

Structure

Classes and Packages

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This Presentation

- Structure of \LaTeX document.
- Classes
- Class Options
- Packages
- Package Options

Structure of L^AT_EXdocument

- Let's focus on the source file for documents (.tex).
- Every file has the same structure.
- We will concentrate on the preamble in this presentation and the body in the next.

Structure of L^AT_EX document

```
\documentclass[pdf]{article}  
\usepackage{hhref}  
\author{Trin Turner}  
\institution{Drake University}  
\begin{document}  
\maketitle  
Some part of the body...  
\enddocument
```

- Above is a layout of L^AT_EX commands for a very basic document.

Preamble

- Preamble contains all of the classes and packages for the document.
- Recall the document class command:
 - `\documentclass[options]{class}`
- The first line of every document should be this command.

Class

- The `\documentclass` command tells \LaTeX what type of document you are typing (e.g. an article, book, or slide show).
- Using the `[options]` command is optional, but defining the class is:

Acceptable: `\documentclass{article}`

Acceptable: `\documentclass[a4]{article}`

Not Acceptable: `\documentclass[a4]`

- When the author defines the class but chooses no options, the document uses the default options for that class.

Class (con't)

- There are a handful of classes:

<code>article</code>	for short/medium documents with title and section
<code>book</code>	for books with chapters and title page.
<code>report</code>	for shorter books (e.g. PhD. Thesis)
<code>slides</code>	for presentations (e.g. this tutorial)
<code>letter</code>	for professional/personal letters

- Only one class can be used for each document.
- There are a lot of other classes, Google for “classes, LaTeX”

Class Options

- Each class can be slightly modified by using options. Below are options for the `article` class (defaults are in bold).

10pt, 11pt, 12pt

Font f

letterpaper, legalpaper, a4paper, a5paper

The d

onecolumn, twocolumn

The n

oneside, twoside

Wheth

NOTE: This only adjusts the layout

portrait, landscape

Either

Class Options (con't)

- Unlike classes themselves, an author may use many classes, for example, she may want to use A4 paper and make it two-sided.
- The author may separate several packages with a comma (,):

```
\documentclass[a4,twoside]{article}
```

- Remember that only one class may be used for a document.

Review of Classes

- Remember the first line of every document should be `\documentclass[options]{article}`
- The author does not have to define the option, but does have to define the class.
- Many people have created their own classes, Google for “class, LaTeX” for some examples. Undergraduate and Graduate Departments often create their own class to meet certain spacing/margin requirements.

Packages

- Following the `\documentclass`, we should include the command for packages:

`\documentclass[options]{package}`

- Packages load features into our document we may want to use.
 - Ex: Fancy headers, slide backgrounds, bibliography styles (MLA, APA)
- Unlike the `\documentclass`, packages are not required.
 - Depends on what we want to include in our document.

Packages (con't)

- However, similar to `\documentclass`, we do not need to always use options for a package.
- If we wanted to use the `graphicx` package (don't worry what it does yet):

```
\usepackage{graphicx}
```

- We may want to use the `dvips` option too:

```
\usepackage[dvips]{graphicx}
```

Package Options

- There are a lot of packages and options, so we really can't list many of the useful ones.
- We will introduce applicable packages related to topics we encounter during this tutorial.
- It is likely a document will use multiple packages (this one does), there are two ways to list them:

Acceptable: `\usepackage{graphicx,fancybox}`

Acceptable: `\usepackage{graphicx}`

`\usepackage{fancybox}`

Not Acceptable `\usepackage[dvips]{graphicx,fancybox}`

Acceptable: `\usepackage[dvips]{graphicx}`

`\usepackage{fancybox}`

- You may not invoke packages when listing several

Packages Review

- Packages enable features for our documents we may want to use.
- The package command(s) come immediately after the `\documentclass` command.
- Multiple packages for a single document can be loaded in a single line or multiple lines.
- We will introduce useful packages as we explore several features in \LaTeX .

Preamble Review

- The preamble of the document is from `\documentclass` to `\begin{document}`.
- `\documentclass` tells \LaTeX the type of document it wants to be.
- `\usepackage` loads features we want to use for our document.
- `\documentclass` *must* be use for each document, `\usepackage` is optional.
- The preamble will look similar to the one shown below:

```
\documentclass[pdf]{article}
\usepackage{graphicx,fancybox}
\usepackage{chem}
\begin{document}
```