MTH 459, LaTeX Tutorial #2, Spring 2025

One of the technical aspects of this course will be to learn some basic elements of working with LaTeX. LaTeX is a markup language for documents that can handle mathematical code, styles, citations and bibliographies, graphs and more. But working with the code language does take some practice. We are going to start by setting up an account on Overleaf, a free website for working with LaTeX that can compile your documents for you and convert them into pdfs. Each assignment will build on previous assignments to add more functionality to your document.

1. **Working with References and Citations**
   Objective
   Learn how to:
   1. Insert references manually.
   2. Use a BibTeX file for citations.
   3. Experiment with different citation styles.
   Steps
   1. **Log in to Overleaf**:
      Open your previous project or create a new one for this assignment.
   2. **Set Up the Document**:
      Start with the following LaTeX template:

\documentclass[12pt]{article}
\usepackage[utf8]{inputenc}
\usepackage{cite} % For managing citations

\title{Using References and Citations in LaTeX}
\author{Your Name}
\date{\today}

\begin{document}

\maketitle

\section{Introduction}
In academic writing, it's important to reference the work of others. This document demonstrates two methods: manually inserting a reference and using a BibTeX file.

\section{Manual Citation}
Here is a manually inserted citation:
Albert Einstein published his theory of relativity in 1915~\cite{einstein1915}.

\section{Using BibTeX}
BibTeX allows you to manage references more efficiently. Here is a citation from the BibTeX file:
The method described by Knuth~\cite{knuth1984} revolutionized typesetting.

\bibliographystyle{plain} % Citation style
\bibliography{references} % Link to the BibTeX file

\end{document}

Insert a Manual Reference:
- Add the following just above \end{document} to define the manual reference:

latex

```
\begin{thebibliography}{99}
\bibitem{einstein1915} Einstein, A. (1915). The Field Equations of Gravitation.
\textit{Sitzungsberichte der Königlich Preußischen Akademie der Wissenschaften}.
\end{thebibliography}
```

Add a BibTeX File:
- In Overleaf, create a new file named references.bib.
- Copy the following BibTeX entry into the file:

```
@book{knuth1984,
    author = {Donald E. Knuth},
    title = {The TeXbook},
    year = {1984},
    publisher = {Addison-Wesley}
}
```

Experiment with Citation Styles:
- Replace \bibliographystyle{plain} with alternatives like abbrv, unsrt, or ieeetr.
- Recompile after each change to see the differences.

2. Include a brief paragraph reflecting on the differences between manual and BibTeX-based citations.

3. **Submission**: Once the document has been customized to your satisfaction, submit the pdf in the dropbox for the assignment in Blackboard.

Note that you should generally not have both manual and BibTeX references, since certain styles number the references and the numbering will restart in each case, and you may end up with two reference lists.

Additional Resources
1. BibTeX Repositories
- **Google Scholar**
  - Search for academic articles and generate BibTeX entries directly from the citation tool.
  - https://scholar.google.com
- **CiteULike (archived)**
  - Though no longer updated, this resource offers guidance on finding BibTeX citations.
  - https://www.citeulike.org/
- **Zotero**
  - A reference manager that allows you to export BibTeX entries for any saved citations.
  - https://www.zotero.org/
- **Mendeley**
  - Another reference manager with built-in BibTeX export functionality.

- o https://www.mendeley.com/

2. BibTeX Style Guides
- **BibTeX Styles Overview**
  - o A detailed guide to different BibTeX citation styles and how to use them.
  - o https://en.wikibooks.org/wiki/LaTeX/Bibliography_Management
- **Overleaf BibTeX Guide**
  - o A beginner-friendly overview of working with BibTeX on Overleaf, including style examples.
  - o https://www.overleaf.com/learn/latex/Bibliography_management_with_bibtex
- **CTAN: Comprehensive TeX Archive Network**
  - o The official repository for BibTeX style files (.bst) and detailed documentation.
  - o https://ctan.org/topic/bibtex

3. Example BibTeX Databases
- **DBLP Computer Science Bibliography**
  - o A BibTeX-ready database for computer science publications.
  - o https://dblp.org/
- **arXiv.org**
  - o Preprints and published papers in many disciplines, all with BibTeX entries.
  - o https://arxiv.org/

A good practice exercise would be to update your annotated bibliography to LaTeX. You don't need to resubmit it, but it would be great practice with handling citations and references.