



**GUIDELINES
FOR PREPARATION
OF
Ph.D. THESIS**

PUNJABI UNIVERSITY, PATIALA

Guidelines for Preparation
of
Ph.D. Thesis



PUNJABI UNIVERSITY, PATIALA

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PREFACE TO PREVIOUS GUIDELINES

This small book on different aspects and steps of the preparation of a research thesis or dissertation is designed to meet the needs of a growing number of students who are to enter the field of research for the first time. It essentially deals with a set of conventions governing the writing of a thesis which include mechanics of writing, format, i.e. formal preparation of the manuscript, abbreviations, units of measure, symbols and forms of citation.

So that a specific type of formal presentation to an institution has its own 'personality' and personal preferences do not mar it, uniformity in the style of such a presentation is a normal requirement. Guidelines given herein, if adhered to closely, would help in standardizing the general style and get-up of a thesis/dissertation and ensuring a quality product. The formats of certificate and declarations generally prescribed by a University are also included; though they have been designed to meet the requirement of the Punjabi University, Patiala, they can easily be modified to suit the needs elsewhere as well.

Much of the material used in the present work has been taken from the well-known standard sources, such as "Instruction for Preparation of a Thesis" (The University of Texas, Austin, USA); "The Journal of Chemical Society" (London); The Manuscript" (S. Karger) and the "MLA Handbook for Writers of Research Papers" (The Modern Language Association-America).

In order to make this book more useful to the wider body students, I sought suggestions and critical comments of ends and colleagues involved in different fields of enquiry : Professors K.S. Sidhu, H.S. Gurm, B.S. Bhatia, Baldev Singh, Gurbhagat Singh, Gurcharan Singh Arshi, I.J.S. Bansal and S. Joshi. I am indebted to them for providing me useful points from their own research experiences. I especially benefitted from the valuable suggestions of Professors K.S. Sidhu, H.S. Gurm, B.S. Bhatia and Baldev Singh. I am grateful to Dr. S.M.S. Chahal for his generous assistance in supplementing and sifting researched material of the book and checking of final draft.

In correcting the proofs, I have had the privilege of a highly skilled help from Dr. S.M.S. Chahal and Professor Nirbhai Singh. I, of course, assume full responsibility for all the remaining errors.

In conclusion, I thank Mr. Teja Singh and Mr. Surjeet Singh for their efficient secretarial assistance in preparing the manuscript.

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PREFACE TO REVISED GUIDELINES

This revised version of the Ph.D. thesis preparation guidelines has been thoughtfully updated to reflect the latest changes in the UGC's regulations. Building upon the foundation set by the original guidelines, meticulously crafted by the esteemed Dr. B.S. Manhas, former Professor of Chemistry and Dean, Academic Affairs at Punjabi University, Patiala, and this new iteration aligns with the evolving academic landscape. The updated document introduces enhanced standards and best practices, ensuring that students are equipped with clear, concise, and consistent procedures. These guidelines aim to support students in producing thesis that not only meet but exceed the highest academic and institutional expectations.

The new guidelines not only emphasize uniformity in presentation, formatting, citation styles, and method of writing, but they also integrate the latest practices in research presentation. By following these guidelines, students will be equipped to produce well-structured, high-quality thesis that adhere to institutional and UGC requirements.

I would like to take this opportunity to extend my sincere thanks to Professor Sukhjeet Kaur, Department of Computer Science for her valuable assistance in the drafting and finalizing these guidelines and Professor A.G.K. Sinha, Department of Physiotherapy for reviewing the document. Her insights were instrumental in ensuring that the revisions were both comprehensive and practical. I would also like to thank Dr. Vishal Goyal, Professor, Department of Computer Science for scanning and making the document in an editable format, which facilitated its preparation.

This document is the product of collective expertise. I am grateful to Dr. Kawaljeet Singh, Director, University Computer Center and the dedicated staff of Thesis Branch and Research Branch of Punjabi University, Patiala who have contributed to its final form. I trust that these new guidelines will serve as a helpful resource for all future researchers, and I encourage adherence to them for a consistent and professional presentation of research work.

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GUIDELINES FOR PREPARATION OF PH.D. THESIS

The format of the Ph.D. thesis should follow the guidelines outlined below. Minor deviations from this format can be undertaken in consultation with the research supervisor(s). However, any major deviation(s) will require prior approval from the Dean Research, Punjabi University, Patiala.

1. Arrangement

Thesis arrangement should invariably follow the following order:

1.1 Fly-Page

1.2 Title-Page

As per format in Appendix I and sample in Appendix II.

1.3 Certificate

To be given by the research supervisor(s) as per format in Appendix III.

1.4 Declaration

To be given by the candidate as per the format in Appendix IV, and if required, as per format in Appendix V for collaborative research.

“A part of this work has already been published” is required to be written at the end of the declaration about all the published work that have been incorporated in the thesis. A list of publications must be appended after bibliography/references, under the title “Publications based on the Research Work” presented in the thesis.

1.5 Preface/Acknowledgements

The date on which the thesis is submitted should appear at the bottom of this write-up.

1.6 Table of Contents

It gives all titles and subtitles in full and indented essentially according to their rank in the text, along with respective page numbers where they begin at.

1.7 List of Tables, Figures, Abbreviations, Prints of Slides, etc.

All theses do not contain such items but they must be listed here, if included.

1.8 Text

It should be divided into as many chapters and schemes as is necessary. Each chapter begins on a separate sheet and has a title¹. The thesis text should be 12 pt Times New Roman/ Arial for English and Unicode for Punjabi or any Modern Indian Language with line spacing of 1.5. For Headings the specifications are as follows:

- Chapter title: 18 – 24 pt size, bold
- Main Section Headings: 16 pt size, bold
- Second Headings: 14 pt size, bold
- Sub headings: 12 pt size, bold, sentence case

1.9 Summary

It should clearly and concisely summarise the contents of the thesis². It should not contain any figure, table or reference quotation.

1.10 Bibliography/References

It should be listed at the end of the text.

2. Paper/Printer

A Quality bond paper should be used in preparation of all the copies of the thesis. The standard sheet size is quarter (29.5 × 22.5 cm). Alternatively, A-4 standard size sheets (29.7 × 21.0 cm) may be used.

A high-quality laser printer should be used, preferably on both sides for text. However, the Fly-Page, Title-page, Certificates, Declarations, Table of Contents, List of Tables, Figures, and Abbreviations etc. must be printed single-sided.

3. Margins

The margins of the typed unbound sheets should be as follows:

Odd page: Left – 4 cm; top, bottom and right – 2.5 cm

Even page: Right – 4 cm; top, bottom and right – 2.5 cm

These margins are necessary to allow for binding and trimming and must be conformed to throughout the thesis.

-
1. In terms of content base of chapters, the material relating to introduction, conceptual background, statement of the problem, research methodology and survey of literature should preferably be restricted to two or, at the most, three chapters. Survey of literature should be preferably presented in thematic order rather than in chronological order
 2. Considering the requirement of the subject, it may contain such sub headings as: (i) brief statement of the problem, (ii) main findings, (iii) recommendations based on the work and/or further research suggestions, if

4. Spacing and Page Arrangement

The text should be one and half (1.5) spaced. However, double space should be left before, between and after all scientific equations and mathematical expressions. Also double-space is to be used before all indented subtitles and after all centered titles. All footnotes are to be typed with single-spacing.

Prose quotations over three lines should be in block quote (that is, single-spaced, indented on the left only). Quotation marks are not to be used if the quotation is single-spaced, except for quotations within the block quote.

Tables, maps and illustrations are to come within the limits of the page margins already mentioned. To avoid awkwardness or unnecessary bulk, these should be appropriately reduced. It is often possible to reduce charts, graphs and big tables in size with the help of photocopying machines.

Pictures should be mounted firmly on the white bond paper. When a number of pictures are used throughout the thesis, it would be desirable to mount part of them at the top of the page and part of it at the bottom so as to distribute the bulk evenly.

Placement of tables and figures in the thesis should follow immediately after their mention occurs first time in the text.

5. Subtitles, their Rank and Designation

Subtitles help the reader to perceive the organization of the thesis. However, too many subtitles have the opposite effect; they interfere with a clear presentation and interrupt the continuity of the text.

The first subtitle that occurs in the text is always a first order subtitle. In the majority of cases, a maximum of four ranks of subtitles should suffice (see, Table 1). Subtitles of the same rank should always be typed out in the same manner (e.g. bold, italics, etc.).

Table 1. Designation of the Rank of Subtitles

Rank	Numbering System	
	Traditional	Decimal
1 st order	I.	1.
2 nd order	A.	1.1.
3 rd order	1.	1.1.1.
4 th order	a)	1.1.1.1.

5th and 6th order subtitles should be avoided if at all possible.

6. Footnotes

Footnotes should be avoided, because they seriously disrupt the flow of the text. However, when absolutely necessary, they should be kept to a minimum. In many cases, most of the information in footnotes can be incorporated into the text, e.g. by the use of parentheses.

Footnotes shall be designated in the text with superscript Arabic numerals. They should be numbered consecutively throughout the text; the numbering does not begin a new on each page. The foot-noted text is placed on the corresponding page of the manuscript, clearly separated from the rest of the text by solid line of at least ten spaces. All footnotes should be typed with single spaced and font size 10 pt.

7. Tables

The table is an extremely useful visual aid which permits clear presentation and rapid comparison of results. Therefore, the essence of an effective table is that it should be logically arranged and should be free of irrelevant data.

To avoid redundancy, results which are presented in tabular form should not be presented again in the text and/or in the form of graphs.

All tables (even if there is only one) should be numbered consecutively with Arabic numerals (e.g. Table 1, etc.). Every table should be headed by an adequate caption describing its content sufficiently so that it is intelligible without reference to the main text.

Footnotes and remarks on table content and data source should be placed at the bottom of the table separated by a solid line. Footnotes are normally designated by superscript Arabic numerals and are numbered consecutively beginning with '1' within each table. If there is a possibility of confusion with other superscript numerals, then footnotes are designated by superscript lower case letters (i.e. a, b, c, etc.), instead of numerals. Asterisks are reserved for designations of statistical significances, e.g. $*p > 0.1$, $**p > 0.01$, $***p > 0.001$, etc.

8. Illustrations

Figures should contain a minimum of internal text. It is better to place explanations in the legends. Each figure must have a legend at its bottom, giving a brief explanation of the content of the figure. Legends contain no reference to the text, so that figures and legends can be understood independently of their context. However, care should be taken that the internal labelling of figures corresponds both : language and notation to the legends and the main text with respect to abbreviations, symbols, unit of measure, etc. Legends should also be typed with double-spacing.

All figures should be numbered consecutively throughout the text with Arabic numerals (e.g. Fig. 1, etc.).

9. Abbreviations

The simplest rule is: use as few abbreviations as possible.

Standard abbreviations may be used at any time without explanation:

e.g., i.e., etc.

Similarly, symbols for units of measures and chemical elements require no explanation; they are standardized and widely used:

m, ml, h, V, Au, Mg, mm Hg

Despite the ‘fewer the better’ rule stated above, it is often unavoidable and even desirable to abbreviate technical terms and chemical names which occur repeatedly in the text. In this case the word or phrase is written out in full when it first appears, followed in the parentheses by the abbreviations that will hence forth be used:

bovine serum albumin (BSA)

rapid eye movement (REM)

coronary artery disease (CAD)

If many such abbreviations occur throughout the text and also in the figures and tables, a list of abbreviations used should be given in the beginning of the text.

The following types of abbreviations are written without periods:

(1) abbreviations pronounced as words (UNESCO)

(2) units of measure (m, kg)

(3) chemical elements (Ca, Cu)

Abbreviations which consist of lower cases should be written with periods to void confusion:

i.m., i.v., s.c., t.i.d.

For the same reason, the internationally recognized abbreviation for litre ‘l’ should be avoided in some cases, as it might easily be confused with numeral ‘1’ in closely spaced text. Therefore it is preferable to write:

‘...60 litres/person’ instead of ‘...60 l/person’.

On the other hand, the abbreviation may be used in formulations such as '50 g/l' where there is no danger of confusion.

10. Units of Measure, Symbols

The following rules apply to the representation of units of measure; all measures are based on the metric system, its multiples and submultiples.

Symbols for units of measure are unchanged even in the plural. They are written in lower case without periods:

1 mg, 100 mg

Symbols derived from proper names consist of one capital letter, or its initial letter is capitalized:

J from Joule, Hz from Hertz

Units of measure which are unnumbered are written out, numbered units are abbreviated:

'The abscissa indicates the quantity in milligrams per litre body fluid',

'A daily dose of 100 mg/l was administered',

Temperatures should be indicated in degrees Celsius. The degree sign is written before the Celsius symbol:

37.8° C

Mathematical relations involving units of measure may be written with an oblique stroke or with a negative exponent. In either case, it is important to be consistent in order to avoid any misinterpretation:

m/s or ms^{-1} ; Wb/m^{-2} or $Wb m^{-2}$

Divisions between characters must be clearly indicated:

$lm = \text{lumen}$, $lm = \text{litre times metres}$;

$ms^{-1} = \text{one over millisecond}$, $m s^{-1} = \text{metres per second}$.

The oblique stroke means 'divided by' and so may not always be suitable as a symbol for 'per':

centimetres per second per second is written cm/s^2 or $cm s^{-2}$ not $cm/s/s$

11. Writing Numbers

Numbers consisting of more than three numerals are to be separated into groups of three by commas. However, this does not apply to dates

The year 1988, but 13, 472, 371

Numbers combined with a unit of measure symbol are never written out:

1 mg, 7.5 mm, 2,000 IU/kg body weight

If unpreceded by a number, the unit of measure is written out:

‘The patient excreted several litres of urine per day’

It is incorrect to write ‘15-24,000 cells’ if the author means 15,000 cells: ‘15,000-24,000 cells’ is correct.

The archaic rule that the numbers from 1 through 12 should always be written out is not to be followed, especially when these numbers are used to enumerate units of measure:

10h, 4 mg, 5-year survival rate, 9 out of 10 patients

Even at the beginning the beginning of sentences such numbers are not written out.

As a general rule, decimal points must be preceded by a zero in the text, tables and graphs:

0.005 not .005

Roman numerals are usually written in capital letters; lower case letters are sometimes used for numbering pages, text sections and volumes:

ii=II, xii == XII, lxxvi == LXXVI

12. Quotation Marks

The following quotation marks are used in English-language texts:

Simple quotation: ‘ _____ ’

Quotation within a quotation: ‘ _____ ’ ‘ _____ ’ ‘ _____ ’

Words, phrases and sentences quoted directly from other sources are enclosed in quotation marks, and the exact, source is mentioned.

13. Writing Names of Persons

The author is responsible for correct spellings of names, persons and for their agreement between the text and the bibliography/reference list.

When sources are referred to within the text, authors' names should be written in upper and lower cases; if written all in capitals, they would lose certain orthographic features: such as; umlauts, capitalization and accent marks:

Müller/Müeller/Muller

MacMillan/Macmillan/McMillan

Di Stefano/di Stefano/Distefano

For references cited in the text which have one or two authors, all names are written out. For works having three or more authors or editors, only the first name is written and is followed by et al. No first names or initials of the above cited authors or editors are given in the text:

(Corbett and Pollock, 1976)

Carpenter et al. (1979), instead of

Carpenter, Miller and Bond (1979)

In the bibliography/reference list, on the other hand, all authors' names are written out, and the first initials are given.

14. Writing Product and Brand Names

The author is responsible for the correct representation of product names and registered brand names. If a product name is protected, it is marked with the superscript registration symbol ® the first time it appears, followed, if desired, by the name, city and country of the manufacturing firm. The registration symbol does not appear in subsequent reference(s) to the product.

15. Greek Letters

The decision whether to use Greek letters (γ - globulin, β - receptors) or transcriptions of Greek letters (gamma-globulin, beta-receptors) is left to the author. Either notation is acceptable, as long as it is consistently used throughout the text.

16. Manuscript

Manuscripts written in English should follow *The Concise Oxford Dictionary* for spellings and abbreviations.

These are to be typed and printed in black and white. However, certain symbols, elaborate mathematical equations, complex tabular matter, exponents and subscripts may, at the discretion of the research supervisor(s), be neatly executed in hand with (black) Indian ink or by other suitable means (e.g. stencil). Similarly, in case of microscopic slides high quality glossy prints should be provided.

The final copy of the thesis should be correct in spelling and punctuation and neat in form, since it will help in enhancing the academic image of both the author and the University.

17. Numbering of Pages

No page number should appear on the title page, certificate and declaration pages although they should be included in the counting. Beginning with the first page of the preface all pages should be numbered according to one of the following systems:

- A. Arabic numerals (1, 2... ,9) may be used consecutively throughout, from the first page of preface/acknowledgements (i.e., p. 4) to the end of the Thesis.
- B. Preliminary pages (Preface/Acknowledgements and Table of Contents) may be numbered in lower case Roman numerals (p. iv being the first page of Preface/Acknowledgements). Arabic numerals may be used beginning with the first page of the text (p. 1).
- C. All pages of the Thesis shall be on the **right bottom** of the page in number format (Page 1 of 100) except the preliminary pages which shall be numbered in lower case Roman Numerical (ii, iii, iv,...).

Page numbers are to be placed 1 cm from the right edge and 2 cm from the top edge of the sheet except on the first pages of (1) Preface/Acknowledgements, (2) Table of Contents, (3) Each new chapter or major section of the text, (4) Summary and (5) Bibliography/References. On these pages the numbers are to be centred 1 cm from the bottom edge of the sheet.

If a new page is inserted into the manuscript after the final typing has been completed, all pages following the new page must be renumbered accordingly. An interposed page should not be marked 'A' or 'a' (e.g. '19A' or '19a'), because if such a page is lost, the remaining pages will provide no indication of the inserted page. If pages are deleted from the finished manuscript (say upon a revision, etc.), it is possible either to add the missing Page number(s) to page that follows (e.g. '114/115' or '114-117'), or to renumber all subsequent pages.

18. Bibliography/References

18.1 General Guidelines

Only those publications which have been cited in the text, the tables and figure legends should be included in reference, and the works which are of direct relevance to the thesis topic should be included in the bibliography. These should not normally contain unpublished material, and personal communications should be mentioned only in the text.

The candidate must ensure consistency in the form and style of bibliography/references chosen for all quotes in the entire volume of thesis. Special attention should be paid to the spellings of the names of the authors and to such information as year, volume, page, etc., which must be complete and accurate in all respects. The general rule is to supply enough data to enable the user to locate the source without difficulty. It is important to consider the most recent literature in order to avoid any subsequent revision.

The last names (surnames) with initials of first names of all authors are always given in the bibliography/reference list; they must not be replaced by the phrase *et al.* if there are three or more authors. For Chinese and Spanish authors all names should be given as in the original, since the patronymic is not always given last in these languages.

Within the text, if co-authors are to be collectively cited, as in 'Smith and co-workers' or 'Smith *et al.*', the latter form is inappropriate unless the individual name 'Smith' appears first among the authors named in the original.

It is not customary in scientific and medical literature to use superscript numerals and footnotes when referring to source material within the text,

Bibliography/references should appear at the end of the main body of the text, listed in alphabetical order according to the authors' names. Numbered reference list is discouraged.

18.2 Alphabetical Bibliography/Reference List

The references are arranged in alphabetical order by the authors' names. For this, the first criterion is the author's surname (last name). For identical surnames, the order is governed by first initials. If these are also identical, and the work has more than one author, the second author's surname determines the order. Otherwise the works are listed in chronological sequence by years of publications. If the years of publications are identical as well, lower cases are appended to each for purposes of distinction (e.g. 1989a & 1989b), i.e. two or more articles by the same author(s) published in the same year are marked with lower cases after the year of publication. The title of the journal article or book does not influence alphabetization of the bibliography/reference list.

For clarity here is an example of the correct arrangement of an alphabetical bibliography/reference list:

Ahrens, E.H. (1943)...

Ahrens, E.H. (1975) ...

Ahrens, E.H., Harris, R.C. and MacMahon, H.E. (1972a) ...

Ahrens, E.H., Harris, R.C. and MacMahon, H.E. (1972b)...

Ahrens, E.H. and Kunkel, H.G. (1971) ...

Within the text, these references should be cited either as follows:

... (Ahrens, 1943)/... (Ahrens, 1943)...

... (Ahrens, 1975)/... (Ahrens, 1975) ...

... (Ahrens et al., 1972a, b)/ ... (Ahrens et al., 1972a, b)...

... (Ahrens and Kunkel, 1971)/...(Ahrens and Kunkel, 1971)...

(i.e. when appearing at the end/middle of a sentence) or as follows:

Ahrens (1943)... / Ahrens (1943)...

Ahrens (1975)... / Ahrens (1975)...

Ahrens et al. (1972a, b)../...Ahrens et al. (1972a, b)...

Ahrens and Kunkel (1971)../...Ahrens and Kunkel (1971)...

(i.e. when appearing at the beginning/middle of a sentence).

The sequence of several references cited at the same place in the text, whether alphabetical (e.g. Battaglia et al., 1976; Demuth, 1972; Fritsche, 1974) or chronological by year of publication (e.g. Demuth, 1972; Fritsche, 1974; Battaglia et al., 1976) is a matter of choice; albeit only one style should be followed throughout the text.

18.3 Alphabetical Order of Names with Prepositions and Prefixes

Prepositions which denote nobility ('von', 'van', etc.) are placed after the authors' first initials, which in turn are placed after the surname:

Haller, A. von

Prefixes which are written as part of the surname, such as Mac, Mc, O', etc. are treated as part of the name:

MacMillan, P.B.S. McKee, R.H. O'Connell, M.

Abbreviated prefixes (e.g. Mc) are treated in the same way as complete ones (e.g. Mac); otherwise the names would appear at various points in the bibliography/reference list depending on the way the prefix is written:

MacCarthy

McCready

MacDonald

McDonald

Double names and composite names are alphabetized by the first surname:

Castro Monteiro de Barros Netto, M.J.

Meyer zum Gottesberge, H.

Ogilvie-Gordon, M.

Schulze-Defoy, K.-H

18.4 Citing Journal/Periodical Articles

Details of journal articles should be cited in the following order:

Last names and first initials of all authors (year of publication), title of article (no capitalization except nouns). *Abbreviated title of journal, volume number* followed if desired by *issue number in parenthesis* colon (:). First page hyphen (-) last page.

In certain disciplines it may be customary to omit the title of journal articles and to put year of publication after the abbreviated title of journal. For the journal title abbreviations, the pattern of respective style manuals/guides will be followed. If it is not possible to locate an authoritative abbreviation for a journal title, the full title is to be cited. In all these matters, the opinion of the research supervisor(s) shall prevail.

Santley, R.S. (1985) The Political Economy of Aztec Empire. *Journal of Anthropological Research*, 41: 327-37.

Baun, R.M. (1986) Alcoholism and Family Abuse in Maggie and the Bluest Eye. *Mosaic*, 19(3): 91-105.

Jones, A.B. *J. Chem. Soc.* (1956) 234.

Journal with several yearly volumes which are not consecutively numbered

Brozovich, B., Cattel, W.R., Cottrall, M.F. Gwyther, M.M., McMillan, J.M., Jr. Malpas, J.S., Salisbury, A. and Trotta, N.G. (1975) Iron metabolism in patients undergoing regular dialysis therapy. *Br. Med. J.*, *ii*: 695-98.

A Journal having the same Title as other Journals is identified by giving the Place of Publication after the Title

Bowdler, A.J. (1977) Blood volume studies in patients with splenomegaly. *Transfusion, Philcad.*, *10*:171-81,

Supplement to Journals

Jeremic, V., Stanulovic, M. and Leskovac. V. (1974) Tissue distribution of vitamin B -inactivating reactions in rats. *Arch. Pharmacol., suppl.* 285:36.

Quotes from Abstracts

Rao, L. and Shahidi, N. (1972) The effect of 11-keto pregnenolone on red cell volume. *Pediatr. Res.*, *6*:372 (abstract),

Publications of Study Groups, Government Agencies, International Organizations

Herpesvirus Study Group (1974) Provisional labels for herpesvirus. *J. Gen. Virol.*, *20*:416-19.

World Health Organization (1977) Standardization of procedures for the study of glucose-6-phosphate dehydrogenase. *Tech. Rep. Ser. Wld. Hlth Org.*, No. 366.

Composite Reference to Several Journal Articles

Whenever possible, composite references should be used rather than a series of individual references.

1. Jones, A.B. *J. Chem. Soc., Dalton Trans.* (1977) 123; (1978) 834.
2. Jones, A.B. *J. Chem. Soc., Dalton Trans.* (1977) 123; *J. Am. Chem. Soc.* (1956) 78: 1234.
3. Jones, A.B. *J. Chem. Soc.* (1956) 234; Jones, A.B. and Brown, C.D. *J. Chem. Soc. B.* (1967) 234, 1077; (1968) 599.
4. Jones, A.B. *J. Am. Chem. Soc.* (1956) 78: 1234; Jones, A.B. and Brown, C.D. *ibid.* (1957) 79:567; Jones, A.B. and Green, E. F. *ibid.* 999.
5. Smith, T.P., Inverson, D.J., Droege, M.W., Kwan, K.S. and Taube, H. *Inorg. Chem.* (1987) 26:2882; Kirchner, K., Dodgen, H.W., Wherland, S. and Hunt, J.P. *Inorg. Chem.* (1989) 28: 604.

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6. McLendon, G. and Hake, R. *Chem. Re.* (1992) 92: 481 Moser, C.C., Farid, R.S. and Dutton, P.L. *Nature* (1992) 355: 796.

If only one paper from a composite reference is required for citation later, then composite reference may be divided by letters. ·

- 7(a). Jones, A.B. *J. Chem. Soc., Dalton Trans.* (1978) 467.

- 7(b). Jones, A.B. and Brown, C.D. *J. Chem. Soc., Perkin Trans.* (1979) 2: 234.

8. Jones, A.B. *J. Chem. Soc.* (a) 1967 867; (b) (1968) 1742; (c), etc.

A composite reference may cite a previous reference in the form:

9. Jones, A.B. *J. Chem. Soc.* (1956) 2324; Jones, A.B. and Brown, C.D., ref. 4.

It is to be noted that *ibid.* is used only within a given reference and not to refer from one reference number to another; the abbreviated title of journal should be repeated for separate reference numbers. Furthermore, *idem.*, *id.*, *loc. cit.*, and *op. cit.*, are not used in references.

An Article from a Newspaper

Fuerbringer, J. (1987) Budgetary rhythms. *New York Times*, 20 Mar. 1987, late ed.: A8.

An Editorial

Evans, H. (1987) Free speech and free air. Editorial, *US News and World Report*, 11 May 1987: 82.

An Anonymous Article

A traffic ban drives Rome crazy. *Newsweek*, 16 Mar. 1987: 47,

A letter to the Editor

Levin, H. (1980) Letter, *Partisan Review*, 47: 320.

18.5 Citing Books, etc.

For books, information regarding the authors (year of publication), *title* (capitalize nouns, adjectives, verbs, pronouns, numerals, adverbs; do not capitalize conjunctions, articles, prepositions), edition or volume (if more than one has been published). Place of publication, colon (:), publisher and page number (if required) should be given in that order.

Freedman, R. R. (1984) *What Do Unions Do?* New York: Basic.

Guidelines for Preparation of Ph. D. Thesis

Shriver, D.F. and Drezdson, M.A. (1986) *The Manipulation of Air-Sensitive Compounds*, 2nd ed. New York: John Wiley and Sons, Inc.

Edited Book

Laskin A.I. and Lachevalier, H.A. (eds.) (1974) *Handbook of Microbiology*, Vol. 4. Cleveland: CRC Press.

Article in Edited Book

Vezina, C. and Rakhit, S. (1974) in *Handbook of Microbiology*, Vol. 4, A.I. Laskin and H.A. Lechevalier (eds.). Cleveland: CRC Press. p.117.

(It should be noted that in such a citation, the last name(s) of author(s) of an edited book appears after initials.)

Monographs

Dixon, M. and Webb, E.C. (1976) *Enzymes*, 2nd ed. London: Longmans Green. pp.43-68.

Anonymous Books

Encyclopedia in Photography (1984) New York: Crown.

New Jersey: A Guide to Its Past and Present (1939) New York: Viking.

Multivolume Works

Daiches, D. (1970) 4 *Critical History of English Literature*, 2nd ed., 2 Vols. New York: Ronald.

Churchill, W.S. (1957) *The Age of Revolution*. New York.

Dodd, Vol. 3 of *A History of the English-Speaking Peoples*, 4 Vols. (1956-1958).

A Translation

Calvino, I. (1986) *The Uses of Literature*, trans. P. Creagh San Diego: Harcourt.

An Article in a Reference Book

Graham, M. (1985-1986) *Who's Who of American Women I* 4th ed.

Pamphlets

Career As An Aerospace-Aircraft Engineer (1978) Chicago: Institute for Research.

Kilgus, R. (1981) *Color Scripsit Program Manual*. Fort Worth: Tandy.

Reports, Bulletins, etc.

Allen, R.A., Smith, D.B. and Hiscott, J.E. (1961) *Radioisotope Data*, UKAEA Research Group Report AERE-R 2938. London: H.M.S.O.

Sheldrick, G.M. (1976) SHE IX-76, *Program for Crystal Structure Determinations*. Cambridge: University of Cambridge.

Arnberg, I.K., Marovitz, W.F. and Mackenzie, A.P. (1970) Preparative techniques for the study of soft biologic tissues in the scanning electron microscope; a comparison of air drying, low temperature evaporation and freeze drying. *Proc.3rdAnn. Stereoscan Coll.*, New York, 1969. Chicago: Kent Cambridge Scientific. pp. 121-42.

A Book by Corporate Author

A corporate author may be a commission, an association, a committee, or any other group whose individual members are not identified on the title page. Cite the book by corporate author, even if corporate author is the publisher.

Commission on the Humanities (1980) *The Humanities in American Life: Report of the Commission on the Humanities*. Berkeley: University of California.

National Committee on Careers for Older Americans (1970) *Older Americans: An Untapped Resource*. Washington: Am.Acad. Educ. Dev.

Government Publications

United Nations Centre for National Resources (1980) *State Petroleum Enterprises in Developing Countries*. Elmsford: Pergamon.

United States Cong. (1946) *Joint Committee on the Investigation of the Pearl Harbor Attack Hearings*. 79th Cong; 1stand 2nd sess. 32 Vols. Washington: GPO.

United States Cong. House (1969) *Memphis Riots and Massacres by E.B. Washburn*. 39th Congr., 2nd sess. H. Rept. 101, 1866. New York: Arno.

Thesis

Chahal, S.M.S. (1981) *Genetic Variation and Structure in Selected Populations of India*. Ph.D. Thesis, University of Newcastle upon Tyne, England.

Johnson, N.K. (1980) *Cultural and Psychological Determinants of Health and Illness*. Dissertation, University of Washington.

Maps and Charts

In general, treat a map or chart like an anonymous book, but add the appropriate descriptive label-map, chart.

Canada, map (1987) Chicago: Rand.

Grammar and Punctuation, chart (1980) Grand Haven: School Zone.

Composite Reference to Several Books

(a) Bard, A.J. and Faulkner, L.R. (1980) *Electrochemical Methods*. New York: Wiley & Sons, Inc. pp. 213-48, 429-87;

(b) Feldberg, S. W. (1969) *In Electroanalytical Chemistry*, Vol. 3, A.J. Bard (ed.). New York: Marcel Dekker, Inc. pp. 199-296;

(c) Maloy, J, T, (1984) *In Laboratory Techniques in Electroanalytical Chemistry*. P., T. Kissinger and W. R. Heineman (eds.). New York: Marcel Dekker, Inc. pp. 417-61.

Composite Reference to Journal Articles and Books

(a) Holm, R.H. (1987) *Chem. Rev.*, 87:1401;

(b) Taube, H. (1970) *Electron Transfer Reactions of Complex Ions in Solution*. New York: Academic Press.

18.6 Citing Unpublished Material

Material Accepted for Publication, but not yet Published

Sjoegren, U. and Brandt, L. Different composition and mitotic activities of the haemopoietic tissue in bone marrow, spleen and liver in chronic myeloid leukaemia. *Acta laemat.* (in press).

Jones, A.D, J, Chem. Soc., *Dalton Trans.* (in press).

Material Submitted for Publication but not yet Accepted

Jones, A.I. *Angew Chem.* (submitted for publication).

Material presented at a Meeting, Congress, or before a Society, etc., but not yet Published

Jones, A.B. presented (in part) at the 28th Congress of the International Union of Pure and Applied Chemistry, Vancouver, August 1981.

Material to be Published but not yet Submitted

Ball, G. B. (unpublished work).

References to unpublished work of other authors should not be made without their permission.

Personal Communications

Ball, G.B. (personal communication)

but not as

Ball, G.B. (private communication)

18.7 Citing Patents

Patents should be indicated in the form:

B.P. 357, 450, 367, 455-57; U.S.P. 1,171 230; G.P. 436112-14; Jap. P. 20,101. Dates are indicated thus: B.P. 666776/ 1956. Patents which are applied for must always be given a year, e.g. B.P. Appl. 102/1982.

18.8 Citing Legal Documents, etc.

A Legal Document

The title number precedes the code which is followed by section and year;

15 US Code Se. 785j (b), 1964.

US Const. Art. 1. Sec. 1.

A Judgement/Law Case

In citing a case/judgement, include, in addition to the name of the first plaintiff and the first defendant, the volume, name (not underlined) and page of the law report cited; the name of the court that decided the case; and the year in which it was decided.

Stevens V. National Broadcasting Co., 148 USPO 755, CA Super, Ct., 1966.

18.9 Citing Computer Software, etc.

Computer Software

An entry from a commercially produced computer programme should contain the following information: the writer of the programme, if known; the year of publication; the title of the programme; the version of the programme, preceded by the abbreviation vers.; the descriptive label computer software; and the distributor. At the end of the entry add any other pertinent information-for example, the operating system for which the programme is designed (PC-DOS2. 10 CP/M 2.2); the number of kilobytes, or units of memory (SKB); and the form of the programme (cartridge, cassette, disk).

Smith, J. (2022). *Data Analyzer Pro* (vers. 3.5) [Computer Software]. Tech Soft Solutions. Designed for Windows 10; requires 8GB RAM; available on DVD and digital download.

Johnson, R. & Lee, M. (2020). *Code Optimizer* (vers. 2.1) [Computer Software]. Dev Tools Inc. Compatible with Linux (Ubuntu 18.04); requires 4GB RAM; distributed via online download Material from a Computer Service.

Anderson, P. (2019). *Finance Tracker* (vers. 5.0) [Computer Software]. Money Tech Corp. Designed for macOS 10.15; requires 2GB RAM; available on USB drive and digital download.

Python Software Foundation. (2024). *Python* (vers. 3.12) [Computer Software]. Python.org. Compatible with Windows, macOS, and Linux; requires at least 2GB RAM; available for download at <https://www.python.org>.

Richard, E.P. (1981) *Karel and Robot: A Gentle Introduction to the Art of Programming*. Computer Software, Cybertronics.

Soldan T.J. and Spain, J.D. (1984) *Population Growth*. Computer Software, Conduit.

Connections (1982) Computer Software, Krell Software.

Material from a Computer Service

Add a reference to the Computer services--such as BRS, Dialog, or Mead--at the end of the entry. Give the publication information as provided by the service, the name of the service, and the accession or identifying number within the service.

Schomer, H.C, (1983) *South Africa: Beyond Fair Employment*. Harvard Business Review, 1454+Dialog file 122, item119425 833160.

Turner, B.B. (1983) *American Men and Women of Science*, 15th ed. Bowker, Dialog file 236, item 0107406.

Material from an Information Service

Add a reference to the information service – such as ERIC (Educational Resources Information Centre) NTIS (National Technical Information Service) – at the end of the entry. If the material was published previously, give the full details of its original publication, followed by the name of the service and the identifying number within the service.

Spolsky, B. (1969) *Navajo Language Maintenance: Six-year-Olds in 1969*, Navajo Reading Study Prog. Rept. 5, Albuquerque: University of New Mexico, 22 FRIC BD 043 004.

Streiff, P.R. (1970) *Some Criteria for Designing Evaluation of TESOL Programmes*, ERIC IO ED 040 385.

19. Style Manuals/Guides

Every scholarly field has its preferred format or style. The following manuals/guides describe the styles of some disciplines.

Biology

Council of Biology Editors, Style Manual Committee (1983) *CBE Style Manual: A Guide for Authors, Editors, and Publishers in the Biological Sciences*, 5th ed. Bethesda: Council of Biology Editors.

Chemistry

American Chemical Society (1986) *The American Chemical Society Style Guide*. Washington: American Chemical Society. American Chemical Society: Chemical Abstracts Index Guide. American Chemical Society: Chemical Abstracts Service Source *Index*.

Geology

United States Geological Survey (1978) *Suggestions to Authors of the Reports of the United States Geological Survey*, 6th ed. Washington: GPO.

Languages, Literature and Humanities

The Modern Language Association of America (1988) *MLA Handbook for Writers of Research Papers*, New York: The Modern Language Association of America. (Available in East-West Press Edition, 1991).

Law

Harvard Law Rev. Assn. *A Uniform System of Citation*, Cambridge: Harvard Law Rev. Assn.

Linguistics

Linguistic Society of America. (2022, December), *LSA Bulletin*, Published annually.

Mathematics

American Mathematical Society (1980) *A Manual for Authors of Mathematical Papers*, 7th ed. American Mathematical Society.

Medicine

International Steering Committee of Medical Editor (1979) Uniform requirements for manuscripts submitted to biomedical journals. *Annals of Internal Medicine*, 90:95-9.

Physics

American Institute of Physics, Publications Board (1978) *Style Manual for Guidance in the Preparation of Papers*, 3rd ed. American Institute of Physics.

Psychology

American Psychological Association (1983) *Publication Manual of the American Psychological Association*, 3rd ed. American Psychological Assn.

TITLE OF THE THESIS

(In capital letters, double-spaced if more than one line)

A

THESIS

Presented to the Faculty of (name of the Faculty) of the

Punjabi University

in Fulfilment of the Requirements for the

Degree of

DOCTOR OF PHILOSOPHY

IN

NAME OF THE SUBJECT

By

Full name* of the candidate



Name of the Department
Punjabi University, Patiala
Month, Year
(date of presentation of thesis)

*Degrees are not to be mentioned with the name.

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NETWORK BASED TECHNIQUES FOR THE
SEGMENTATION OF DERMOSCOPIC IMAGES TO DETECT
SKIN LESIONS**

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I,, certify that the work embodied in this Ph.D. Thesis is my own bonafide work carried out by me under the Supervision of and the Co-supervision offromtoat the Department of, Punjabi University, Patiala and Department of(if applicable).

The matter embodied in this Ph.D. Thesis has not been submitted for the award of any other Degree/Diploma. A part of this work has already been published as listed under the title “Publications based in the Research Work”.

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(Name of the Candidate)

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(Name & Designation)

Day Month Year

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DECLARATION

I hereby affirm that the work presented in this thesis includes work which has been done through collaboration and that none of the collaborators has made or will make use of the joint work (published/unpublished) incorporated in this thesis for the award of any degree/diploma of any University/Institution.

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Signature(s) of Collaborator(s)
(Name(s) & Address(es))

Day Month Year

Countersigned

Co-Supervisor Signature
(Name & Designation)

Day Month Year

Supervisor Signature
(Name & Designation)

Day Month Year