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This is a sample file in the text formatter L^AT_EX. I require you to use it for the following reasons: It produces the best output of text, figures, and equations of any program I've seen. It is machine-independent. It runs on Linux, Macintosh (see TeXShop), and Windows (see MiKTeX) machines. There are web-based versions, <https://www.overleaf.com><https://www.overleaf.com>. You can e-mail ASCII text versions of most relevant files. It is the tool of choice for many research scientists and engineers. Many journals accept L^AT_EX submissions, and many books are written in L^AT_EX.

Some basic instructions are given next. Put your text in here. You can be a little sloppy about spacing. It adjusts the text to look good. You can make the text smaller. You can make the text tiny.

Skip a line for a new paragraph. You can use italics (*e.g. Thermodynamics is everywhere*) or bold. Greek letters are a snap: Ψ , ψ , Φ , ϕ . Equations within text are easy—A well known Maxwell thermodynamic relation is $\left.\frac{\partial T}{\partial P}\right|_s = \left.\frac{\partial v}{\partial s}\right|_P$. You can also set aside equations like so:

$$du = T ds - P dv, \quad \text{first law.} \quad (1)$$

$$ds \geq \frac{\delta q}{T}. \quad \text{second law.} \quad (2)$$

Eq. (1) is the first law. Eq. (2) is the second law. References¹ are available. If you have a postscript file, say sample.figure.eps, in the same local directory, you can insert the file as a figure. Figure ??, below, plots an isotherm for air modeled as an ideal gas. [ht]=2.5in sample.figure.eps
Sample figure plotting $T = 300\text{ K}$ isotherm for air when modeled as an ideal gas.

Running L^AT_EX

You can create a L^AT_EX file with any text editor (vi, emacs, gedit, etc.). To get a document, you need to run the L^AT_EX application on the text file. The text file must have the suffix ".tex" On a Linux cluster machine, this is done via the command

```
latex file.tex
```

This generates three files: file.dvi, file.aux, and file.log. The most important is file.dvi.

The finished product can be previewed in the following way. Execute the commands:

```
dvipdf file.dvi
```

Linux System

This command generates file.pdf, which can be viewed with many standard tools. Alternatively, you can use TeXShop on a Macintosh or MiKTeX on a Windows-based machine. *Another very good and modern option is the web-based* <https://www.overleaf.com><https://www.overleaf.com>. The .tex file must have a closing statement as below.

Lamport, L., 1986, *L^AT_EX: User's Guide & Reference Manual*, Addison-Wesley: Reading, Massachusetts.