

GUIDELINES ON TABLES AND FIGURES

TABLE

A *table* is a group of rows and columns of numbers and/or words. A table with numerical data is more common and is known as a *statistical table*. Various guidelines for tables are as follow:

- Every table must have a title. The title appears on the top of the table. It should be short (preferably one line), clear, and self-explanatory. A subtitle, if necessary, could be given in parentheses.
- A table number (followed by a colon) precedes the title of every table.
- Number the tables with chapter numbers and Arabic numerals separated by a decimal point (e.g., 5.1). The Arabic numerals follow the order of the appearance of the tables in a particular chapter (e.g., 5.1, 5.2, etc.; 6.1, 6.2, etc.). Usually, suffix letters are not used to number tables; they are given separate table numbers (e.g., 5.1 and 5.2 instead of 5.1a and 5.2b).
- Tables in an Appendix are numbered as A1 (the first table in Appendix A), A2, B1, B2, etc.
- The word “Table” (followed by the table number, a colon, and a space) precedes the title of each table:

Table 5.1: Population of Metropolitan Cities (in million persons)

- The entire line containing the table title and the title number is usually centered.
- The line containing the table number and the title should be in title case, with the prepositions (e.g., of, at, etc.), articles (a, an, and the), and coordinating conjunctions (e.g., or, and, etc.) in lowercase.
- Usually, every column of a table has a column heading which defines the contents of that column. Sometimes each row may have its row heading. Whenever

meaningful, the units of measure must be given within parenthesis, using symbols for the units, if needed, to all column and row headings.

- Usually, the first column of a table (called a stub) contains an independent variable, other columns containing dependent variables. The stub heading is always in singular, while all other headings are in singular or plural according to the sense of the entries.
- The unit of measure of each entry in a column must be the same as indicated in the column heading. Thus a column should not contain different kinds of information; instead two or more columns should be used to convey the information.
- Center the column headings when the column entries are numerical data or even two- or three-letter words, but left-align them if the entries are text.
- Right-align numbers in a column if they are integers. And, if the numbers contain decimal points then the numbers should be decimal-aligned.

Ex:	<u>Correct</u>	<u>Incorrect</u>	<u>Correct</u>	<u>Incorrect</u>
	345	345	23.46	23.46
	22	22	2.30	2.3

- If the entries in a column are text material and are short in length, they are centered; otherwise the texts are left aligned.
- Sometimes all data in a table column are not of the same unit. In such a case they should be left justified.
- When dealing with large (or very small) numbers write, for example, $\times 10^3$ (or $\times 10^{-3}$) along the unit lines and give a footnote to explain. The footnote can be one of the following types in case the actual values are very high (or low):

* Actual values equal reported values times 10^3 .

**Reported values equal actual values times 10^{-3} .

- Choose the level of precision to which you like to specify the values of the entries in the column. If the whole number part of a number is very large, the decimal fraction containing many digits may not be meaningful. Conversely, if the whole number is very small, the decimal fraction containing many digits may be meaningful.

<u>Improper</u>	<u>Proper</u>
12 456.235	12 456.2 or 12 456

- The number of digits after the decimal point should be the same for every entry in a column to reflect the same level of precision to which all the items are specified. One may add insignificant zeroes to have the same decimal places in a column.

Example:

23.45
22.20 (not 22.2)

- You may use standard abbreviations and standards for non-technical terms (e.g., No. for number, % for percent) and for statistics (e.g., χ^2 , μ , and σ^2) in tables.
- In case a cell in a table does not have an entry (empty cell), put a dash in that cell and explain it in a general note to the table (that follows the table immediately and appears on the same page as the table).

Note: A dash is different from a hyphen and should be inserted as a symbol.

- Often data, unnecessary in the context, are presented in a table. Remove such unnecessary data.
- Many standard software packages give, as output, a large number of tables. If you include them in your text, you must discuss each column in each such table and

highlight their significance; else do not include all of them (include only the relevant ones).

- Every table must be referred to in the text by the corresponding table number, either directly or parenthetically:

City names and their populations are given in Table 12.1

Each city has its own population (Table 12.1).

Table 12.1 gives the names of cities and their populations.

- Do not refer to a table as “the table above/below” or “the table on page 45”.
- Discuss, in the text, the contents of the table and their significance, and bring out hidden relationships among the variables.
- Any special point for an item (or items) of a table can be made as footnote to the table.
- If you have reproduced tables from someone else’s work, give the reference (in the usual referencing style) along with the page number, as a source note and take permission of the author of the source before reproducing the table. Write “With permission from . . .” as a footnote to the table.
- Footnotes can be *source notes*, *general notes*, *specific notes*, and *probability notes*. They clarify ideas related to the table as a whole, a particular column, row, or individual entry, and to the results of tests of significance. They should appear immediately after the table on the same page as the table, should be left justified, and should appear in the following sequence: Source note, General note, Specific note, Probability note.

Source notes give details of the source of the data contained in a table; general notes may highlight some general characteristic about the nature of data/information contained in the table; specific notes expand on specific features of a column variable or a specific entry in a cell; and probability notes give the level of significance in the tests of hypotheses.

Examples:

Source: Government of India Department of Water Resources Publication, 2006.

(This is an example of source note.)

Notes:

1. The data were collected through a questionnaire survey.
2. The number of respondents was 50.

(These are examples of general note.)

^aThis value indicates the opinion of the respondents.

^bThe figure indicates the result of an analysis.

(These are examples of specific note. Note that the superscripts ^a and ^b are also given along side the corresponding figures in the table. If a table contains word entries, special symbols, such as #, †, and ‡, are used instead.)

* $p < .05$. ** $p < .01$.

(These are examples of probability note. Note that usually asterisks are used for probability notes, and also that because probability is always less than or equal to 1, “0” does not appear before the decimal point.)

- A table should appear after, and close to, the text where it is first referenced.
- A table should not spill over to a second page. If it is too long, break it up into two or three different tables. In case a long table cannot be split into more than one table, the message “Continued on the next page” should appear at the foot of the page and a message (e.g., “Table 14.1–continued”) should appear on the top of the following page. Note the use of dash appearing between the table number and the word “continued” with no space either before or after the dash).

When a table extends to a second page, the source note and the general note appear on the first page, whereas the specific and the probability notes are put on the relevant pages.

- In case a table extends to a second page, the table number is not printed on the second page, but the column headings are.
- Leave at least a two-line gap before the table title and after (the footnote of) the table.
- Intersperse the table and the text on the same page; don't leave space on a page just because a table appears there.
- Don't leave half a page blank because the text on the page refers to a table that cannot be fitted on that page and instead appears on the next page.
- Fit the table within normal margins, if required by reducing the size.
- If a table is too wide to fit the width of a page, it may be printed in a landscape mode. When the thesis is printed on only one side of a sheet of paper, such a table should be so placed that the table heading appears towards the binding edge of the thesis making it possible for a reader to read the table from the outer edge of the thesis.

When the thesis is printed on both sides and when the table appears on an odd-number page, it is also to be placed in the above-stated manner. However, if it appears on an even-number page, the table heading should appear towards the outer edge of the thesis.

If a table is so wide that even when printed in the landscape mode, it cannot be fitted nicely, then you should try to break it up into more than one table, failing which, as the last resort, you may print it in the portrait or the landscape mode and fold the sheet of the paper so that it is compatible with the thesis size.

- Table titles and the words "Source" and "Notes" appearing in the footnotes are in the same font as that of the text, while the body of the table may be of less font size but should not be less than 8-point size. The font size of the text in the footnotes (except the words "Source" and "Notes") should be one point less than that of the body of the table but should not be of less than 7-point size.

FIGURE

Any illustration other than a table is called a figure. A figure may be a chart (boxes connected with lines, pie charts), graph (line graphs, bar graphs, scatter graphs, and pictorial graphs), photograph, map, drawing, painting, or some such depiction. Whereas a table gives exact quantitative data, a figure conveys an overall pattern or concept underlying the data.

Various guidelines for figures are as follows:

- A figure should have a caption (title). A short one-line caption is desirable. The word “Figure” or the abbreviation “Fig.” and the figure number (followed by a colon and a space) precede the caption. Use the chosen word consistently in both the text and the figure caption. No period appears after a figure caption.

Figure 5.1: Probability Density Function of Population Density

Fig. 5.1: Probability Density Function of Population Density

- Figures are numbered. The figure number follows a double-numeration system (such as Fig. 5.1) where the first number indicates the chapter number and the second number indicates the serial number of the figure in that chapter.
- Figure caption (along with figure number) appears below the figure and is usually placed symmetric to the figure.
- Define all abbreviations in the caption.
- A legend (key to symbols), if required, needs to be given in an area in an unused corner of the figure to clarify meanings of line styles, symbols, or such other details given in the figure.
- A legend may also be an explanation consisting of one or more sentences. In this case the figure caption ends with a period after which the legend starts:

Fig. 5.2: Annual Production of Indian Steel Plants. This figure indicates the annual production of hot metal in India.

In yet another practice, which we do not recommend, the caption is omitted. The legend follows immediately after the figure number (followed by a colon and a space).

- The lines in a figure should never be thinner than 0.5 point and should be of uniform density. Sometimes a research student may reduce the size of a figure to fit it into a page; while so doing care should be taken to ensure that the lines in the reduced figure to appear in the thesis copy should be of at least 0.5 point.
- Figures of equal importance should be of same size.
- For computer-generated figures, the output must have a minimum resolution of 300 dots per inch (dpi).
- If a figure is taken from an already published work of someone else (even if the work is in public domain), its source must be cited. It should be mentioned below the figure caption. For such reproduction you have to take prior permission of the copyright owner and write “With permission from . . .” as a footnote to the figure.

If you have published a paper and like to reproduce a figure from that paper, you need to get the permission of the publisher unless such a permission is given in the signed copyright transfer form.

- Sometimes you may use the data published by someone else to develop a figure (for example, a graph). It is desirable that you credit the source by writing

Data from . . .

after the figure caption.

- Like tables, all figures need to be referenced in the text. The styles of referencing figures in the text are also similar to those of the tables:

Figure 8.2 shows the variation of ...

The variation of ... is shown in Fig. 8.2.

The variation of ... is plotted (Fig. 8.2).

- Merely referencing figures in the text is not enough. One needs to discuss, in the text, all the essential features depicted in the figure.
- Like tables, a figure should be placed after, and close to, the text where it is first referred; if it cannot be fitted on the page where it is first referred, it should be given on the top of the next page.
- Large-size figures need to be reduced in size to fit the width of the thesis, ensuring, as said earlier, that the line thickness in the reduced figure is not less than 0.5 point
- The preferred size of a figure is height: width :: 2:3.
- A sentence should not start with the abbreviation “Fig.”; instead it should start with the word “Figure”.

Graph

A graph is a special form of figure that shows the variation of dependent variables (Y-axis) with the change in the value of an independent variable (X-axis). The additional guidelines specific to a graph are as follows:

- Label both X and Y axes and write their units of measure.
- Do not crowd the interval marks on the axis scales.
- Line weights should be the heaviest for the graph, and the lightest for the boundary.

- All symbols and letters in the axis labels and the legend must be clear and readable (not less than 8 point).
- If one desires to compare values of two variables, then plot the two variables on the same graph, and plot them using the same scale.
- Give tick marks at equal intervals on each axis to indicate units of measurement.
- An axis label should be placed parallel to the axis unless the label is short (one or two words). Letters stacked vertically or words stacked vertically are bad.
- Legibility of graphs is very important. To have better clarity, choose the Y-axis scale such that the curves are separated by adequate space. Do not clutter a graph with too many curves. Usually, no more than four curves are shown in a graph.

Photograph

Guidelines specific to photographs are as follows:

- Photographs should be taken in proper lighting condition, suitable background and with subject clearly distinguishable.
- If a series of pictures are taken for comparison purpose, use the same height, the same angle, and the same distance from the subject.
- Indicate the scale, or at least provide a reference point, to indicate the relative size.
- For micrographs, indicate the power to which the image was taken (either in the caption or on the figure itself).
- Original photographs, not photocopies, should be attached to each report.
- They should be high-quality, black-and-white glossy prints with good density, sharp focus, and details, and with good contrast between light and dark areas.

- A photograph should have rich contrast and sharp prints. A light or dark background can provide good contrast. It is good to use black-and-white prints to achieve better contrast.
- Highlight the subject and the details. Eliminate extraneous details.
- The recommended resolution of a photograph is 300 dpi (dots per inch), whereas that of a line art is 600 dpi.
- If you choose to give colour prints, then there must be colour prints on all copies because photocopying a colour print does not always give an accurate reproduction.
- If you like to compare two photographs, put them side-by-side.
- If you like to give a person's photograph, get the person's signed consent.
- Glue the photographs on to the pages rather than staple or pin it.
- Photographs should be placed on the main text of the thesis, not in the Appendix.