Revised: 21 August 2025

TUTORIAL

LaTeX tutorial for the creation of academic-standard CVs or résumés

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Contents

1 https://github.com/Pedro-h-mattos

1 Get Started

If you haven't already, begin by following the instructions located on the GitHub repository at https://github.com/Pedro-h-mattos/LaTeXCVTemplate.

Those instructions, which are repeated here in more detail, describe:

- Installing a TEX distribution.
- Downloading a copy of this projects' files onto your local device.
- Compiling `CVexample.tex` to produce a PDF output.

1.1 Installation

A TEX distribution, such as MikTeX, TeXLive or MacTeX, is a prerequisite for working with .tex files. They free and easily available for download online.

TEX files can be written using any editor, and compiled from the system shell. However, for ease-of-use, you should probably also install a dedicated graphical user interface for working with TEX files (e.g. TeXworks or TeXstudio).

Instructions for downloading the appropriate software can be found by following the link: https://www.latex-project.org/get/.

> **Step 1.**
>
> Install an appropriate TeX distribution and editor for your system.

Alternatively, Overleaf is an online LaTeX editor which doesn't require any local installation; but will ask you to register an account.

1.2 Download from GitHub

With the necessary software now installed; you must download the project files from the GitHub repository onto your local device.

This project consists of the class file `articleCV.cls`, source file `CVexample.tex`, `info.sty` and this guide. You can download the entire repository as a ZIP file or install the required files directly into a new folder.

> **Step 2.**
>
> Within the repository, find and click on **Download ZIP**. Then, unpackage your zip file.

Alternatively, download each file by clicking on its name and then **Download raw file**. Save them in a folder with an appropriate name (e.g. myresume).

1.3 Your First Document!

Compiling your document now is a good litmus test to see if your software has been correctly installed. You can compile documents directly from the command line, by typing the command:

```
pdflatex CVexample.tex
```

However, compiling from within a TEX editor is generally easier.

> **Step 3.**
>
> Open your source file within a TEX editor, then compile it using the `pdfLaTeX` option).

Then, take a moment to examine the output document. What do you notice?

Although very neatly typset, your 'personalised' résumé lacks any personal information at all! `CVexample.tex` is designed as a customisable template; the rest of this guide will help you to fill it out, step-by-step.

2 Working with TEX Files

2.1 Your Output Document

Let's take a look at the overall structure of the document created by compiling your TEX file. Later, we'll compare it to its source code, to get a feel for how TEX documents are structured.

In a standard layout for a CV or résumé, personal and/or contact information is located in the document header and below that, sections correspond to a person's education, work experience, skills, publications, etc.

The header can be further divided into three parts; the author's name, their title and their personal or contact information. Then, the body of the document comprises three sections, labelled 'Education/Qualifications', 'Technical Skills' and 'Experience'. Sections themselves are followed by 'subheadings'; each one delimits a single topic such as an individual qualification. Optionally, bullet points(s) can follow subheadings to add extra information.

2.2 Key Parts of a TEX File

A TEX file always begins with a *class declaration*, which states the kind of document that should be produced. In this case, `\documentclass{articleCV}` loads the class file `articleCV.cls`.

The *preamble* refers to any contents before `\begin{document}`, including the class declaration, which are used to define a documents' configuration and style settings. For simplicity, our class file takes care of these.

The 'body', or contents of a file is contained between the expressions `\begin{document}` and `\end{document}`. This includes all the text that is output when the document is compiled.

Both your output and source files contain three sections, which are helpfully prefaced by the `\section{}` command. Sections may be followed by the `\tab{}` command, representing 'subheadings', and/or the expressions `\begin{itemize}` and `\end{itemize}`, which together construct a list. These elements construct the body of your CV.

3 Building a CV

When TEX code is compiled, special characters, e.g. `{}` or commands are generally ignored and only plain text is output. So, we can safely edit the contents of our document and worry about the formatting afterwards.

We'll edit the entire document section-by-section, beginning with the header.

3.1 The Header

part one

The following code describes the first part of the header, including the optional title, 'Résumé/CV' and the author's name.

```
24.  \begin{centering}
25.    {\large \scshape R\'esum\'e/CV \par}
26.    {\Huge Pedro Henrique Mattos \par}
27.  \end{centering}
```

For now, we're only concerned with the text output in our document and none of the formatting.

```
25.    {\large \scshape R\'esum\'e/CV \par}
26.    {\Huge Name \par}
```

> **Step 4.**
>
> Rewrite 'Résumé/CV' and 'Name' as appropriate.

Now we can consider how the header is formatted, using *environments* and *commands* (prepended by \), so that both lines have different styles.

The environment created within `\begin{centering}` and `\end{centering}` centers the header on the page. (Try removing them to left-adjust the text).

The commands `\large` and `\scshape` make the first line large and SMALL CAPS, respectively. In the following line, the font size is set to be Huge.

Text enclosed in braces `{}` is isolated from other text. Lines 25. and 26. are bracketed so that their styles don't overlap. The command `\par` is unique, it indicates the start of a new line (i.e. a new paragraph).

part two

The second part of the header also describes personal and/or contact information; formatted as a table with two columns and three rows.

Although this may not be immediately obvious within the TEX file, the following code constructs the table:

```
31.  \begin{table}[ht]
32.    \centering
33.    \begin{tabular}{>{\small} l >{\footnotesize} l}
34.    <Undergraduate, 3rd Year>, & Email: \Email{\email} \\
35.    \dept, & Tel: \phone \\
36.    \org & \url{\website}
37.    \end{tabular}
38.  \end{table}
```

Fortunately, we can once again edit the contents of our header, before worrying about the formatting. These three lines describe the contents of the table.

```
35.    <Undergraduate, 3rd Year>, & Email: \Email{\email} \\
36.    \dept, & Tel: \phone \\
37.    \org & \url{\website}
```

Each line describes a single row of the table. Separations between columns, and linebreaks are indicated by the ampersand `&` and double backslash `\\` symbols, respectively.

Excluding `<Undergraduate, 3rd Year>`, each entry of the table is actually a custom command that references your department , organisation, email, phone number and website.

These commands are defined within the file `.sty/info.sty`, which is loaded in the preamble. By rewriting their definitions, we can change what is output in the table. This is a useful trick for describing information that is often repeated, which can be applied across multiple files.

> **Step 5.**
>
> Navigate to the file `.sty/info.sty` in your project directory.

Commands are defined as `\newcommand{\<tag>}{<definition>}`. The definition is output whenever a command is referenced by its tag.

> **Step 6.**
>
> Rewrite the commands within `.sty/info.sty` with your own information.

Don't forget to also change the expression `<Undergraduate, 3rd Year>` with your own title or position, in the case that you are not a 3rd year undergraduate student.

> **Step 7.**
>
> Save your changes and recompile your source file, `CVexample.tex`.

Now, let's look at the construction of the table. (Skip ahead to the next section if this feels like it's above your level).

The tabular environemnt created by `\begin{tabular}` and `\end{tabular}` produces a table. Confusingly, the *float* created by `\begin{table}` and `\end{table}` only controls the position of the table on the page.

The single command `\centering`, within the float, centers the tabular environment on the page. Although the table itself is centered, the text within it is left-adjusted.

`\begin{tabular}{l l}` is sufficient to initialize a table with two left-adjusted columns, indicated by the two letters `l`. The commands `>{\small}` and `>{\footnotesize}` prepend the respective styling to either column; so that text is small within the first column and footnotesize in the second.

3.2 Creating Subheadings

The body of a CV or résumé is generally devoted to short 'subheadings' that describe a relevant qualification and optionally, information such as a timeframe, organisation and location. Often, these subheadings are followed by bullet-points.

The `\tab` command, described in the class file `articleCV.cls`, creates a subheading. It is implemented as follows:

```
\tab
  {#1}{#2}
  {#3}{#4}
```

It creates a page-width table with two columns and two rows, that are justified to either margin. Cells are given as inputs (`#1-4`), which can be null.

The first line (`#1` and `#2`) will be **larger and bold**. The second line (`#3` and `#4`) will be *smaller, italicized and sans-serif*.

A 'subheading' is a useful construction for building parts of a résumé. Consider, for example:

```
\tab
{Bachelor's of Science in Biochemistry}{2022--2026}
{Queen Mary University of London}{London, England}
```

Which outputs:

Bachelor's of Science in Biochemistry **2022–2026**
Queen Mary University of London *London, England*

Pretty snazzy, eh?

We can rewrite the arguments passed to each subheading to fill out the contents of our document. We'll do this section by section.

For more detail on how the `\tab{}` command was implemented, see the appendix.

3.3 Modifying Sections

Qualifications

We'll cover your educational background first, to reflect a standard résumé layout. Later, we'll discuss how to reorder parts of the document.

> **Step 8.**
>
> Rewrite the first section label as 'Education', or your preference.

Next, look at the `\tab` command, underneath the first section heading. We're going to rewrite this to describe your most recent qualification.

```
45.  \tab
46.  {Qualification}{Timeframe}
```

```
47.  {Organisation}{Location}
```

Step 9.

Add information to the first `\tab` command.

Consider what you want to stand out; your degree program, awarding body (i.e. university, school), period of study, etc. The default layout is only a suggestion and, in fact, it is easily customisable by reordering each of the elements.

For example, the folllowing layouts are equivalent:

Bachelor's of Science in Biochemistry **2022–2026**
Queen Mary University of London *London, England*

Queen Mary University of London
Bachelor's of Science in Biochemistry *2022–2026*

2022–2026
BSc Biochemistry — Queen Mary University of London

Remember that inclusive dates (i.e. 2024–2025) are written using *en-dashes*. In LaTeX this is achieved by typing out two hypens `--`.

Then, the following environment creates a bulleted list:

```
48.  \begin{itemize}
49.    \item
50.  \end{itemize}
```

The command `\item` followed by plain text creates a bullet-point, which you can use to provide specific examples of your skills, projects that you have worked on, significant achievements or classes that you have taken.

Putting it all together would look like:

BSc Biochemistry
Queen Mary University of London *2022–2026*

- Genes and Bioinformatics; Cell Biology and Development; Fundamentals of Organic Chemistry

> **Step 10.**
>
> Create an 'item' to add information about your qualification.

You likely have multiple qualifications that you'd like to show off. Luckily, the same block of code can be copied-and-pasted to create another subheading.

> **Step 11.**
>
> Create another subheading. Rinse and repeat for all your qualifications.

If you haven't already, recompile your document to see the changes that you made. You are more than one-third towards finishing your document.

Technical Skills

An employer will want evidence of technical or personal skills, related to the job for which you are applying. Besides technical skills, remember that report-writing, data analysis, research-ability and delivering presentations are all examples of skills you will have gained from your degree.

> **Step 12.**
>
> Make a list of relevant skills that you possess for a position that you're interested in.

Then, consider this example:

Software Proficiencies
Python, R, BASH, LaTeX

Remember that `\tab` accepts four inputs and constructs a table, which isn't erased by a null value. So the following example:

Language Proficiencies

- Engish (native fluency), Spanish (working proficiency), Mandarin (conversational)

Is better constructed by using the command `\textbf{}`, instead of `\tab`.

Step 13.

Rewrite both subheadings under 'Technical Skills' with your own information.

It's best to focus on clear and specific examples. A good idea is to describe projects you completed, within or outside the context of your degree. As before, repeat as necessary.

Work Experience

The last section of your document will describe your employment history. If you don't have one, don't worry. You can instead describe your internships, volunteer work or personal projects.

Step 14.

Add your most recent qualification to the remaining subheading.