

# Quizzes using L<sup>A</sup>T<sub>E</sub>X

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## 1 Introduction

L<sup>A</sup>T<sub>E</sub>X (pronounced Lay-Tek) is a computer typesetting language that is particularly good for technical writing. A user of L<sup>A</sup>T<sub>E</sub>X types code in a file with the extension “.tex” and then sends this file to a compiler, which interprets the code and produces an output PDF file (extension “.pdf”).

For working with L<sup>A</sup>T<sub>E</sub>X you will want to use an Integrated Development Environment (IDE), which is a software application that facilitates the process of typing code, sending it to the compiler, and viewing the output. It usually has a split screen with the code on the left and the output on the right and with a button to press for compiling (though some IDE’s compile automatically as you enter code).

I recommend that you use the online IDE called Overleaf. The free version is all that you will need for this course.

## 2 Overleaf

Register for a free account at Overleaf (<https://www.overleaf.com/>).

Click on New Project, choose Blank Project, and call it something like MATH 3100 Quizzes. You will be presented with the start of a document. On the far left you will see main.tex. This is the name of the file that contains the coding. To the right of that you will see the contents of that file, namely, the code. Then to the far right you will see the results of compiling the code.

Experiment a bit. For instance, under the line `\section{Introduction}`, type something like “I am excited about learning `\LaTeX`.” (Note the three uppercase letters in the word LaTeX.) Now click on the Recompile button and see the results on the far right pane. Go back to the code, leave a blank line after your first sentence, and type something else. Recompile. Leaving a blank line begins

a new paragraph, so this new line is indented. The first paragraph of a section is not indented, so the first line is flush left.

There is an easy way to locate the place in the output that corresponds to a place in the code, and vice versa (which is particularly useful for long documents). Click on a word in the first line you typed (in the code) and then click on the right arrow between the panes (the mouseover reads “Go to code location in PDF”). The first sentence in the PDF will be highlighted momentarily. Now, double click on a word in the PDF. The cursor in the code will move to the beginning of the paragraph containing that word.

Use the very tiny  $<$  and  $>$  arrows between the panes to hide and unhide them. Most of the time you will probably want to hide the pane at the far left (the list of files) and have the split screen view with the code on the left and the output on the right. There is a button at the upper right for toggling between the full screen view of the output and the split screen view.

The defaults for the output make the type so small that it is hard to read. Move the mouse toward the upper left of the output until you see a menu appear. Choose the left option “Fit to Width.” (If this has no effect it has probably already been selected.) Also, you can drag the divider between the two panes to the left in order to devote more space to the output. This will make the type larger.

The next step is to learn a little bit about the  $\text{\LaTeX}$  language so that you can start typing mathematics. I have provided a basic  $\text{\LaTeX}$  Primer for this.

### 3 $\text{\LaTeX}$ Primer

Before proceeding, you need to have accepted my invitation to share a Dropbox folder and you need to have installed Dropbox so that you can navigate to the shared folder on your computer.

In the shared folder, inside the subfolder LaTeX, you will find two files: LaTeX-Primer.tex and 3100Quiz.sty. Don’t try to open these files on your computer. Unless you have  $\text{\LaTeX}$  installed, your computer will not know how to open them. (They are actually simple text files, so you could tell your computer to open them using Notepad, for instance, if you wanted.) Instead, upload the files to Overleaf as follows:

At the Overleaf site, make sure that the pane to the far left with the list of files is visible and mouse over the icons at the top of that pane until you find Upload (an up arrow). Click on this. Then click on the green “Select from your computer” button that appears, navigate to the folder on your computer where the files are located, select the two files, and click Open. You should see the two uploaded files in the list at the left. (You can delete the file main.tex at

this point.)

Click on `LaTeXPrimer.tex` to make it the active file. The contents of this file will appear. Now click on `Recompile` to see the results.

You are now ready to read through the primer. It will work best if you focus on the code, looking at the output only when you want to see the effect.

## 4 Preparing quizzes

After I send email announcing when the next quiz is due you will find a template for the quiz (like `Quiz1.tex`) in the `Templates` subfolder of the shared Dropbox folder. Upload the template to your project, click on it to make it the active file, and you will be ready to type your solutions.

## 5 Submitting quizzes

When you have the quiz the way you want it, submit *only the code file* (like `Quiz1.tex`) as follows:

At the upper left, click on the word `Menu` and under `Download` click on `Source` (a ZIP file). In the browser Chrome the link to the downloaded file will appear at the lower left corner of the browser window. Click on the up arrow next to this link and choose `Open`. (In Internet Explorer, look for the download dialog at the bottom of the browser window. Choose `Save`, and then choose `Open`. In Microsoft Edge, just choose `Open`.)

You will see a folder with all of the code files currently in your project. Copy or drag *only the code file* (like `Quiz1.tex`) to the `Submissions` subfolder of the shared Dropbox folder. At that point I will receive notification on my computer that the file has been submitted.

That is all you have to do (except that you might want to do some clean-up by deleting the unused files from your download folder).

## 6 Alternatives

Instead of using Overleaf you might choose to install  $\text{\LaTeX}$  on your computer. This would be desirable if, say, you didn't have access to a fast, reliable Internet connection. For this, I would recommend MiKTeX (<http://miktex.org/download>), which is a free download. MiKTeX is just the compiler, so along with it you would probably want an IDE (see the Introduction). MiKTeX comes with an

IDE, called TeXworks, but there are probably better ones that you can download for free. (I use the IDE called WinEdt provided to me by my department. It's good, but unfortunately it isn't free.)