



Undergraduate
Research Scholars

LAUNCH: UNDERGRADUATE RESEARCH

Overleaf 2223 URS LaTeX Template

User Manual

Version 4.0

06/15/2022

Table of Contents

1. Introduction	1
2. Overview	3
2.1 Cautions & Warnings.....	3
3. Getting Started.....	4
3.1 Registering for an account	4
3.2 Locating the URS Thesis Template.....	5
4. Editing the Thesis Components.....	9
4.1 Required Preliminary Pages	10
01-TitlePage.tex.....	10
02-ResearchComplianceCert.tex	11
03-ToC.tex	11
04-Abstract.tex.....	11
06-Acknowledgements.tex.....	14
4.2 Optional Preliminary Pages	15
05-Dedication.tex.....	15
07-Nomenclature.tex	16
4.3 Required Body Text	18
08-Chapter1.tex.....	18
09-Chapter2.tex.....	19
10-Chapter3.tex.....	23
11-Chapter4.tex.....	25
4.4 Required References Page.....	27
References.bib.....	27

4.5 Optional Appendices 28

 Appendix.tex 28

Appendix A: Glossary..... 29

1. Introduction

This User Manual (UM) provides important information for students in the LAUNCH Undergraduate Research Scholars (URS) thesis program to effectively use the URS thesis template available through *Overleaf*, an online LaTeX editor. While this manual is specific to the URS thesis template in *Overleaf*, these commands can be used in any LaTeX editor.

1.1 The Undergraduate Research Scholars Thesis Manual & Policy Guide

This User Manual is a guide specific to the LaTeX template of URS thesis program. For a more comprehensive set of guides for the program in general please see the *URS Thesis Manual & Policy Guide* as well as the *URS Formatting Guide*, both of which can be found in the [URS Resources Page](#). The *URS Thesis Manual & Policy Guide* and the *URS Formatting Guide* are designed to assist Undergraduate Research Scholars and faculty advisors in the preparation of theses by providing uniform standards of style and format while allowing enough flexibility to satisfy the accepted practices of different academic disciplines. Furthermore, the *URS Thesis Manual & Policy Guide* and the *URS Formatting Guide* have been adapted from the Thesis Manual published by Graduate and Professional Studies at Texas A&M University to emphasize the expectation that the resulting Undergraduate Research Scholar's thesis meets the same high standards for format and style as a master's or doctoral dissertation. Previously submitted theses are available for view in the Undergraduate Research Scholars Capstone Collection in the [Texas A&M OAKTrust Repository](#).

1.2 URS Program Requirements and Expectations

- Attend all Mandatory Events (Orientation, Small Group Meetings, and Thesis Formatting Workshop)
- Respond to program emails within 2 business days. All program correspondence will be sent to your official Texas A&M Gmail account.
- Add ugr@tamu.edu and your assigned Thesis Reviewer's email address to your *Safe Senders List* so that program emails do not go to your Spam or Junk Folders.
- Receive Research Compliance Approval (if applicable to your project) before collecting data.
- Submit/receive approval for the Fall Progress Report, Spring Progress Report 1, and Spring Progress report 2 assignments in Canvas.
- Submit/receive approval for the Spring Installment 1 and Spring Installment 2, Submissions in the URS Canvas Community
- Make a Public Presentation at an approved venue
- Submit/receive approval for the Presentation Report in the URS Canvas Community
- Submit/receive approval for the Final Thesis in the URS Canvas Community *and* in the Scholars Thesis Submittal System (STSS)

- Receive faculty advisor approval for the Final Thesis and Embargo Selection in the Scholars Thesis Submittal System (STSS)
- Notify LAUNCH: UGR staff of any absences or missed assignments and provide documentation of a university-excused absence—**no late work will be accepted without a university-excused absence**. See the Texas A&M University student rules at <https://student-rules.tamu.edu/> for a list of university-approved absences, including religious holidays. Missing mandatory events or assignments without a university-excused absence will result in your removal from the program. Documentation for missing a program deadline or mandatory event should be emailed to ugr@tamu.edu.
- Student projects vary by discipline and scope. All URS theses must have a minimum of 5,500 words of paragraph/body text. This minimum word count includes body text in the Introduction through Conclusion sections, as well as body text in the Creative Artifact section (if using the Creative Works template). The minimum word count does not include preliminary pages, references section, captions, figures, tables, or equations.). Many Undergraduate Research Scholars write more than the minimum 5,500 word count. Keep this minimum word count in mind when planning out your thesis.

1.3 Who should be using the URS thesis template in *Overleaf*

This template is mainly intended for students in fields related to Science, Technology, Engineering, and Math (STEM). Hence, the style of the *Overleaf* LaTeX template matches the *Word* STEM template with the advantage of making formatting, equations, and references relatively easier to accomplish than in Microsoft Word. Therefore, while this template should provide the foundation necessary to navigate *Overleaf* with ease, please be aware that having some prior experience with LaTeX-based programming is highly recommended. Unlike other LaTeX editors, however, all of your work will be in *Overleaf*. As a result, you will not need any LaTeX-related software packages downloaded to your computer.

Please note that the other templates for the URS program are available on the [URS Resources webpage](#). Any questions you have regarding the URS program or the URS thesis template in *Overleaf* can be directed to LAUNCH: Undergraduate Research staff at ugr@tamu.edu.

2. Overview

Overleaf is a free web-based medium that employs LaTeX to provide an academic writing environment that is suitable for writing blog posts, articles, posters, slide decks, books, essays, or in this case, a thesis. Since it is web-based, you do not have to download any software packages related to LaTeX. In other words, all of your work will be based in *Overleaf*.

2.1 Cautions & Warnings

Some notes worthy of keeping in mind:

- a. While this manual is intended as an aide for using *Overleaf*, it does not provide a comprehensive overview of all the policies and regulations of the URS program itself. You should, therefore, remember to always refer to the *URS Thesis Manual and Policy Guide* as well as the URS Formatting Guide for an all-inclusive list of the rules and policies of the thesis and the URS program.
- b. Make sure to **always** have a backup copy of your content. It is highly recommended that you save a version of each installment you complete in *Overleaf* to ensure that if the version you are continually updating breaks (or even fails) for any reason, you always have a backup copy to which you can resort. However, if you do encounter issues with programming in *Overleaf*, never hesitate to reach out to ugr@tamu.edu.
- c. Do not change the formatting in the URS *Overleaf* template except for the modifiable sections designated within this manual.
- d. Be aware that while the URS *Overleaf* template was modified from the template provided by Graduate and Professional Studies to fit the requirements of this program, they are not the same. Hence, they have separate submittal sites. The submittal site for the URS Program can be found at the [Scholars Thesis Submittal System \(STSS\)](#).
- e. *Overleaf* is a free online platform that allows for the creation of a multitude of documents. It is not in any way affiliated, endorsed, or supported by Texas A&M University or the Texas A&M Libraries.

3. Getting Started with *Overleaf*

This section provides the instructions on how to make a free account in *Overleaf* and how to locate and import the thesis template:

3.1 Registering for an account:

1. Open your web browser of choice
2. Go to <https://www.Overleaf.com/>
3. You will be directed to the following screen in **Figure 1**. In the top right-hand corner, click on **Register**.

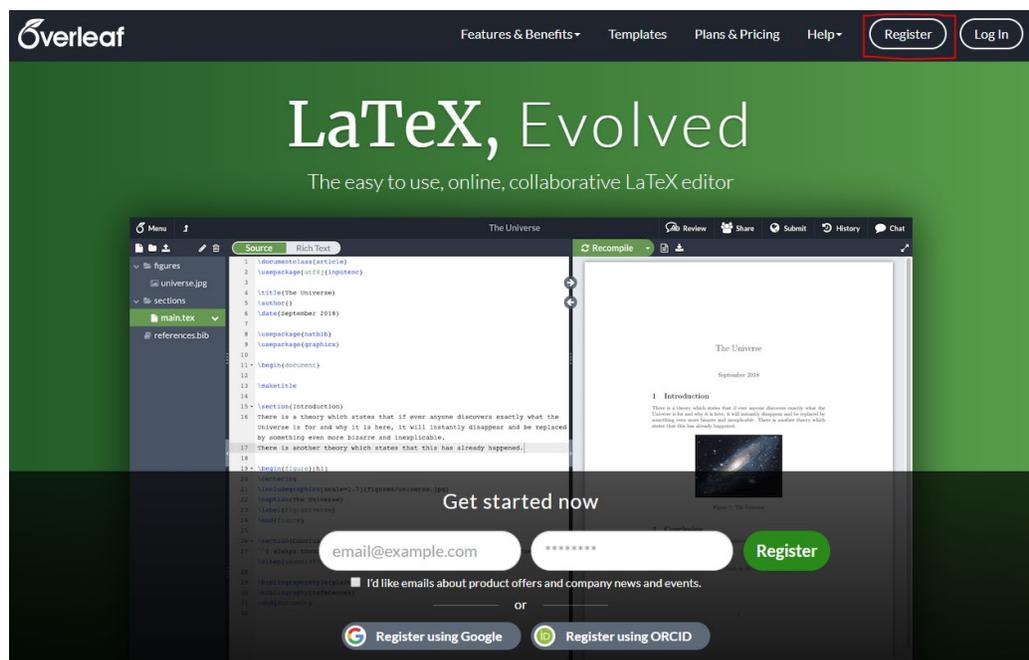


Figure 1. *Overleaf* Main Screen

4. Register using your email and create a password. Then, click on **Register using your email**, as demonstrated in **Figure 2**. (You can register using Google or an ORCID if you have one).

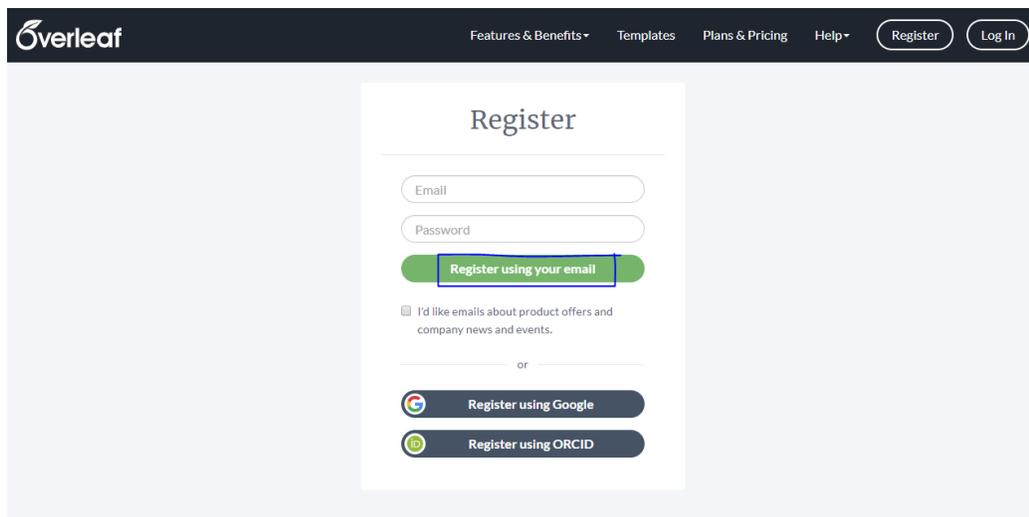


Figure 2. Overleaf Account Registry Screen

3.2 Locating the URS Thesis Template

1. Once you are registered and logged in, you will be directed to the main page of *Overleaf*, where your projects will be visible (see **Figure 3a**). As shown in **Figure 3**, there are a few projects on the main screen, but because this is probably your first time working in *Overleaf*, your main screen will most likely be empty (see **Figure 3b**). To start a project, click on **New Project** in the top left-hand corner. From the drop-down menu, click on **Thesis**.

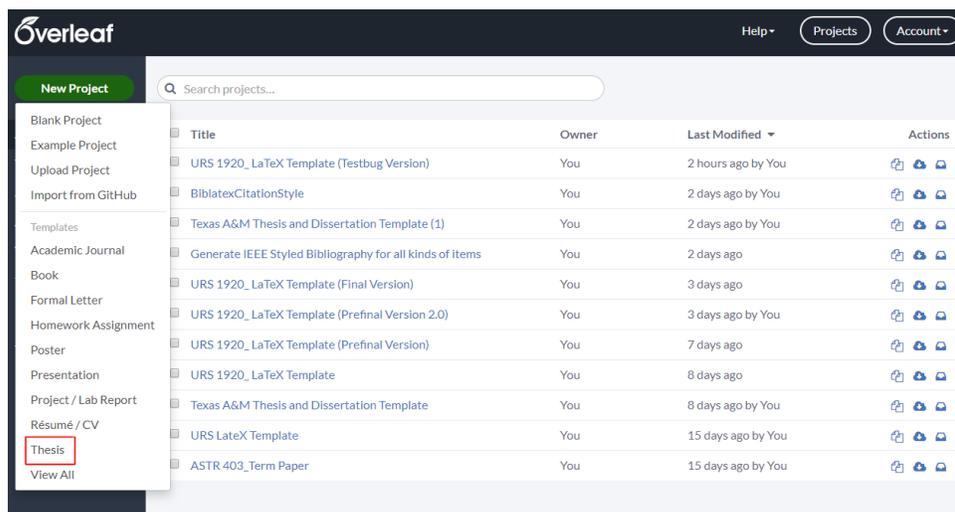


Figure 3a. Overleaf Project Screen

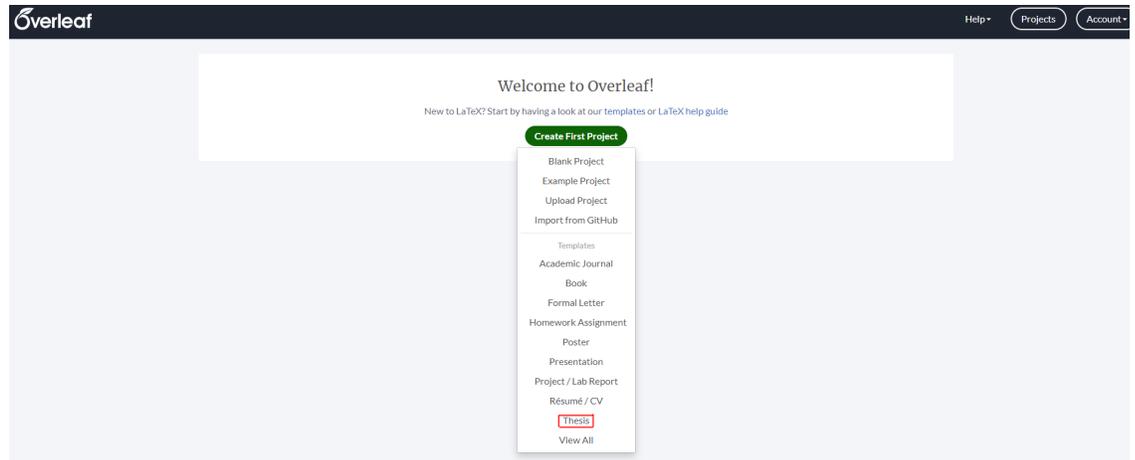


Figure 3b. Overleaf “Getting Started” Screen

- You will be directed to the gallery webpage (see **Figure 4a**), containing all the possible thesis templates belonging to a variety of institutions worldwide. If you scroll down to **Related Tags** and search for and click on the **Texas A&M University** tag (shown below in **Figure 4b**), you will be prompted to the thesis templates belonging to Texas A&M.

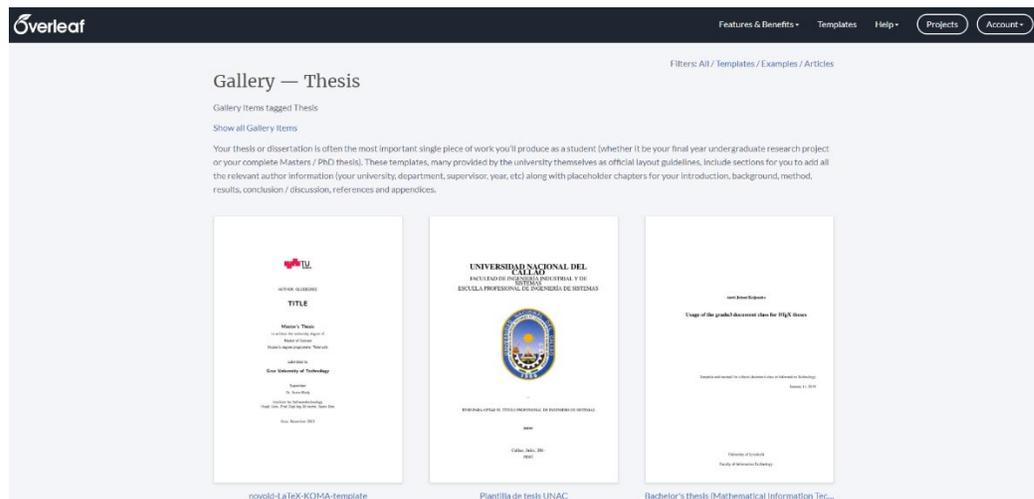


Figure 4a. Thesis Gallery



Figure 4. Related Tags

- Click on the template that says **Texas A&M LAUNCH URS Thesis Template**, and then click on **Open as Template**. That should automatically add that template to your list of projects and open it from your profile. You will see an environment similar to this:

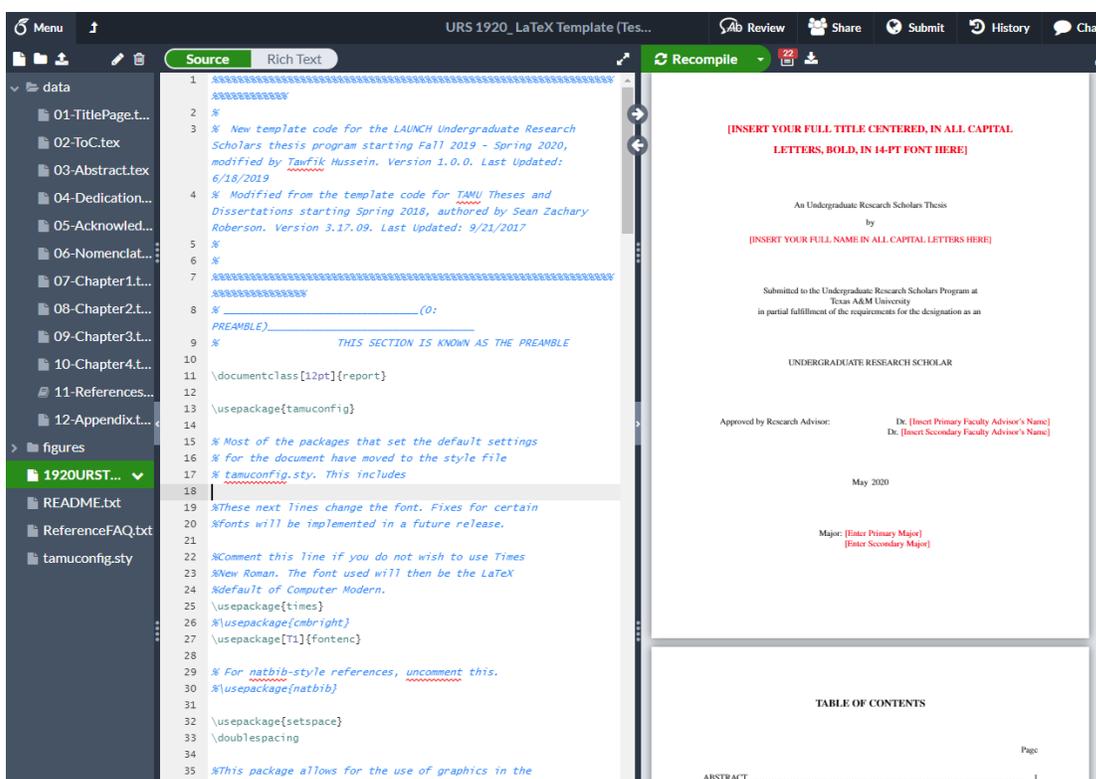


Figure 5. Overleaf Source Code for the URS LaTeX Template

- As seen in the left-hand side of the Source Page in **Figure 5**, there is a folder called **data**, and nested beneath it are the various sections for the thesis (which is where the bulk of the editing will occur). There is also another folder called **figures** where you will be putting the figures that will be included in your thesis (see **page 21, item 2**). Finally, you will see the **2223URSTemplate** source file. This file compiles all your edits and additions in the **data** folder into the pdf file you see on the right half of the screen. Because the **2223URSTemplate.tex** file mainly compiles, you will **not** be doing any editing to its source file as that may cause some compiling errors unless you are

planning on adding some packages to the preamble, but that will be expanded upon later.

The following section will walk you through the required edits for each file within the **data** folder. These edits are necessary to make your thesis congruent with the requirements of the URS Program.

4. Editing the Thesis Components

The following sub-sections provide detailed, step-by-step instructions on how to use the various functions and features of the *Overleaf* URS Template. Here is a broad overview of the thesis sections that you will be updating:

The URS Thesis Template in *Overleaf*

4.1 Required Preliminary Pages

01-TitlePage

02-ResearchComplianceCert

03-ToC

04-Abstract

06-Acknowledgments

4.2 Optional Preliminary Pages

05-Dedication

07-Nomenclature

4.3 Required Body Text

08-Chapter1

09-Chapter2

10-Chapter3

11-Chapter4

4.4 Required References Page

12-References

4.5 Optional Appendices

13-Appendix

4.1 Required Preliminary Pages

01-TitlePage.tex

This file contains the code controlling the appearance of your title page. Only edit the sections that are highlighted. The other pieces of code on this page are just there to make your edits work, so do *not* change those. You will only need to **edit section 5**. Nonetheless, the other sections are explained below for your benefit.

1. **Section 0: No edits are needed.** The sole purpose of this section is to begin the title page and place the title at the center of the page.

```
% _____ (0) _____
\providecommand{\tabularnewline}{\\}

% This command begins the title page and places it in the "titlepage" variable so
% it can be called later
\begin{titlepage}

% This command puts the text in the center
\begin{center}
```

Figure 6. Section 0 of the Source Code for the Title Page File

2. **Section 1: No edits are needed.** This section takes care of the spacing between the texts in your title and capitalizes the text.
3. **Section 2: No edits are needed.** This section plugs in your name from the **2223URSTemplate** file and places it in its respective location in the title page.
4. **Section 3: No edits are needed.** This section inserts “*Submitted to the Undergraduate Research Scholars....the designation as an*” subtitle to the title page.
5. **Section 4: No edits are needed.** This section capitalizes and places “\tamudegree” taken from the **2223URSTemplate** file, which is *Undergraduate Research Scholar* in this case, in the center of the title page.
6. **Section 5: Edit the highlighted portions in Figure 7.** Furthermore, the text between the two square brackets that says “*Insert Dr. Full Name of Primary Faculty Advisor*” is where you will insert your advisor’s name. If you have a co-advisor/secondary advisor, then go ahead and add his/her/their name to the designated section. If you do not have a secondary advisor, you can either comment that line out by putting a “%” in front of it, or simply delete the text in between the two red square brackets in **Figure 7**.

```

% _____ (5) _____
% 5) This is the section where you insert your research advisor(s)
% THIS EXAMPLE SHOWS HOW TO ADD TWO ADVISORS. IF YOU ONLY HAVE ONE, YOU
% CAN DELETE THE SECONDARY ADVISOR SLOT. HOWEVER, IF YOU HAPPEN TO HAVE TWO,
% PLEASE MAKE SURE TO INCLUDE YOUR SECONDARY ADVISOR IN THE ABSTRACT SECTION
% (SEE ABSTRACT SECTION FOR MORE DETAILS).

\begin{flushleft}
Approved by \\
Faculty Research [Choose an item: Advisor/s]: \hfill [Type Dr. Full Name
of Primary Faculty Advisor]} \\
\hfill [ [Type Dr. Full Name of Secondary Faculty Advisor OR remove
line] ]
\end{flushleft}

\end{singlespace}
\vspace{2em}

```

Figure 7. Section 5 of the Source Code for the Title Page File

7. **Sections 6 and 7: No edits are needed.** Section 6 places the date you finish the URS program in the title page, and section 7 places your major(s) in the title page as well. Once again, they are both imported from their respective sections in the **2223URSTemplate**.

02-ResearchComplianceCert.tex

This page reflects the completion of the research compliance certification. You will need to edit this page as instructed in sections 1 and 2 to make sure it accurately reports your research compliance status.

03-ToC.tex

This file contains the code that will control the appearance of your table of contents (ToC). You will *not* be doing any edits here. Some of you may need a list of figures or a list of tables (or both) after your table of contents. You can simply uncomment those sections in this file and modify them accordingly.

04-Abstract.tex

This file contains the code that will control the appearance of your abstract. Furthermore, the code file (along with the required edits) is divided into the following sections:

1. **Section 0: No edits are needed.** This section puts the word “Abstract” in the center of the page, capitalized and boldfaced. Additionally, it links the abstract to the table of contents.

2. **Section 1: Edit the title of the abstract.** You will need to update the text that is highlighted in **Figure 8** without modifying the formatting. In other words, you will just be replacing the text between the two square brackets “Type Thesis Title Using Title Case” with your abstract title. Do NOT delete the double slash, since that ensures long abstract titles are divided into two lines.

```
% _____ (1) _____
% THIS SECTION SINGLE-SPACES, AND CENTERS THE TITLE OF YOUR THESIS

\begin{singlinspace}

\begin{center}

[Type Thesis Title Using Title Case]
\vspace{3em}
```

Figure 8. Section 1 of the Source Code for the Abstract File

3. **Section 2: Replace the highlighted text in Figure 9** with your name and the name of your department. Add your teammates along with their department affiliations as well if you belong to a team.

```
% _____ (2) _____
% THIS IS THE SECTION THAT RELATES TO YOUR NAME AND DEPARTMENT
{[Type Name of Individual or Team Member 1 Name\textsuperscript{1}, Team
Member 2 Name\textsuperscript{2}, and Team Member 3
Name\textsuperscript{3} ...]}
\\
{[Choose an item: Department/s] of [Type Individual Primary Department OR
Team Member 1 Department(s)\textsuperscript{1}]}
.
.
.
\vspace{3em}
```

Figure 9. Section 2 of the Source Code for the Abstract File

4. **Section 3: Replace the highlighted text in Figure 10.** Furthermore, you will need to replace the place-holder text with your faculty advisor’s name and their department. If you happen to have more than one advisor, copy the section marked by the red curly brackets in **Figure 10** and modify it accordingly.

```

% _____(3)_____
% THIS IS THE SECTION THAT RELATES TO YOUR ADVISOR'S NAME AND DEPARTMENT
% THIS EXAMPLE SHOWS HOW TO ADD ONE ADVISOR. HOWEVER, IF YOU HAPPEN TO
% HAVE TWO, PLEASE MAKE SURE TO INCLUDE YOUR SECONDARY ADVISOR AS ANOTHER
% SLOT. IF BOTH ADVISORS ARE IN THE SAME DEPARTMENT, YOU MAY INCLUDE BOTH
% THEIR NAMES ON THE SAME LINE; HOWEVER, IF THEY BELONG TO TWO DIFFERENT
% DEPARTMENTS, THEN EACH ADVISOR MUST BE INSERTED AS THEIR OWN ENTRY. SIMPLY
% COPY AND PASTE THE TEMPLATE BELOW AND MODIFY ACCORDINGLY.

Research Faculty Advisor: [Type Dr. Full Name of Primary Research Advisor]
\\
{[Choose an item: Department/s]} of [Type Primary Faculty Advisor
Department]
\\
Texas A&M University
\vspace{1em}
\end{center}
\end{singlinspace}

\pagestyle{plain} % No headers, just page numbers
\pagenumbering{arabic} % This determines the page numbering to use arabic
numerals
\setcounter{page}{1} % Sets the page counter to be 1; i.e., the Abstract
is the first page

```

Figure 10. Section 3 of the Source Code for the Abstract File

5. **Section 4: Add the text for the abstract.** Replace the highlighted sections in **Figure 11** with the text of your abstract. Remember your abstract should not exceed 500 words and should, therefore, summarize your work. That is why it is typically the **last** section to fill out. Additionally, do not forget to double indent (by inserting the command `\indent` twice) to each newly added paragraph, so the appearance of the paragraphs in the recompiled pdf is formatted correctly.

```

% _____(4)_____
% THIS IS THE SECTION WHERE YOU TYPE IN THE TEXT RELATED TO YOUR ABSTRACT.
% NOTICE THE DOUBLE \indent COMMAND THAT PROPERLY INDENTS THE BEGINNING OF
% EACH PARAGRAPH

\indent \indent [Type your Abstract. Your Abstract must be a "complete
snapshot" of your manuscript and be a stand-alone piece. Since the text of
the Abstract will be distributed widely through a variety of databases,
formal citations, images, and complex equations should not be included.
The Abstract should be between 250 and 500 words.]

\indent \indent The Abstract is a stand-alone section that appears in
public databases without your thesis document and should not contain
citations.

\indent \indent The Abstract page is the first page of your document and
will use Arabic page numbers starting with page 1. The rest of the pages
in your document should continue with these Arabic numbers, including your
appendices, if included. Including this text, these three paragraphs are
120 words.]

```

Figure 11. Section 4 of the Source Code for the Abstract File

O6-Acknowledgements.tex

This file contains the code that will control the appearance of your acknowledgements, should you choose to have one. If not, you can comment out this entire section. Otherwise, see the following steps to correctly modify this section:

1. **Section 0: Remove the highlighted parts seen in the Figure 14.** Otherwise, no further changes are needed in this section.

```
% _____ (0) _____
% THIS LINE PUTS "ACKNOWLEDGMENTS" AT THE TOP OF THE PAGE, BOLD-FACED AND
% 14-PT
\chapter*{\large\bf ACKNOWLEDGMENTS}

% THIS LINE ADDS THE ACKNOWLEDGMENTS TO THE TABLE OF CONTENTS
\addcontentsline{toc}{chapter}{ACKNOWLEDGMENTS}
% Needs to be set to part, so the TOC doesn't add 'CHAPTER ' prefix in the TOC.
```

Figure 14. Section 0 of the Source Code for the Acknowledgments File

2. **Sections 1, 2, and 3: Add the text for the acknowledgements.** Replace the highlighted sections in **Figure 15** with the text for your acknowledgements. Additionally, do not forget to double indent (by inserting the command `\indent` twice) to each newly added paragraph, so the appearance of the paragraphs in the recompiled pdf is formatted correctly.

```
% _____ (1) _____
% [INSTRUCTIONS FOR REQUIRED ACKNOWLEDGEMENTS PAGE.]

\indent\indent The first part of the Contributors Section will name all
\indent\indent faculty advisor(s). The second part will acknowledge individual student
\indent\indent contributions and/or the contributions of others

\indent\indent The Funding Section includes all support that was provided
\indent\indent by the university, or any other source, to conduct your thesis, research,
\indent\indent and compilation. If you received no funding, state that here.

\indent\indent The wording on below can be used as an example. You may be
\indent\indent required to use specific language from your granting agency or fellowship
\indent\indent program. Be sure to check your program guidelines and consult your faculty
\indent\indent advisor when drafting the Acknowledgements page.

% _____ (2) _____
\noindent\textcolor{red}{\textbf {SAMPLE CONTRIBUTORS SECTION TEXT (MODIFY
AS NEEDED)}}
\\
\textbf{Contributors}

\indent\indent I would like to thank my faculty advisor, Dr. [XXXX], and
\indent\indent my [XXXX], [XXXX], for their guidance and support throughout the course of
\indent\indent this research.

\indent\indent Thanks also go to my friends and colleagues and the
\indent\indent department faculty and staff for making my time at Texas A&M University a
\indent\indent great experience.
```

```

\indent\indent Finally, thanks to my [XXXX] for their encouragement and to
my [XXXX] for her/his/their patience and love.

\indent\indent The [DATA/MATERIALS/etc.] analyzed/used for [MANUSCRIPT
TITLE] were provided by [NAME - can be the names of other faculty,
graduate students, lab, lab members, teammates, etc. who contributed to
specific aspects of the project]. The analyses depicted in [MANUSCRIPT
TITLE] were conducted in part by [NAME - can be the name of a department,
lab, research group, etc.] and were published in [YEAR] [OR and these data
are unpublished].
\\
\indent\indent All other work conducted for the thesis was completed by
the student independently.
\\
% _____(3)_____
\noindent\textcolor {red}{\textbf{SAMPLE FUNDING SOURCES SECTION TEXT
(MODIFY AS NEEDED)}}
\\
\textbf{Funding Sources}
\\
\indent\indent Undergraduate research was supported by [XXXX] at Texas A&M
University and an additional research fellowship from [XXXX].

\indent\indent This work was also made possible in part by [FUNDING
SOURCE] under Grant Number [INSERT GRANT NUMBER]. Its contents are solely
the responsibility of the authors and do not necessarily represent the
official views of the [NAME OF AWARDED OFFICE]. NOTE: If you received no
funding, state that here instead.

```

Figure 15. Section 1 of the Source Code for the Acknowledgments File

After adding the relevant information, you may delete the instructions on the acknowledgments page as well as the text in red so that the text no longer appears in the pdf upon recompiling.

4.2 Optional Preliminary Pages

05-Dedication.tex

This file contains the code that will control the appearance of your dedication should you choose to have one. If not, you can comment out this entire section. Otherwise, see the following steps regarding correctly modifying this section:

1. **Section 0: Remove the highlighted parts in Figure 12.** Otherwise, no further changes are needed in this section.

```

% _____(0)_____
% THIS LINE PUTS "DEDICATION (THIS PAGE IS OPTIONAL)" AT THE TOP OF THE
PAGE, BOLD-FACED AND 14-PT
\chapter*{\large\bf DEDICATION }

% THIS LINE ADDS THE DEDICATION TO THE TABLE OF CONTENTS
\addcontentsline{toc}{chapter}{DEDICATION}

```

Figure 12. Section 0 of the Source Code for the Dedication File

2. **Section 2: Add the text for the dedication.** Furthermore, replace the highlighted sections in **Figure 13** with the text for your dedication. Additionally, do not forget to double indent (by inserting the command `\indent` twice) to each newly added paragraph, so the appearance of the paragraphs in the recompiled pdf is formatted correctly. For Section 1, delete the instructions when you are done with the dedication page.

```
% _____ (2) _____
% THIS IS THE SECTION WHERE YOU TYPE IN THE TEXT RELATED TO YOUR
% DEDICATION. MODIFY SAMPLE WORDING FOR DEDICATION PAGE OR REMOVE THIS
% OPTIONAL PAGE. INCLUDES EXAMPLE OF FORMATTED DEDICATION STATEMENT.

\textcolor{red}{\textbf{SAMPLE DEDICATION TEXT (MODIFY AS NEEDED)}}

\begin{center}
\emph{To our families, instructors, and peers who supported us throughout
the research process.}
\end{center}
```

Figure 13. Section 1 of the Source Code for the Dedication File

After adding the relevant information, delete the line

```
\textcolor{red}{\textbf{SAMPLE DEDICATION TEXT (MODIFY AS
NEEDED)}}} as well as the dedication instructions so that they no longer appear in
the pdf upon recompiling.
```

07-Nomenclature.tex

This file contains the code that will control the appearance of your nomenclature, should you choose to have one. If not, you can comment this entire section. Otherwise, see the following steps to correctly modify this section:

1. **Section 0:** No further changes are needed in this section.

```
% _____ (0) _____
% THIS LINE PUTS "NOMENCLATURE (THIS PAGE IS OPTIONAL)" AT THE TOP OF THE
% PAGE, BOLD-FACED AND 14-PT
\chapter*{\large\bf NOMENCLATURE}

% THIS LINE ADDS THE NOMENCLATURE TO THE TABLE OF CONTENTS
\addcontentsline{toc}{chapter}{NOMENCLATURE}
```

Figure 16. Section 0 of the Source Code for the Nomenclature File

- Section 1: Add the text for the nomenclature.** Replace the highlighted sections in **Figure 17** with the text for your nomenclature. If you need to add more nomenclatures, copy and paste an entire row of the nomenclature code and modify accordingly.

```
% _____ (1) _____
% THIS IS THE SECTION WHERE YOU TYPE IN THE TEXT RELATED TO YOUR
% NOMENCLATURE. NOTICE THE DOUBLE \longtable COMMAND THAT HELPS IN
% ORGANIZING YOUR NOMENCLATURE INTO A "TABLE" OF SORTS (WHICH ALSO TAKES
% CARE OF THE TEXT ALIGNMENT)

% A note about aligning: These entries will align
% themselves according to the ampersand (&).
% No extra spaces are needed, as seen in some of
% the entries below.

% Example of the longtable environment.
\begin{spacing}{1.0}
\begin{longtable}[htbp]{@{}p{0.35\textwidth} p{0.62\textwidth}@{}}

B/CS & \hspace{-1.5in} Bryan and College Station\\ [2ex]
      & % [2ex] provides double space between each row
TAMU & \hspace{-1.5in} Texas A&M University\\ [2ex]
HSUS & \hspace{-1.5in} Humane Society of the United States\\ [2ex]
P & \hspace{-1.5in} Pressure\\ [2ex]
T & \hspace{-1.5in} Time\\ [2ex]
FFT & \hspace{-1.5in} Fast Fourier Transform\\ [2ex]
TVA & \hspace{-1.5in} Tennessee Valley Authority\\ [2ex]
TXDOT & \hspace{-1.5in} Texas Department of Transportation\\ [2ex]
O&M & \hspace{-1.5in} Eller Oceanography and Meteorology Building\\ [2ex]
LA1 & \hspace{-1.5in} Space of absolutely Lebesgue integrable
      & functions; i.e.,  $\int |f| < \infty$ \\ [2ex]
LA2 & \hspace{-1.5in} Space of square-Lebesgue-integrable
      & functions, i.e.,  $\int |f|^2 < \infty$ \\ [2ex]
PC(S) & \hspace{-1.5in} Space of piecewise-continuous functions on  $SS$ \\
      & [2ex]

\setcounter{table}{0}
\end{longtable}
\end{spacing}
```

Figure 17. Section 1 of the Source Code for the Nomenclature File

After adding the relative information, you may delete the instructions for the nomenclature page so that it no longer appears in the pdf upon recompiling.

4.3 Required Body Text

08-Chapter1.tex

This file contains the code that will control the appearance of your introduction. See the following steps to correctly modify this section:

- Section 0: No edits are needed** in this section.

```
% _____ (0) _____
% THIS LINE PUTS "1. INTRODUCTION" AT THE TOP OF THE PAGE, BOLD-FACED AND
% 14-PT
\chapter{INTRODUCTION}
```

Figure 18. Section 0 of the Source Code for the Introduction File

2. **Section 1: Add the text for the introduction.** Replace the highlighted sections in **Figure 19** with the introduction text. Additionally, do not forget that for each new paragraph you enter, double indent (by inserting the command `\indent` twice) so that the appearance of the paragraphs in the recompiled pdf is formatted correctly.

```
% _____ (1) _____
% THIS IS THE SECTION WHERE YOU TYPE IN THE TEXT RELATED TO YOUR
% INTRODUCTION. NOTICE THE DOUBLE \indent COMMAND THAT PROPERLY INDENTS THE
% BEGINNING OF EACH PARAGRAPH

\indent \indent Paragraph one starts here. If you want to break up your
paragraphs into more sections, you can use first order, second order or
third order subheadings.

% _____
% First order subheadings (remove/add as needed)
\vspace{-0.4em} % This line is added to preserve the double-spaced environment
since the \section command adds an extra space

\section*{First order subheadings (optional, remove/add as needed)} %The command
\section defines your first order subheading

\vspace{-0.4em} % This line is added to preserve the double-spaced environment
since the \section command adds an extra space
```

Figure 19. Section 1 of the Source Code for the Introduction File

```
\indent \indent Directly above is a first order subheading. Note that
first order subheadings are bold. If you feel that the information under
a first order subheading needs to be split into more sections, use
additional subheadings. Take note that all first order subheadings must be
included in the Table of Contents. Second and third order subheadings are
NOT to be included in the Table of Contents.\footnote {Yes, this is how
you do a footnote in LaTeX.}

% _____
% Second order subheadings (remove/add as needed)
\noindent \textit{Second order subheadings (remove/add as needed)}
% The command \textit italicizes the text

\indent \indent Note that second order subheadings are italicized. This
information still pertains to your first order subheading. If you need to
break up content even further, you can use one last level of subheadings,
called third order subheadings.

% _____
% Third order subheadings (remove/add as needed)
\noindent Third order subheadings (remove/add as needed)

\indent \indent Note that third order subheadings are regular. This
information still pertains to your first order subheading, but is directly
related to your second order subheading.

\indent\indent This subsection tests the usage of references. The book
\cite{REALCAR} is referred in this way. Actually, the option is available
for you to change the default way of how references appears. The default
```

and most commonly used option `\cite{einstein}` is displayed here `\cite{Barn-JORVQ}`.

`\indent\indent` Unrelated citations are referred here just for the sake of testing the reference section only `\cite{TAMU}`. If you find that the reference `\cite{GIGEM}` has more items than you need `\cite{WAGFJ}`, question marks will show up in place of a reference handle, like these `\cite{Over9000}`.

Figure 19 (continued). Section 1 of the Source Code for the Introduction File

3. **Section X:** Section X adds another first order subheading to the table of contents just for demonstration purposes. If you have another first order subheading in your introduction, copy and paste the highlighted part of **Figure 20**.

```
% _____ (X)
% Another first-order subheading (remove/add as needed)

% THIS LINE ADDS ANOTHER FIRST ORDER SUBHEADING TO THE TABLE OF CONTENTS
% (REMOVE/ADD AS NEEDED)

\section{Another first-order subheading (remove/add as needed)}

\vspace{-0.4em}

\indent\indent [Type content here.]
```

Figure 20. Section X of the Source Code for the Introduction File

09-Chapter2.tex

This file contains the code that will control the appearance of your methods section. See the following steps regarding correctly modifying this section:

1. **Section 0: Remove the highlighted part seen in Figure 21** if you are satisfied with the designation “Methods”. If not, you can replace it with another appropriate designation. Otherwise, no further changes are needed in this section.

```
% _____ (0)
% THIS LINE PUTS "2. METHODS" AT THE TOP OF THE PAGE, BOLD-FACED AND 14-PT
\chapter{METHODS}
```

Figure 21. Section 0 of the Source Code for the Methods File

2. **Section 1: Add the text for the methods.** Replace the highlighted sections in **Figure 22a** with the text for the methods. Additionally, do not forget that for each new paragraph you enter, double indent (by inserting the command `\indent` twice) so that the appearance of the paragraphs in the recompiled pdf is formatted correctly.
 - a. Under subheading 1 in **Figure 22a**, there is an example about how to attach a figure (marked by the purple curly brackets). The only sections you need to modify, should you need a figure, are the name of the file (highlighted in yellow and underlined in purple) that you intend to import from the **figures**

folder and the caption of the figure (also highlighted in yellow and underlined in purple). Remember, the figures that you intend to import must be in the **figures** folder.

```

% _____ (1) _____
% THIS IS THE SECTION WHERE YOU TYPE IN THE TEXT RELATED TO YOUR METHODS.
% NOTICE THE DOUBLE \indent COMMAND THAT PROPERLY INDENTS THE BEGINNING OF
% EACH PARAGRAPH

% Starting Paragraph One
\indent\indent Paragraph one starts here. If you want to break up your
paragraphs into more sections, you can use first order, second order or
third order subheadings (see the examples in Chapter 1). Examples of how
to format figures and tables are in this chapter.

% _____
% Subheading 1 (remove/add as needed)
\vspace{-0.4em} % This line is added to preserve the double-spaced
environment since the \section command adds an extra space

\section{Methods Subheading 1 (remove/add as needed)}

\vspace{-0.4em} % This line is added to preserve the double-spaced
environment since the \section command adds an extra space

\indent \indent The figure below ({\bf Figure 1}) is taken from R. While
there are packages available to import graphics from R, MATLAB, and
similar software, it is probably best to export plots generated by these
programs as a PNG file, and then import it via the
\textit{includegraphics} command.

\begin{figure}[H] % This is how you include a figure
    \centering % This centers it
    \includegraphics[scale=0.55]{UnemDiffACF.png}
    \singlespace
    \caption_{The autocorrelation function (ACF) of the
differenced unemployment series. Seasonal adjustments may be needed.}
    % This is the caption of the figure
\end{figure}

```

Figure 22a. Section 1, Subheading 1 of the Source Code for the Methods File

```

\indent \indent You must scale the figures so that they fit within the
prescribed margins. All the figures included in this document have been
scaled. It is best to use PNG and JPEG files for figures.

%
%
```

Figure 22a (continued). Section 1, Subheading 1 of the Source Code for the Methods File

- b. Under subheading 2 in **Figure 22b**, there is an example about how to create a table (marked by the purple curly brackets). The only sections you need to modify, should you need a table, are the name of the table (or its caption –

which is highlighted) and the actual content of the table (also highlighted). If you need to add more rows, copy a row, and modify it accordingly. If you need more columns, add an additional “|” in the designated location (highlighted in yellow and underlined in purple in **Figure 22b**).

```
%
% Subheading 2 (remove/add as needed)
\vspace{-0.4em} % This line is added to preserve the double-spaced
                  environment since the \section command adds an extra space
%
\textcolor{red}{\section*{Subheading 2 (remove/add as needed)}}
\vspace{-0.4em} % This line is added to preserve the double-spaced
                  environment since the \section command adds an extra
                  space

% THIS LINE ADDS ANOTHER FIRST ORDER SUBHEADING (SUBHEADING 2) TO THE
% TABLE OF CONTENTS (REMOVE/ADD AS NEEDED)
\addcontentsline{toc}{section}{\vspace{-0.9em}\hspace{4.2em}
\textcolor{red}{Subheading 2 (remove/add as needed)}}

\indent\indent Here is an example of a properly formatted table and table
title ({\bf Table 1}):

\begin{table}[h!] % This is how you include a table
  \caption{Example of a properly formatted table and title} % This is the
  \centering % This centers it
  \label{table:1}
  \begin{tabular}{|1|1|1|1|1|} % Each "1" corresponds to a column in the table.
    \hline % Hence, the total number of "1" corresponds to
    \bf{Heading 1} & \bf{Heading 2} & \bf{Heading 3} & \bf{Heading 4}
    \\\hline
    Content example. & Content example. & Content example. & Content
    example. \\\hline
    Content example. & Content example. & Content example. & Content
    example. \\\hline
  \end{tabular}
\end{table}
```

Figure 22b. Section 1, Subheading 2 of the Source Code for the Methods File

```
\indent \indent Be sure to reference all figures and tables in your body
text within one page of where the figure/table appears.
%
%
```

Figure 22b (continued). Section 1, Subheading 2 of the Source Code for the Methods File

- c. Under subheading 3 in **Figure 22c**, there is an example about how to create an equation (marked by the purple curly brackets). The only sections you need to modify, should you need an equation, are highlighted in yellow. More than one example is provided to give you an idea of a variety of

possible equations and how they might look. Feel free to modify these equations or add additional ones, should you need any.

```

%
% Subheading 3 (remove/add as needed)
\vspace{-0.4em} % This line is added to preserve the double-spaced
environment since the \section command adds an extra space
%
\textcolor{red}{\section*{Subheading 3 (remove/add as needed)}}

\vspace{-0.4em} % This line is added to preserve the double-spaced
environment since the \section command adds an extra space

\indent \indent The following format is recommended to be used to display
equations:

% Here are various examples of equations and how they are labeled
%
% Here's one equation (Eq. 1)
\begin{equation} \label{Equ.2.1}
y=c_1\cos(t)+c_2\sin(t)
\end{equation}

%
% Here's another equation (Eq. 2)
\begin{equation} \label{Equ.2.2}
e^{it}=\cos(t)+i\sin(t)
\end{equation}

\indent \indent Equation \ref{Equ.2} is the general solution to the
differential equation $y'+y=0$. In the source code, the \textit{ref}
command allows you to refer to an equation by a label you created.
References must be made after the equation has been created; attempting to
refer to an equation before it is defined results in a question mark
placeholder. Some more sample equations are below. Notice the first set
below is not numbered (this is usually done when you are writing a
mathematical proof or solution, where a series of equations are used.
These equations should not be numbered).
%%
\begin{align*}
\log(x^n) &= \log(x \cdot x \cdot \dots \cdot x) \\
&= \log x + \log x + \dots + \log x \\
&= n \log x
\end{align*}
%

```

Figure 22c. Section 1, Subheading 3 of the Source Code for the Methods File

```

\begin{equation} \label{Equ.2.3}
x^T X \mathbf{u} = x^T \mathbf{y}
\end{equation}

%
\begin{equation} \label{Equ.2.4}
u(x, t) = \int_{-\infty}^{\infty} G(x, \tau) \exp\left(-\frac{(t-\tau)^2}{4kt}\right) d\tau
\end{equation}

%
\begin{gather}
\mathcal{L}\{f\} = \int_0^{\infty} e^{-st} f(t) dt \\
\begin{split} \label{Equ. 5}
\end{split}
\end{gather}

```

```

\mathcal{F}(f) = \frac{1}{2\pi i} \int_{-\infty}^{\infty} e^{i \omega x} f(x)
\ dx
\end{split}
\end{gather}

\indent \indent You can use labels to refer to equations you create.
\ref{Equ.2.5} is the \textbf{Laplace transform} used extensively in
differential equations. \ref{Equ.2.3} is the matrix representation of the
\textbf{normal equations} used in least-squares regression.

\indent \indent To have equations without labels appearing the right
margin, simply add an asterisk to the name of the environment (equation,
align, etc.) when making the declaration.

```

Figure 22c (continued). Section 1, Subheading 3 of the Source Code for the Methods File

10-Chapter3.tex

This file contains the code that will control the appearance of your results section. See the following steps regarding correctly modifying this section:

1. **Section 0: Remove the highlighted part in Figure 23 if you are satisfied with the designation “Results”** (If not, you can replace “Results” with another appropriate designation). Otherwise, no further changes are needed in this section (**Figure 23**).

```

% _____ (0) _____
% THIS LINE PUTS "CHAPTER 3. RESULTS" AT THE TOP OF THE PAGE, BOLD-FACED
% AND 14-PT
\chapter{RESULTS}

```

Figure 23. Section 0 of the Source Code for the Results File

2. **Section 1: Add the text for the results.** Replace the highlighted sections in **Figure 24a** with the text for the results. Additionally, do not forget to double indent (by inserting the command `\indent` twice) to each newly added paragraph, so the appearance of the paragraphs in the recompiled pdf is formatted correctly.
 - a. Under subheading 1 in **Figure 24a**, there is an example about how to enumerate a list of items. To enumerate, use `\enumerate` function as seen in **Figure 24a**. In this subheading, you only need to modify the parts highlighted in yellow and/or add more paragraphs. If you need to add more items to your list, copy the row that is in the red square brackets and modify accordingly. If you need to add an additional list, copy the entire section enclosed in the purple curly brackets and modify accordingly.

```

% _____ (1) _____
% THIS IS THE SECTION WHERE YOU TYPE IN THE TEXT RELATED TO YOUR RESULTS.
% NOTICE THE DOUBLE \indent COMMAND THAT PROPERLY INDENTS THE BEGINNING OF
% EACH PARAGRAPH
% Starting Paragraph One

```

```

\indent \indent Paragraph one starts here. If you want to break up your
paragraphs into more sections, you can use first order, second order or
third order subheadings.
\\
\indent \indent Feel free to add more Chapters as necessary, but don't
forget to include the Chapter Headings as seen at the top of this page.
Also remember that all new Chapters should begin at the top of their own
pages and be included in the Table of Contents.

%
% _____
% Subheading 1 (remove/add as needed)
\vspace{-0.4em} % This line is added to preserve the double-spaced
environment since the \section command adds an extra space
\section*{Subheading 1 (remove/add as needed)}
\vspace{-0.4em} % This line is added to preserve the double-spaced
environment since the \section command adds an extra space

```

Figure 24a. Section 1, Subheading 1 of the Source Code for the Results File

```

\indent \indent If you need to enumerate some ideas, the
\textit{enumerate} environment can be used to generate an ordered list.
The following example illustrates how to do so:
\vspace{-2em}

```

```

\begin{singlinspace}
\begin{enumerate}
[ \item This is item number one. ]
\item This is item number two.
\item This is item number three.
\item This is item number four.
\end{enumerate}
\end{singlinspace}
\vspace{-1em}
%
%

```

Figure 24a (continued). Section 1, Subheading 1 of the Source Code for the Results File

- b. Under subheading 2 in **Figure 24b**, there is an example about how to attach a figure (marked by the purple square brackets). The only sections you need to modify, should you need a figure, are the name of the file (highlighted in yellow and underlined in purple) that you intend to import from the **figures** folder and the caption of the figure (also highlighted in yellow and underlined in purple). Remember, the figures that you intend to import must be in the **figures** folder.

```

%
% _____
% Subheading 2 (remove/add as needed)
\section*{Subheading 2 (remove/add as needed)}
\vspace{-0.4em} % This line is added to preserve the double-spaced
environment since the \section command adds an extra space

```

```

\indent\indent Here are some more examples of figures in this section
({\bf Figures 2-3}). Make sure you always reference your figures in the
body text.

```

```

\begin{figure}[h!]
  \centering
  \includegraphics[width = 6.0in]{LowPass_Filter_Design.png}
  \caption{A low pass filter design.}
\end{figure}

\begin{figure}[h!]
  \centering
  \includegraphics[width=6.5in]{Filter1.png}
  \caption{A signal and the result after a basic
  filter. The FFT was used to create the plot on the right.}
\end{figure}

```

Figure 24b. Section 1, Subheading 2 of the Source Code for the Results File

11-Chapter4.tex

This file contains the code that will control the appearance of your conclusion section. See the following steps to correctly modifying this section:

1. **Section 0: Remove the highlighted parts seen in Figure 25 if you are satisfied with the designation “Conclusion”.** (If not, you can change “Conclusion” to another appropriate designation). Otherwise, no further changes are needed in this section.

```

% _____(0)_____
% THIS LINE PUTS "4. CONCLUSION" AT THE TOP OF THE PAGE, BOLD-FACED AND
% 14-PT
\chapter{CONCLUSION}

```

Figure 25. Section 0 of the Source Code for the Conclusion File

2. **Section 1: Add the text for the conclusion.** Replace the highlighted sections in **Figure 26** with the text for the conclusion. Additionally, do not forget that for each new paragraph you enter, double indent (by inserting the command `\indent` twice so that the appearance of the paragraphs in the recompiled pdf is formatted correctly.

```

% _____(1)_____
% THIS IS THE SECTION WHERE YOU TYPE IN THE TEXT RELATED TO YOUR
% CONCLUSION. NOTICE THE DOUBLE \indent COMMAND THAT PROPERLY INDENTS THE
% BEGINNING OF EACH PARAGRAPH
\section{Conclusion Subheading}

\indent \indent Paragraph one starts here. If you want to break up your
paragraphs into more sections, you can use first order, second order or
third order subheadings.

```

Figure 26. Section 1 of the Source Code for the Conclusion File

3. **Section X:** Section X adds another first order subheading to the table of contents (just for demonstration purposes). If you have another first order subheading in your conclusion, copy and paste the highlighted part of **Figure 27**.

```
% _____ (X) _____  
% THIS SECTION IS JUST AN EXAMPLE OF HOW TO ADD FIRST ORDER SUBHEADINGS TO THE  
TABLE OF CONTENTS. IF YOU DO HAPPEN TO HAVE/NEED MORE SUBHEADINGS IN THIS  
SECTION, MAKE SURE YOU ADD THE LINE OF CODE BELOW (PER SUBHEADING) TO THE  
APPROPRIATE SECTION IN YOUR CODE, SIMILAR TO HOW IT IS DEMONSTRATED IN THE  
METHODS AND RESULTS SECTIONS.  
  
% \section{Another Subheading}
```

Figure 27. Section X of the Source Code for the Conclusion File

4.4 Required References Page

12-References.bib

This file is a “bib” file that can be directly imported from EndNote. To add your references to your thesis, you can either import your references from EndNote under the file name “MyReference.bib” and use it to replace the bib file in *Overleaf*, or you can click on the **11-MyReference** file and manually modify the fields for your references (and add more if need be). An example of the fields you will be modifying are provided in **Figure 28**. *Overleaf* will subsequently compile the references into IEEE format.

```
@article [einstein],
  Title           = {{Zur Elektrodynamik bewegter K{"o}rper}. ((German))
                  [{On} the electrodynamics of moving bodies]},
  Author          = {Albert Einstein},
  Journal         = {Annalen der Physik},
  Year            = {1905},
  Number          = {10},
  Pages           = {891--921},
  Volume         = {322},

  Doi             = {http://dx.doi.org/10.1002/andp.19053221004}
}
```

Figure 28. An example for a reference from the *References.bib* file

Note: Keep in mind that for each reference, you will need to designate a “name” for it, which will be used to cite your reference/article (which is between the two red square brackets in **Figure 28**). As seen in the introduction, we are using “einstein” as the designated name (any name could have been used) for this reference so that when it is cited in text, that name can be used instead of the title of the entire article/reference.

4.5 Optional Appendices

13-Appendix.tex

This file contains the code that will control the appearance of your appendix, should you choose to have one. If not, you can comment this entire section. Otherwise, you can use the instructions from the previous sections to modify/add parts to the appendix. If you need more than one appendix, right-click on the **data** folder on the left-hand side and click on **New File**. Name it Appendix B: Title. Make sure to include it in your compiler file **2223URSTemplate** as well. Figures, tables, and equations in Appendix A must be labeled as A.1, A.2, etc. Figures, tables, and equations in Appendix B must be labeled as B.1, B.2., and so on.

Appendix A: Glossary

Instructions: Provide clear and concise definitions for terms used in this document that may be unfamiliar to readers of the document. Terms are to be listed in alphabetical order.

Table 1 - Glossary

Term	Definition
<code>\addcontentsline{toc}</code>	Adds designated section to the table of contents
<code>\bf</code>	Bold-faces designated text
<code>\chapter</code>	Designates chapter and adds corresponding to the table of contents
<code>\color</code>	Changes color of the section/text
<code>\documentclass</code>	Determines the font and the type of document
<code>\hspace</code>	Controls the magnitude of horizontal spacing
<code>\include</code>	Adds new pages/sections to the master document
<code>\indent</code>	Indents text
<code>\large</code>	Enlarges font to 14 pt
<code>\MakeUpperCase</code>	Capitalizes text
<code>\pagenumbering</code>	Controls page numbering of the master document
<code>\pagestyle</code>	Controls the style of page
<code>\textcolor</code>	Changes the color of the section/text
<code>\usepackage</code>	Imports various code packages
<code>\vspace</code>	Controls the magnitude of vertical spacing