Basic LaTeX: An Introduction to Typesetting Using LaTeX

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1 Instructor Information

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2 Course Description

This course will introduce you to the typesetting and document preparation tool LaTeX. We will go over some basic typesetting tasks, some important concepts, and a few use cases, as well as some more advanced topics. You will also learn how to search for and read LaTeXdocumentation for packages you may find useful.

3 Materials

You will need a tablet or laptop you are comfortable typing on.

4 Attendance and Participation

Be prepared and attend every class. If you cannot make a meeting please contact me ahead of time and we will work something out. Otherwise, absences will result in a point deduction. STEP credit is based on attendance, but I encourage you to participate and do assignments so that you have practice using LaTeX.

5 Assignments

My goal for you is for you to prepare a well-formatted document on a topic of your choice by the end of this program. Each week will have a small assignment for you to do either during the meeting time or outside of class. The purpose of these assignments is to keep you on track for your final document.

6 Grading

Attendance/Participation:	35 (5 per class)
Homework:	30 (5 per assignment)
Final Document:	35

7 Topics

Week 1. What is LaTeX?

1. Why use LaTeX?
2. Creating an Overleaf account or installing a local distribution

Week 2. Basic typesetting in LaTeX

1. Paragraphs and newlines
2. Bold, italics, and underlined text
3. Pictures, figures, and captions
4. Lists and tables
5. Document layout and sections

Week 3. Packages, commands, and environments

1. The document preamble
2. Common packages
3. Environments and commands
4. Creating your own environments and commands

Week 4. Use case: mathematical, scientific, and technical writing

1. Math: inline and display math, `equation` and `align` environments
2. Math: packages `amsthm`, `amsmath`, and `amssymb`
3. Computer Science: packages `listings` and `minted`
4. Statistics and Data Analytics: package `knitr`
5. Chemistry: package `chemfig`

Week 5. Use case: bibliographies and references

1. Package `biblatex`
2. Packages `bibtex` and `natlib`

Week 6. Use case: making a presentation

1. Package `beamer`
2. Package `powerdot`
3. Package `poster`

Week 7. Using TikZ

1. Points, lines, paths
2. Geometric shapes
3. Diagrams
4. Subpackages