Preamble

Classes and Packages

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This Presentation

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Structure of LATEX document

- Let's focus on the source file for documents (.tex).
- Every file has the same structure.
- A document is composed of a preamble and a body.
- The preamble tells LaTEX how the document is going to look (e.g. font size, margins) and the body is the actual text.
- We will concentrate on the preamble in these next two presentations.
- This presentation will look at Classes and Packages.

Structure of LATEX document

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

■ Above is a generic layout of Lagrange Lagrange Above is a generic layout of Lagrange La

Preamble

- The preamble is the lines of text before \begin{document}.
- Preamble contains information that will be used by LATEX when it generates a document.
- The first two lines of a document are \documentclass and \usepackage commands.
- \documentclass tells Lags what kind of document you are creating.
- \usepackage will load features you want to enable for the document.
- The preamble can also contains other information, such as the title and author, along with the pages margins (covered in the next presentation).

Classes

- Classes inform LaTEX what kind of document you are creating.
- This is important because the layout of one type of document (e.g. article) is different from another (e.g. book)
- The Class command also lets you change the default options for a document (e.g. font size, paper format)
- The first line of every document should be the Class command^a:

\documentclass[options]{class}

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^aActually, the author may insert comments that will not be read by LaTeX before the Class command. Beginning a line with % will tell LaTeX to ignore everything on that line.

Class

- The Class command consists of two operators, class and options.
- Class must be included because it specifically tells LATEX the document type.
 - A list of common classes are listed on slide 9.
- Options lets the author choose her own default parameters for the document (e.g. font size).
 - A list of common options are listed on slide 10.

Class (con't)

Using the [options] command is optional, but the author must define the class:

```
Acceptable: \documentclass{article}
Acceptable: \documentclass[12pt]{article}
Not Acceptable: \documentclass[12pt]
```

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

List of Common Classes

There are a handful of common classes:

Short/medium papers with sections.

book for books with chapters and title page.

report for shorter books (e.g. PhD. Thesis)

slides for presentations (e.g. this tutorial)

letter for professional/personal letters

- Only one class can be used for each document.
- Students should generally use the article class.
- There are a lot of other classes, Google for "classes, LaTeX"

List of Common 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 for the entire document.

letterpaper,legalpaper,a4paper,a5paper

The dimensions of the document.

onecolumn, twocolumn

The number of columns on the page.

oneside, twoside

Single-sided or two-sided print layout.

portrait, landscape

Either a vertical or horizontal orientation of the page.

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 options with a comma (,):

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

- Remember that only one class may be used for a document.
- However, the author may use as many options as she wishes, as long as they are properly separated in the command.

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

- Packages load features for a document you are typing.
- For instance, you can use the multicol package so a document layout has multiple columns.
- We can also use packages to load fancy headers or bibliography styles.
- Packages are not as important as classes, since they are features.
- The packages command should follow the document class command.
- Packages are not required for a document.

Packages (con't)

- Similar to \documentclass, we do not always need to 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}
```

Either command is acceptable, it depends on what you need for your document.

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{babel,ams}

Acceptable: \usepackage{babel}
\usepackage{ams}

Not Acceptable: \usepackage[german]{babel,ams}

Acceptable: \usepackage[german]{babel}
\usepackage[german]{babel}
\usepackage{ams}
```

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 Late X 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.

Preamble Review (con't)

The preamble will look similar to the one shown below:

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

NEXT: Title, Author, and Page Layout.