PHY224 TeX Template/Guide

1   Introduction

Your introduction goes here. It should include equations. Here's an equation. Making nice equations is the single biggest reason to use TeX.

$$\theta(t) = \theta_0 \; e^{-t/\tau} \cos\left(2\pi\frac{t}{T} + \phi_0\right) \tag{1}$$

The label command lets you refer to it; typing `Equation \ref{DampedHarmonic}` will give you Equation 1. The equation number will update based on what order your equations are in, so there's no need to renumber all your equations and equation references every time you rearrange them!

Note that you can also put equations in a paragraph using math mode, with dollar signs (`$y(x)=mx+b$` to get $y(x) = mx + b$). You cannot reference them though. Variables (x, y, etc.) should be typed in math mode, i.e. with dollar signs around them. You'll also need the dollar signs to type Greek letters (e.g. `\pi` to get π, `\phi` to get ϕ, etc.).

Here are some other equations:

$T = T_0(1 + B\theta_0 + C\theta_0^2 + \ldots)$
$Q = \pi\frac{\tau}{T}$
$T = k\,L^n$
$T = 2\sqrt{L}$

Take a look at the code in the .tex file to see how the fractions, subscripts, etc. are made.

Note that the `\\` command forces a new line (simply pressing enter won't work). The ~ symbol forces a space, which   can   be   handy.

For a list of mathematical symbols in LaTeX, check out `https://oeis.org/wiki/List_of_LaTeX_mathematical_symbols`.

2   Methods and Procedures

Write your methods and procedures here.

3   Results and Analysis

Section for results and analysis.

3.1   Subsection Title Goes Here

Do you need subsections? Easy. You could even use `\subsubsection{}` if you really want.

Subsection Without Numbering

Want to include a picture? Remove the `\begin{verbatim}` and `\end{verbatim}` commands below, and change `filename.jpg` to your filename. Save your graphs as image files and add them to your report using this method. Note: you won't see these commands in the PDF version. Verbatim changes the font and then writes everything while ignoring any formatting commands other than `\end{verbatim}`. The inline version of verbatim is `\verb`. If you read the .tex document, you'll see I've been using the `\verb` command throughout.

```
\begin{center}
\includegraphics[width=0.35\textwidth]{filename.jpg}
\caption{Your caption goes here}
\end{center}
```

Here's a table:

Section	Due Date	Weight 1	Weight 2
Lab 1: Period vs. Angle and Q Factor	30 Sep 2022	6%	3%
Lab 2: Period vs. Length and Q Factor vs. Length	28 Oct 2022	6%	3%
Final Report	2 Dec 2022	10%	16%

Table 1: Here's where you put the caption.

It usually puts a lot of space under tables. If you want less, you can use the `\vspace{}` command. Negative numbers remove space, positive add space. Similarly, you can use `\hspace{}` if you want horizontal space. This is rarely needed.

4 Conclusion

In conclusion, LaTeX is pretty cool.

A Some More Notes on TeX

Here's how you make something bold. *Here's a way to make something in italics.*

You can make words large or small (or even huge or tiny!).

Note that the % sign makes things a comment. If you want to actually type the % sign, you need to precede it with a \symbol like `\%`.

If you're typing quotation marks, you might notice that typing them normally like you would on Word will "give you something like this." To get the opening quotation marks facing the right way, use backtick symbol ` ` ` instead of the quotation mark symbol " for the opening quotes.

Here's a numbered list of things I hate:

1. Redundancy

2. Misalignment (TeX fixes it though)

3. Irony

4. Numbered lists

Let's repeat this with bullet points:

- Redundancy

- Misalignment

- Irony

- Numbered lists