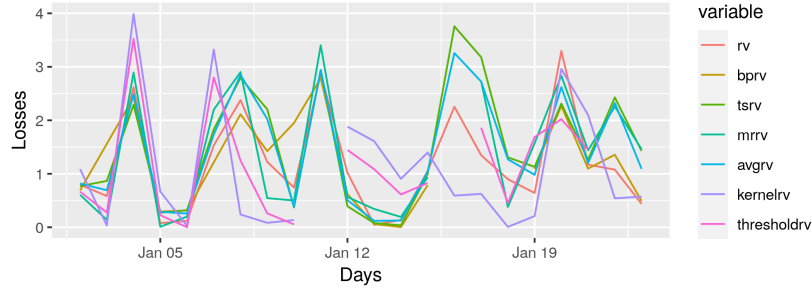
$$a^n + b^n = c^n$$

*证明*. I have discovered a truly marvelous proof of this, which this margin is too narrow to contain □

---

<sup>1</sup>Some footnote





**Figure 1** Text figures

**Table 1** A table of the first 10 rows of the mtcars data.

	mpg	cyl	disp	hp	drat	wt	qsec	vs
Mazda RX4	21.0	6	160.0	110	3.90	2.620	16.46	0
Mazda RX4 Wag	21.0	6	160.0	110	3.90	2.875	17.02	0
Datsun 710	22.8	4	108.0	93	3.85	2.320	18.61	1
Hornet 4 Drive	21.4	6	258.0	110	3.08	3.215	19.44	1
Hornet Sportabout	18.7	8	360.0	175	3.15	3.440	17.02	0
Valiant	18.1	6	225.0	105	2.76	3.460	20.22	1
Duster 360	14.3	8	360.0	245	3.21	3.570	15.84	0
Merc 240D	24.4	4	146.7	62	3.69	3.190	20.00	1
Merc 230	22.8	4	140.8	95	3.92	3.150	22.90	1
Merc 280	19.2	6	167.6	123	3.92	3.440	18.30	1

### 3. Chapter

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

## 参考文献

- [1] XIE Y, 2020. Bookdown: Authoring Books and Technical Documents with r Markdown[M/OL]. <https://github.com/rstudio/bookdown>.
- [2] XIE Y, 2016. Bookdown: Authoring Books and Technical Documents with R Markdown[M/OL]. Boca Raton, Florida: Chapman; Hall/CRC. <https://github.com/rstudio/bookdown>.
- [3] XIE Y, DERVIEUX C, RIEDERER E, 2020. R Markdown Cookbook[M/OL]. Boca Raton, Florida: Chapman; Hall/CRC. <https://bookdown.org/yihui/rmarkdown-cookbook>.

## A Code

Attach code used here

```
#!/usr/bin/python3
# -*- encoding: utf-8 -*-
'''
@File      : utils.py
@Time      : 2019/11/01
@Author     : Iydon Liang
@Contact    : liangiydon AT gmail.com
@Docstring : <no docstring>
'''

import pandas as pd
import tushare as ts

def get_data_via_tushare(stocks, start=None, end=None, method=None, ignore=None):
    '''Get `stocks` data via `tushare.{method}` from `start` to `end`.

    Argument
    -----
    stocks: dict, `stocks.keys()` is the names of `stocks`,
           `stocks.values()` is the code of `stocks`.
    start: str, default is '2018-04-01', its format matches '%Y-%m-%d',
           see also `time.strptime`.
    end: str, default is '2019-04-01', its format matches '%Y-%m-%d',
        see also `time.strptime`.
    method: str, default is 'get_k_data', attribution of `tushare`
    ignore: Iterable, default is '["date", "code"]', which cannot appear
           in `return_value.keys()` (value of return statement).

    Return
    -----
    dict, and `ignore` has no elements in `return_value.keys()`.
        type of `return_value.values()` is `pandas.core.frame.DataFrame`.

    Require
```

-----  
Python 3.7.4

ts: `import tushare as ts`, test version 1.2.48.

pd: `import pandas as pd`, test version 0.25.2

Example

-----  
>>> stocks = {'50ETF': '510050', '500ETF': '510500'}  
>>> start, end = '2018-04-01', '2019-04-01'  
>>> method = 'get\_k\_data'  
>>> data = get\_data\_via\_tushare(stocks, start, end, method=method)  
>>> data.keys()  
dict\_keys(['open', 'close', 'high', 'low', 'volume'])  
>>> data['close'].head()  
                  50ETF  500ETF  
date  
2018-04-02  2.702   6.424  
2018-04-03  2.693   6.373  
2018-04-04  2.694   6.321  
2018-04-09  2.711   6.331  
2018-04-10  2.775   6.380

SeeAlso

-----  
1. [tushare](http://tushare.org/)  
2. [pandas](https://pandas.pydata.org/)  
'''  
if \_\_debug\_\_:  
    # judge `stocks`  
    assert isinstance(stocks, dict), 'Argument `stocks` must be `dict`.'  
    assert stocks, 'Argument `stocks` cannot be empty.'  
\_start = start or '2018-04-01'  
\_end = end or '2019-04-01'  
\_ignore = ignore or ['date', 'code']  
\_method = method or 'get\_k\_data'  
data = [getattr(ts, \_method)(code, start=\_start, end=\_end)  
        for stock, code in stocks.items()]  
date\_index = data[0].date # hardcode?

```

result = dict()
for column in data[0].columns: # hardcoded?
    if column in _ignore:
        continue
    data_column = [getattr(d, column) for d in data]
    result[column] = pd.concat(data_column, axis=1)
    result[column].columns = stocks
    result[column].index = date_index
return result

if __name__ == '__main__':
    # Use `scipy.io.savemat` to save data as MATLAB format.
    stocks = {'50ETF': '510050', '500ETF': '510500'}
    start, end = '2018-04-01', '2019-04-01'
    data = get_data_via_tushare(stocks, start, end)

```

## 致谢

This repo credit to:

- [sustechthesis](#)
- [bookdown](#)
- [tinytex](#)