



Lab 08: TeX

When Documents Contain Equations

INTRODUCTION

You are certainly aware of technical documents, even if you have never written or published a white paper, technical brief, or peer-reviewed journal article. You have likely used a word processor to write lab reports for previous physics or chemistry classes, and you may have experience using the equation editor to insert a formula into an otherwise standard document.

You already know that when you use a word processor, the style of the document you produce can be easily customized with a few mouse clicks. However, when it comes to creating a complex document containing formulae, figures, tables, footnotes, endnotes, indexes, and bibliographies, the specific style of the document will depend on the publication. Customizing a style template in a word processor is all about clicking your preferred font, sizing your margins, etc. You never actually see what's going on under the hood (the markup language), and you may not be able to easily customize the template you need with the word processor you have.

If you have programmed HTML (or looked at a web page's source code), then you know what a markup language is, and you probably remember many of the basic tags for formatting text output on a web page, like `bold italic` = ***bold italic***.

TeX (pronounced tek) dates back to the late 1970s, and has been the markup language favored for technical publications for several decades. Like any programming language, it is platform independent, and the output produced is uniform regardless of what sort of computer you typed your source code on. However, it is a programming language, and as such requires a compiler to interpret the commands. There are many open-source TEX distributions available for PC, OSX, Unix, Linux, and as you gain proficiency, you may want to download, compare, and select a distribution that feels comfortable. To get started, we will be using Overleaf, which is online and browser-based. Nothing to download or install! Straight down to business!

OBJECTIVES

The specific goals for this exercise are:

- **Create** an Overleaf account
- **Complete** the online Overleaf tutorial
- **Construct** a simple TEX document using a template
- **Learn** commands by compiling and debugging source code
- **Practice** exporting and submitting work electronically

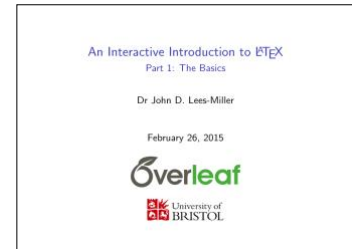
PRE-LAB PROCEDURE

1. **Always use a stable, reliable browser.** You have probably noticed that Firefox and Chrome are frequently recommended for security and stability, while certain other browsers have notoriously poor reputations.
2. **Navigate to Overleaf.** Go to <https://www.overleaf.com> and click Pricing. Choose the Special Price Student Plans, pick the free option, and create an account for yourself. This is something you should do before coming to class.

3. **Take the tour.** Navigate to <https://www.overleaf.com/tutorial>, and you will see a brief 3-minute video giving you the basics of the workspace you will be using. Please take a moment to view it (this must be done before class time).

IN-LAB PROCEDURE

4. **Open the tutorial.** On the same page (in fact, just above the video window), you will find a link to the Interactive Introduction tutorial. Alternately, you can navigate directly to:



<https://www.overleaf.com/latex/learn/free-online-introduction-to-latex-part-1>.

5. **Begin the tutorial.** As you proceed through the slides, you will notice two **Typesetting Exercises**. Where it says, "Click to open this exercise in Overleaf," please click. It opens a workspace for you in Overleaf with sample source code.
6. **Edit the source code.** There are two **Typesetting Exercises** embedded in Part 1 that you must complete. Please complete each exercise by editing the provided source code. Toggle back and forth between the tutorial slides and your workspace to check syntax.
7. **Decipher your errors.** The compiler will almost continuously try to compile and display in the Preview window. Chances are you have errors (you're supposed to at this point!) and there is no preview being displayed. Read your error messages! Sure, they make no sense now, but pay attention to what you are fixing, and how the messages change.
8. **Learn your workspace.** Start to teach yourself what the buttons do. Click without fear! There are also numerous video tutorials (<https://www.overleaf.com/help/category/video-tutorials>) to help you with many **LATEX** basics. Reference them as you feel you need them.
9. **Download the .zip file.** When you have completed the first exercise and it has compiled properly (no error messages, and the preview looks correct), download your project. Click the **Menu** pull-down in the top left corner, then choose the **Download Source** button. Rename your **.zip** file **lastnameLAB08A.zip**, using your own last name. Repeat when you complete the second exercise, downloading and renaming it **lastnameLAB08B.zip**.
10. **Proceed to Part 2:** After you complete Part 1, move on to Part 2: <https://www.overleaf.com/latex/learn/free-online-introduction-to-latex-part-2>. There is a **Structured Documents Exercise** for you to complete. Save the source code **.zip** file as **lastnameLAB08C.zip**.
11. **Submit the .zips!** Please be sure to use the proper filenames and submit the **.zip** files via the appropriate Blackboard Assignment. Please do not send the compiled **.pdf** document files! Make sure you send only the **.zip** files with the original source code.

GRADING

This is a make-up lab. If you have submitted all eight labs, you do not have to complete this exercise.

Submit your three **.zip** files no later than **6:00 PM on Tuesday, 02 April 2024**. Remember to submit using the appropriate Blackboard Assignment. You will receive full credit (10 points each) for submitting all three completed tutorial files on time.