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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 Undergraduate Research Scholars Thesis Manual & Policy Guide, which can be found here. The Undergraduate Research Scholars Thesis Manual & Policy Guide is 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 Undergraduate Research Scholars Thesis Manual & Policy Guide has 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 Collection at OAKtrust.

1.2 URS Program Requirements and Expectations

- Attend all Mandatory Events (Orientation and Thesis Formatting Workshop)
- Respond to program emails within 2 business days
- Receive Research Compliance Approval (if applicable to your project) by February 24, 2020
- Submit/receive approval for the First, Second, and Third Installment Submission and Progress Report assignments in eCampus
- Make a Public Presentation at an approved venue
- Submit/receive approval for the Presentation Report in eCampus
- Submit/receive approval for the Final Thesis in eCampus 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, as well as 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 http://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.

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 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 advised. 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 program’s website. 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 primary thesis manual and policy 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. Please do not change the formatting in the URS *Overleaf* template except for the modifiable sections designated within this manual.

d. Please be aware that while the URS *Overleaf* template was modified from the template provided by OGAPS 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 [here](#).

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
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](image-url)
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](image)

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](image)
2. 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.
3. 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](image)

4. 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 **1920URSTemplate** 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 **1920URSTemplate.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-ToC
- 03-Abstract

4.2 Optional Preliminary Pages

- 04-Dedication
- 05-Acknowledgments
- 06-Nomenclature

4.3 Required Body Text

- 07-Chapter1
- 08-Chapter2
- 09-Chapter3
- 10-Chapter4

4.4 Required References Page

- 11-References

4.5 Optional Appendices

- 12-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 pertain to the red text. 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.

   ```latex
   \providecommand{\tabularnewline}{\\\
   \begin{titlepage}
   % This command puts the text in the center
   \begin{center}
   \end{center}
   \end{titlepage}
   ```

   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 1920URSTemplate 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 “\textit{tamudegree}” taken from the 1920URSTemplate 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 Primary Faculty Advisor’s Name” is where you will insert your advisor’s name. If you have a co-advisor/secondary advisor, then go ahead and add his/her 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) 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{tabular}{l}
\textbf{Approved by Research Advisor:} & \textbf{hspace{3cm}} Dr. \textcolor{red}{{\textbf{[Insert Primary Faculty Advisor's Name]}}} \hspace{3cm} \textbf{\textcolor{red}{}\textbf{[Insert Secondary Faculty Advisor's Name]}}} \\
\end{tabular}
\begin{flushright}
\end{tabular}
\begin{flushright}
\end{tabular}

\vspace{4em}

\textbf{Figure 7.} Section 5 of the Source Code for the Title Page File

After adding the relevant information, delete the command \textcolor{red}{} so that text no longer appears red in the pdf upon recompiling.

7. \textbf{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 1920URSTemplate.

\textbf{02-ToC.tex}

This file contains the code that will control the appearance of your table of contents (ToC). You will \textit{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.

\textbf{03-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. \textbf{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. \textbf{Section 1: Edit the title of the abstract}. You will need to update the text that is highlighted in \textbf{Figure 8} without modifying the formatting. In other words, you will just be replacing the text between the two square brackets “Insert Your Title Here, Capitalizing the First Letter of Each Word as Needed, If Title Goes on Two or More
Lines, Make Sure it Stays Single-spaced” with your abstract title. Do NOT delete the double slash, since that ensures long abstract titles are divided into two lines.

\begin{singlespace}
\begin{center}
\textcolor{red}{\[Insert Your Title Here, Capitalizing the First Letter of Each Word as Needed, If Title Goes on Two or More Lines, Make Sure it Stays Single-spaced]\}}\\
\vspace{2em}
\end{center}
\end{singlespace}

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

After adding the relevant information, delete the command \textcolor{red}\{} so that text no longer appears red in the pdf upon recompiling.

3. \textbf{Section 2: Replace the highlighted text in Figure 9} with your name and the name of your department.

\begin{center}
\textcolor{red}{\[Insert Your Name\]}\\
Department of \textcolor{red}{\[Insert Your Department Name\]}\\
Texas A\&M University
\vspace{2em}
\end{center}

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

After adding the relevant information, delete the command \textcolor{red}\{} so that text no longer appears red in the pdf upon recompiling.
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 Advisor: Dr. \textcolor{red}{{[Insert Your Faculty
Advisor\textsc{\char39}s Name]}}
\\Department of \textcolor{red}{{[Insert Your Faculty
Advisor\textsc{\char39}s Department]}}
\\Texas A\&M University
\vspace{2em}
\end{center}
\end{singlespace}

\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

After adding the relevant information, delete the command \textcolor{red}{} so that text no longer appears red in the pdf upon recompiling.

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 350 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.
\% % 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

\color{red} % This makes the whole text red. You can remove it (along with its closing bracket ")") once your ABSTRACT is finalized to make the text black again.

\indent \indent The text of the Abstract is double-spaced. Follow the same margin settings as your narrative text, as well as the same left alignment and paragraph indentations. The Abstract is the first numbered page in your thesis; page numbering has already been formatted for your convenience. Try not to let your abstract exceed this one page.

\indent \indent Recommended length of text is no more than 350 words. Vertical spacing is double spaced. The content of this Abstract provides a complete, succinct snapshot of the research, addressing the purpose, methods, results, and conclusions of the research. As a result, it should stand alone without any formal citations or references to chapters/sections of the work. To accommodate with a variety of online database, images or complex equations should also be avoided.

\}

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

After adding the relevant information, delete the command \{\color{red}\} along with its closing bracket (which are underlined and marked by an arrow in red respectively in Figure 11) so that the text no longer appears red in the pdf upon recompiling.
4.2 Optional Preliminary Pages

04-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.

```latex
% THIS LINE PUTS "DEDICATION (THIS PAGE IS OPTIONAL)" AT THE TOP OF THE PAGE, BOLD-FADED AND 14-PT
\chapter*{\large\bf DEDICATION \textcolor{red}{{\{THIS PAGE IS OPTIONAL\}}}}
% THIS LINE ADDS THE DEDICATION TO THE TABLE OF CONTENTS
\addcontentsline{toc}{chapter}{DEDICATION \textcolor{red}{{\{OPTIONAL\}}}}
```

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

2. **Section 1: 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.

```latex
\% THIS IS THE SECTION WHERE YOU TYPE IN THE TEXT RELATED TO YOUR
\% DEDICATION. NOTICE THE DOUBLE indent COMMAND THAT PROPERLY INDENTS THE
\% BEGINNING OF EACH PARAGRAPH

{\color{red}} \% This makes the whole text red. You can remove it (along
\% with its closing bracket \}) once your DEDICATION is
\indent\indent% This is the section where you type in the text related to your
\indent\indent\% finalized to make the text black again.

\indent\indent% The dedication page is optional and must be placed directly
\indent\indent\% after the Abstract Page (page 1). The heading is in 14-point font and
\indent\indent\% bold, followed by an empty double-spaced line. The text in the Dedication
\indent\indent\% is limited to one page and is in the same font size and style as the other
\indent\indent% text in the thesis.\%
\indent\indent\% Paragraph two begins here.
```

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

After adding the relevant information, delete the command `{\color{red}}` along with its closing bracket (underlined and marked by an arrow in red respectively in **Figure 13**) so that the text no longer appears red in the pdf upon recompiling.
05-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.

   ```latex
   \chapter*{\large\bf ACKNOWLEDGMENTS \textcolor{red}{(THIS PAGE IS OPTIONAL)}}
   \addcontentsline{toc}{chapter}{ACKNOWLEDGMENTS \textcolor{red}{(OPTIONAL)}}
   % This line adds the acknowledgments to the table of contents. 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. **Section 1: 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.

   ```latex
   % This is the section where you type in the text related to your acknowledgement. Notice the double indent command the properly indents that beginning of each paragraph
   % This makes the whole text red. You can remove it (along with its closing bracket "") once your ACKNOWLEDGMENT is finalized to make the text black again.
   \indent \indent \textcolor{red}{\% Example: I would like to thank my committee chair, Dr. Smith, and my committee members, Dr. Jones, Dr. Morton, Dr. Anderson, and Prof. Benner, for their guidance and support throughout the course of this research.}

   \indent \indent \textcolor{red}{\% Thanks also go to my friends and colleagues and the department faculty and staff for making my time at Texas A\&M University a great experience. I also want to extend my gratitude to the National Education Foundation, which provided the survey instrument, and to all the Texas elementary teachers and students who were willing to participate in the study. \% use A\&M instead of A$\&$M, not use $A\&$M as well, the last one won't be bold.}

   \indent \indent \textcolor{red}{\% Finally, thanks to my mother and father for their encouragement and to my wife for her patience and love.}
   ``

   **Figure 15.** Section 1 of the Source Code for the Acknowledgments File
After adding the relevant information, you may delete the command \textcolor{red}{} along with its closing bracket (which are underlined and marked by an arrow in red respectively in Figure 15) so that the text no longer appears red in the pdf upon recompiling.

06-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: Remove the highlighted parts seen in Figure 16.** Otherwise, no further changes are needed in this section.

\begin{verbatim}
\chapter*{NOMENCLATURE \textcolor{red}{(THIS PAGE IS OPTIONAL)}}
\addcontentsline{toc}{chapter}{NOMENCLATURE \textcolor{red}{(OPTIONAL, CAN BE RENAMED)}}
\end{verbatim}

*Figure 16. Section 0 of the Source Code for the Nomenclature File*
2. **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.

```latex
\begin{longtable}{ll}
B/CS & Bryan and College Station \\
TAMU & Texas A&M University \\
HSUS & Humane Society of the United States \\
P & Pressure \\
T & Time \\
FFT & Fast Fourier Transform \\
TVA & Tennessee Valley Authority \\
TxDOT & Texas Department of Transportation \\
O&M & Eller Oceanography and Meteorology Building \\
L^1 & Space of absolutely Lebesgue integrable functions; i.e., \( \int |f| < \infty \) \\
L^2 & Space of square-Lebesgue-integrable functions, i.e., \( \int |f|^2 < \infty \) \\
PC(S) & Space of piecewise-continuous functions on \( S \) \\
\end{longtable}
```

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

After adding the relative information, you may delete the command `{\color{red}}` along with its closing bracket (which are underlined and marked by an arrow in red respectively in Figure 17) so that the text no longer appears red in the pdf upon recompiling.
4.3 Required Body Text

07-Chapter1.tex

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

1. **Section 0: Remove the highlighted parts seen in Figure 18** if you are satisfied with the designation “Chapter”. If not, you can change it to another appropriate designation. Otherwise, no further changes are needed in this section.

   \%___________________________(0)___________________
   \% THIS LINE ADDS "CHAPTER (OR OTHER MAJOR SECTION DESIGNATION)" TO THE TABLE OF CONTENTS
   \addtocontents{toc}{\vspace{1em} CHAPTER \textcolor{red}{(OR OTHER MAJOR SECTION DESIGNATION)}}

   \% THIS LINE PUTS "CHAPTER I INTRODUCTION" AT THE TOP OF THE PAGE, BOLD-FACED AND 14-PT
   \chapter*{\large\bf CHAPTER I \vspace{0.5em} \\ INTRODUCTION}

   \% THIS LINE ADDS THE INTRODUCTION TO THE TABLE OF CONTENTS
   \addcontentsline{toc}{chapter}{\hspace{1em} I. \hspace{2em} 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.

   \%__________________________________
   \% 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
   \color{red} % This makes the whole text red. You can remove it (along with its closing bracket ") once your INTRODUCTION is finalized to make the text black again.

   \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 (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
% THIS LINE ADDS THE FIRST ORDER SUBHEADING TO THE TABLE OF CONTENTS
(REMOVE/ADD AS NEEDED)
\addcontentsline{toc}{section}{\hspace{4em} \textcolor{red}{Subheading 1 (remove/add as needed)}}

\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{\textcolor{red}{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)}
\%
\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}.

\textbf{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.

\begin{verbatim}
\%____________________________________\(X\)____________________________________\n\% 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.
\% THIS LINE ADDS ANOTHER FIRST ORDER SUBHEADING TO THE TABLE OF CONTENTS
\hspace{4em} %\textcolor{red}{(remove/add as needed)}
\end{verbatim}

\begin{figure}
\centering
\caption{Section X of the Source Code for the Introduction File}
\end{figure}

After adding the relevant information, delete the command {\color{red}} along with its closing bracket (which are underlined and marked by an arrow in red respectively in Figures 19, 20) so that the text no longer appears red in the pdf upon recompiling.

**08-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 other than deleting the command \textcolor{red}, so that the text no longer appears red in the pdf upon recompiling (underlined in red in the following figure).

\begin{verbatim}
\%____________________________________(0)____________________________________
\% THIS LINE PUTS “CHAPTER II METHODS” AT THE TOP OF THE PAGE, BOLD-FA CED AND 14-PT
\hspace{1em} \textcolor{red}{METHODS}
\end{verbatim}

\begin{figure}
\centering
\caption{Section 0 of the Source Code for the Methods File}
\end{figure}

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.

\begin{figure}[H]
\centering
\includegraphics[scale=0.55]{UnemDiffACF.png}
\caption{The autocorrelation function (ACF) of the differenced unemployment series. Seasonal adjustments may be needed.}
\end{figure}

Figure 22a. Section 1, Subheading 1 of the Source Code for the Methods File
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}{\section*{Subheading 2 (remove/add as needed)}}}
\indent\indent Here is an example of a properly formatted table and table title (\textbf{Table 1}):

\begin{table}[h!]
\caption{\textcolor{red}{Example of a properly formatted table and title}}
\centering % This centers it
\label{table:1}
\begin{tabular}{|l|l|l|l|}
\hline
% Each "|" corresponds to a column in the table. % Hence, the total number of "|" corresponds to % the number of columns your table will have.
\textbf{Heading 1} & \textbf{Heading 2} & \textbf{Heading 3} & \textbf{Heading 4} \\
\hline
\textcolor{red}{Content example.} & \textcolor{red}{Content example.} & \textcolor{red}{Content example.} & \textcolor{red}{Content example.} \\
\textcolor{red}{Content example.} & \textcolor{red}{Content example.} & \textcolor{red}{Content example.} & \textcolor{red}{Content example.} \\
\hline
\end{tabular}
\end{table}

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

\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
% THIS LINE ADDS ANOTHER FIRST ORDER SUBHEADING TO THE TABLE OF CONTENTS (REMOVE/ADD AS NEEDED)
\addcontentsline{toc}{section}{hspace{4.2em}\textcolor{red}{Subheading 3 (remove/add as needed)}}

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}

\begin{equation} \ref{Equ.2.1} \text{is the general solution to the differential equation} \ y''+y=0. \ \text{in the source code, the} \ \texttt{ref} \ \text{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.}

% \begin{align*} \log (x^n) &= \log (x \cdot x \cdot x \cdot \ldots) \\
 &= \log x + \ldots \log x + \log \ldots + \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{y} = \mathbf{u} 
\end{equation}

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

\begin{align} 
\mathcal{L}(f) &= \int_{0}^{\infty} e^{-st} f(t) \, dt \\
\mathcal{F}(f) &= \frac{1}{2\pi} \int_{-\infty}^{\infty} e^{i\omega x} f(x) \, dx 
\end{align} \label{Equ.2.5}

You can use labels to refer to equations you create. \ref{Equ.2.3} is the \textbf{normal equations} used in least-squares regression.

\ref{Equ.2.4} is the matrix representation of the \textbf{Laplace transform} used extensively in differential equations.

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.

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

After adding the relevant information, delete the command \textcolor{red}{}, along with its closing bracket (which are underlined and marked by an arrow in red respectively in \textbf{Figures 22a, c}) so that the text no longer appears red in the pdf upon recompiling.

\textbf{09-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 other than deleting the command \textcolor{red}{}, so that the text no longer appears red in the pdf upon recompiling (underlined in red in \textbf{Figure 23}).
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 the `\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.

   ![Figure 24a. Section 1, Subheading 1 of the Source Code for the Results File](image-url)
\indent \indent \textbf{If you need to enumerate some ideas, the} \texttt{\begin{enumerate}} \texttt{environment can be used to generate an ordered list.} \texttt{The following example illustrates how to do so:} \texttt{\vspace{-2em}}

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

\texttt{\vspace{-1em}}

\texttt{\%}
\texttt{\%}

\texttt{\textbf{Figure 24a (continued).} Section 1, Subheading 1 of the Source Code for the Results File}

\indent \indent \texttt{b. Under subheading 2 in} \texttt{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} \texttt{figures} \texttt{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} \texttt{figures} \texttt{folder.}

\texttt{\%}
\texttt{\%}

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

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

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

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

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

\texttt{\textbf{Figure 24b.} Section 1, Subheading 2 of the Source Code for the Results File}
After adding the relative information, delete the command `{\color{red}}` along with its closing bracket (which are underlined and marked by an arrow in red respectively in Figures 24a, b) so that the text no longer appears red in the pdf upon recompiling.

10-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 "CHAPTER IV CONCLUSION" AT THE TOP OF THE PAGE, BOLD-FACED AND 14-PT
   \chapter*{\large\bf CHAPTER IV \vspace{0.5em} \ Conclusion}

   % THIS LINE ADDS THE CONCLUSION TO THE TABLE OF CONTENTS
   \addcontentsline{toc}{chapter}{\vspace{1.0em} \hspace{1.0em} IV. \hspace{2em} Conclusion}

   %_________________________________(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

   {\color{red} % This makes the whole text red. You can remove it (along with its closing bracket "\") once your CONCLUSION is finalized to make the text black again.
   \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 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

   {\color{red} % This makes the whole text red. You can remove it (along with its closing bracket "\") once your CONCLUSION is finalized to make the text black again.
   \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**.

\begin{verbatim}
% 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.
% THIS LINE ADDS THE FIRST ORDER SUBHEADING TO THE TABLE OF CONTENTS (REMOVE/ADD AS NEEDED)
\addcontentsline{toc}{section}{\hspace{4.2em} \textcolor{red}{Subheading 1 (remove/add as needed)}}

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

\textbf{Figure 27.} Section X of the Source Code for the Conclusion File

After adding the relevant information, you may delete the command \{\textcolor{red}\} along with its closing bracket (which are underlined and marked by an arrow in red respectively in **Figures 26-27**) so that the text no longer appears red in the pdf upon recompiling.
4.4 Required References Page

11-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.

```latex
@article[einstein],
  Title = {{Zur Elektrodynamik bewegter Körper}. ({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

12-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, or any other designation of preference. Make sure to include it in your compiler file 1920URSTemplate as well.
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

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