

**Thesis structure for BA/BSc  
Honour, MA/ MSc, MPhil and PhD  
students enrolled at Shaheed  
Benazir Bhutto University**

**Binding color:** BS (Hons) Light Green  
MPhil/ MS (Hons) Light Blue  
PhD: Rust Colour

**Font:** Times New Roman

**Font Size:** 12 normal for general write up or other as indicated later in this document.

**Line spacing:** 1.5

**Spine format** as shown below:

<b>SBBU BA/BSc (Hons)</b>
A u t h o r : T i t l e  o f  t h e  t h e s i s
<b>YEAR</b>

The general titles of the thesis contents are given below. Thesis should not be more than 80 pages (for main chapters writeup). Please follow the instructions with each title. For details, please read the guide at the end of general titles:

- 1) Title page (details provided in guide)
- 2) Dedication (Single page using font size 14 bold)
- 3) Table of contents
  - i) Page number
  - ii) **Headings (12 bold)**
  - iii) *Subheadings (12, bold, italic)*
- 4) Acknowledgements (should be limited to a single page)
- 5) List of tables (accurate page numbering and no repetition of numbers and titles)
- 6) List of figures (correctly marked for page numbers and titles of the figures)
- 7) Abbreviations (enlist and elaborate all the abbreviations used in thesis, do not consider even a simple one to be self explanatory)
- 8) Abstract (a short description of the idea, methods and outcomes)
- 9) Chapter 1, Introduction .....(chapter title font size14 bold).

**Introduction and review of literature**

Maximum page limit: 25 pages  
**Headings (12 bold)**  
*Subheadings (12, bold, italic)*  
Write-up 12 normal

- 10) Chapter 2, Materials..... (chapter title font size14 bold).

**Materials and methods**

Page limit: 15 pages  
**Headings (12 bold)**  
*Subheadings (12, bold, italic)*  
Write-up 12 normal

- 11) Chapter 3, Results (chapter title font size 14 bold)  
**Results**  
1-2 pictures per page (should be separate from the write up).  
Page limit: 20 pages  
**Headings (12 bold)**  
***Subheadings (12, bold, italic)***  
Write-up 12 normal
- 12) Chapter 4, Discussion (chapter title font size 14 bold)  
**Discussion**  
Minimum 10 and Maximum 20 pages  
**Headings (12 bold)**  
***Subheadings (12, bold, italic)***  
Write-up 12 normal
- 13) References (title font size 14 bold)  
Number of references should range between 25-50.
- 14) Appendix (title font size 14 bold)  
Should include all the salient experimental protocols; stepwise.

# Thesis Guide

**Thesis Title (Font size 20 bold)**  
**(Keep center format ON through out this page)**



*By (font size 14 bold and italic)*

***Student Name*** (Font size 20 bold and italic)

**(Font size 16 bold)**  
**Shaheed Benazir Bhutto**  
**University, Khyber Pukhtun**  
**Khwa, PAKISTAN**

**YEAR (font size 20 bold)**

**Acknowledgments** (should be limited to a single page)

Advisor(s) and anyone who helped you:

1. technically (including materials, supplies)
2. intellectually (assistance, advice)
3. financially (for example, departmental support, travel grants).

## Abstract

- A good abstract explains in one line why the work is important. It then goes on to give a summary of your major results, preferably couched in numbers with error limits. The final sentences explain the major implications of your work. A good abstract is concise, readable, and quantitative.
- Length should be ~ 1-2 paragraphs, about 400 words.
- Information in title should not be repeated.
- Be explicit.
- Use numbers where appropriate.
- Answers to these questions should be found in the abstract:
  1. What did you do?
  2. Why did you do it? What question were you trying to answer?
  3. How did you do it? State methods.
  4. What did you learn? State major results.
  5. Why does it matter? Point out at least one significant implication.

## **Table of Contents**

- list all headings and subheadings with page numbers
- indent subheadings

## **List of Figures**

List page numbers of all figures.

## **List of Tables**

List page numbers of all tables.

## **Introduction and review of literature**

You can not write a good introduction until you know what the body of the work implies. Consider writing the introductory section(s) after you have completed the rest of the work, rather than before.

Be sure to include a hook at the beginning of the introduction. This is a statement of something sufficiently interesting to motivate your reader to read the rest of the material. It is an important/interesting scientific problem that your work either solves or addresses. You should draw the reader in and make them to read the rest of it.

The next paragraphs in the introduction should cite previous research in this area. It should cite those who had the idea or ideas first, and should also cite those who have done the most recent and relevant work. You should then go on to explain why more work was necessary (your work, of course.)

What else belongs in the introductory section ?

1. A statement of the goal of the work: why the study was undertaken,
2. Do not repeat the abstract.

3. Give sufficient background information to allow the reader to understand the context and significance of the question you are trying to address.
4. Proper acknowledgement of the previous work on which you are building. Sufficient references such that a reader could, by going to the library, achieve a sophisticated understanding of the context and significance of the question.
5. Explain the scope of your work, what will and will not be included.
6. A verbal "road map" or verbal "table of contents" guiding the reader to what lies ahead.
7. Is it obvious where introductory material ("old stuff") ends and your contribution ("new stuff") begins?

Break up the introduction section into logical segments by using subheads.

## **Materials and methods**

What belongs in the "materials and methods" section of a scientific writing?

1. Information to allow the reader to assess the believability of your results.
2. Information needed by another researcher to replicate your experiment.
3. Description of your materials, procedure, theory.
4. Calculations, techniques, procedures, equipments, and calibration plots.
5. Limitations, assumptions, and range of validity.

Citations in this section should be limited to data sources and references of where to find more complete descriptions of procedures. Do not include descriptions of results.

## Results

- The results are actual statements of observations, including statistics, tables and graphs.
- Indicate information on range of variation.
- Mention negative results as well as positive. Do not interpret results - save that for the discussion.
- Lay out the case as for a jury. Present sufficient details so that others can draw their own inferences and construct their own explanations.
- Use S.I. units (m, s, kg, W, etc.) throughout the thesis.

Break up your results into logical segments by using subheads

### Note: Results vs. Discussion Sections

Quarantine your observations from your interpretations. The writer must make it crystal clear to the reader which statements are observation and which are interpretation. In most circumstances, this is best accomplished by physically separating statements about new observations from statements about the meaning or significance of those observations. Alternatively, this goal can be accomplished by careful use of phrases.

How do you do this?

1. Physical separation into different sections or paragraphs.
2. Don't overlay interpretation on top of data in figures.
3. Careful use of phrases such as "We infer that".
4. Don't worry if "results" seem short.

Why?

1. Easier for your reader to absorb, frequent shifts of mental mode not required.

Ensure that your work will endure in spite of shifting paradigms.

## Discussion

Start with a few sentences that summarize the most important results. The discussion section should be a brief essay in itself, answering the following questions and caveats:

1. What are the major patterns in the observations? (Refer to spatial and temporal variations.)
2. What are the relationships, trends and generalizations among the results?
3. What are the exceptions to these patterns or generalizations?
4. What are the likely causes (mechanisms) underlying these patterns resulting predictions?
5. Is there agreement or disagreement with previous work?
6. Interpret results in terms of background laid out in the introduction - what is the relationship of the present results to the original question?
7. What is the implication of the present results for other unanswered questions?
8. What are the things we now know or understand that we did not know or understand before the present work?
9. Include the evidence or line of reasoning supporting each interpretation.
10. What is the significance of the present results: why should we care?

This section should be rich in references to similar work and background needed to interpret results. However, interpretation/discussion section(s) are often too long and verbose. Is there material that does not contribute to one of the elements listed above? If so, this may be material that you will want to consider deleting or moving. Break up the section into logical segments by using subheads.

### Conclusions

- What is the strongest and most important statement that you can make from your observations?
- If you met the reader at a meeting six months from now, what do you want them to remember about your work?
- Refer back to problem posed, and describe the conclusions that you reached from carrying out this investigation, summarize new observations, new interpretations, and new insights that have resulted from the present work.
- Include the broader implications of your results.

Do not repeat word for word the abstract, introduction or discussion.

### References

- Cite all ideas, concepts, text, data that are not your own.
- If you make a statement, back it up with your own data or a reference.
- All references cited in the text must be listed.
- If you consulted a large number of references from a book or article use the book or original reference article reference only.

- Cite single-author references by the surname of the author (followed by date of the publication in parenthesis) e.g. according to Hays (1994) or population growth is one of the greatest environmental concerns facing future generations (Hays, 1994).
- Cite double-author references by the surnames of both authors (followed by date of the publication in parenthesis) e.g. Simpson and Hays (1994).
- Cite more than double-author references by the surname of the first author followed by et al. and then the date of the publication e.g. Pfirman, Simpson and Hays would be: Pfirman *et al.* (1994) or Pfirman *et al.*, 1994.
- Do not use footnotes
- List all references cited in the text in alphabetical order using the following format for different types of material:

- 1) Hunt, S. (1966) Carbohydrate and amino acid composition of the egg capsules of the whelk. *Nature*, 210: 436-437.
- 2) National Oceanic and Atmospheric Administration (1997) Commonly asked questions about ozone. <http://www.noaa.gov/public-affairs/grounders/ozo1.html>, 9/27/97.
- 3) Pfirman, S.L., Stute, M., Simpson, H.J. and Hays, J. (1996) Undergraduate research at Barnard and Columbia. *Journal of Research*. 11: 213-214.
- 4) Pechenik, J.A. (1987) A short guide to writing about biology. Harper Collins Publishers, New York, p194.

- 5) Pitelka, D.R., and Child, F.M. (1964) Review of ciliary structure and function. In: *Biochemistry and Physiology of Protozoa*, Vol. 3 (S.H. Hutner, editor), Academic Press, New York, pp131-198.
- 6) Sambrotto, R. (1997) lecture notes, *Environmental Data Analysis*, Barnard College, Oct 2, 1997.
- 7) Stute, M., Clark, J.F., Schlosser, P., Broecker, W.S. and Bonani, G. (1995) A high altitude continental paleotemperature record derived from noble gases dissolved in groundwater from the San Juan Basin, New Mexico. *Quat. Res.* 43: 209-220.
- 10) Cosgrove, D. J. (1997a) Creeping walls, softening fruit, and penetrating pollen tubes: the growing roles of expansins. *Proc. Natl. Acad. Sci. USA.* 94: 5504–5505.
- 11) Cosgrove, D. J. (1997b) Relaxation in a high-stress environment: The molecular bases of extensible cell walls and cell enlargement. *Plant Cell.* 9: 1031–1041.

#### References by chronological order

- 8) Haigler, C. H., Ivanova-Datcheva, M., Hogan, P. S., Salnikov, V. V., Hwang, S., Martin, K. and Delmer, D. P. (2001) Carbon partitioning to cellulose synthesis. *Plant Mol. Biol.* 47: 29–51.
- 9) Haigler, C. H., Rao, N. R., Roberts, E. M., Huang, J., Upchurch, D. R., and Trolinder, N. L. (2001) Cultured ovules as models for cotton fiber development under low temperatures. *Plant Physiol.* 95: 88-96.

**More than one references by an author for the same year should be marked as (a) and (b-z) following the year of publication.**

#### Appendices

- Include all your data in the appendix.
- Reference data/materials not easily available (theses are used as a resource by the relevant scientists and other students).
- You may include a key article as appendix.
- List of equipment used for an experiment or details of complicated procedures.