

Department of Aeronautics - Report Style Guide

The following document summarises what is considered best practice for reports written by students at the Aeronautics department, Imperial College London. Note that there is no preferred word processing or typesetting software. This check-list instead establishes the basis for what markers will be looking for and should be used to check your work prior to submission.

General

- An 11 or 12 pt, black font has been used for the report main body.
- Margins should be at least 2.5 cm on each side (top, bottom, right, left).
- Line spacing should be no less than 1.15 for the main body of the report, though single spacing is acceptable for captions and tables.
- A consistent style is used throughout the report.
- All graphs, figures and tables required for the purposes of discussion are situated within the main body of the document.
- All graphs, figures and tables situated within the main body of the document are discussed in the report.
- Any supporting information or content is provided in an Appendix situated at the end of the document.
- The contents have been spell checked and proof read (spell checkers have no problem with id vs is).
- If in doubt British English spelling should be used.

Graphs

A good graph has to be *clear, precise* (not misleading) and *to the point*. The software used to produce it has no effect on that. The following points are meant to ensure that your graphs communicate your data in the best possible way and should be applicable in the vast majority of cases encountered.

Captions

- Captions appear below each graph/figure and are numbered consecutively.
- The word “Figure” and associated number are used, followed by the caption.
- The caption effectively describes the figure, i.e. is not vague in any way.
- If the figure is not original, the original source is cited following the style used in the body of the report.

Note that the caption acts as a figure’s title, hence no additional title should be included in graphs.

Axes

- The x and y -axes are beneath and to the left of the plot area respectively.
- Axis intervals are clearly shown by tick marks and labels placed outside the plot area.
- Axis intervals of 1, 2 or 5×10^n are used
- Axis labels contain a description of what is plotted (and the associated symbol and units, if applicable).
- Appropriate maximum and minimum axis range has been selected, considering whether scale or comparisons across graphs are important.
- The font used is legible even after the figure has been resized within the document.

Presentation of Data

- Curves representing a known model/equation are plotted using lines alone.
- Experimental data is plotted using only symbolic markers.
- If trend lines are plotted through experimental data, they show the “true” behaviour and are not biased by experimental scatter or outliers.

When multiple datasets are plotted on a single graph, the reader must still be able to distinguish between curves and identify them. Hence you should check that:

- a legend is included, clearly identifying each dataset and curve presented;
- each curve and dataset are presented using unique line style, symbol and colour combinations;
- the inclusion of further datasets/curves does not adversely impact the reading of the graph;
- only the data and curves required to support your argument are presented;

- the colours used are easily visible and distinguishable. Consider whether this is the case for readers with colour-blindness and if the figure is printed in grayscale.
- Lines of best fit are identified in the legend as such and the resulting equation and quality of the fit (R^2) are provided.
- Where appropriate, error bars have been plotted to illustrate the level of uncertainty.
- Grid lines should only be used when the reader must be made aware of the magnitude of individual data points, in addition to their overall trend.

Tables

Captions

- Captions appear above each table and are numbered consecutively.
- The word “Table” and associated number are used, followed by the caption.
- The caption effectively describes the data presented within the table, i.e. is not vague in any way.
- If the data presented are not original, the original source is cited following the style used in the body of the report.

Tabulation of Data

- The table has been typeset within the document, i.e. screen shots of spreadsheets have not been used.
- Cells have a blank background and borders are used to distinguish between individual cells.
- Each entry along the left-most column (the stub) applies across all columns.
- Each column has a header describing data presented underneath it (and the associated symbol and units are provided, if applicable).

If experimental uncertainty has been calculated, the level of uncertainty of the tabulated data has been

- provided in the relevant header, if it is constant, or
- tabulated along side it, if it is variable.
- A reasonable number of significant figures has been used. It can be determined based on (i) the level of computed uncertainty for experimental results or (ii) the perceived level of precision of a computational result.
- Footnotes are used to explain any perceived issues with individual data points.

Equations, Symbols & Units

- All equations that are long, contain several variables that must be identified or contain fractions, are presented in their own separate line, are centred and numbered.
- Equations are numbered sequentially, in the order presented. The number, presented in the form (1), is placed on the right side margin.
- Equations placed in-line within text do not extend across multiple lines.

All symbols/variables should be presented in such a way as to communicate their nature. Therfore:

- *italics* are used to represent variables and functions, i.e. $y = f(x)$;
- upright fonts are used for mathematical operations ($\sin x$, dx) and constants ($i = \sqrt{-1}$, e^x);
- upright fonts are used for units (cm, bar, Pa, dB, kg);
- **bold** fonts are used to represents vectors and matrices.

- Units are provided for any physical quantities or constants quoted in the text.
- A space is always left between a number and its units. For example “1 cm” instead of “1cm”.

References

The Aeronautics department has decided to use the Vancouver referencing style for all work submitted as part of taught courses. A guide to using this referencing style can be found at: <https://www.imperial.ac.uk/admin-services/library/learning-support/reference-management/vancouver-style/>.

Using Vancouver, each reference is numbered in the order in which it is cited in the text. Citations to references are done in text using the number inside square brackets; for example “More recently Jones [1] introduced the...”. Note that while the guide provided above suggests the use of (1) for citations, as in scientific reporting that style is reserved for equations, square brackets should be used.

- Any statements or ideas that are not considered common knowledge are cited within the text.
- All works cited within the text appear in a list of references section, which follows directly after your conclusions.
- The reference list is in numerical order, i.e. the order in which sources are cited within the text.
- Only texts and sources cited within the body of the report are included in the list of references.

- Each citations refers to the relevant item in the list of references by its assigned number.
For example: “recent research [1] shows”.
- The information provided for each reference is sufficient for the reader to be able to locate and retrieve it.
- References are not split between pages.