

## Guidelines for Synopsis Writing

1. **Introductory.** The aim of this compilation is to guide NUMS' Master and Ph.D. students in writing research proposal of reasonable quality. The postgraduate studies office is always pleased to provide guidance and support for postgraduate students for completion and timely submission of their synopsis and thesis. Students are expected to be fully aware of their responsibilities to meet all deadlines, formatting requirements and paperwork needed to be done for the completion and submission of their synopsis/ thesis.
2. **Synopsis contents/ structure.** A synopsis is an outline of the proposed research project to be conducted in the University for postgraduate studies. It highlights a clear research question and approaches to solve the problem, its originality and significance. It should be concise, avoid repetitions and provide sufficient details to be accepted on academic merits. A synopsis should be constructed in a manner that facilitates the supervisory committee to assess the originality of the idea, background information, methodology, outcome and feasibility of the research project. It should be structured in the manner explained hereinafter.
3. **Title page.** The title page of a synopsis should include title of the research project, name of the student, degree for which synopsis is being written (e.g. M.Sc, M.Phil., Ph.D. etc.), name of discipline (e.g. pathology) and name of the supervisor, department, institution, university and supervisory committee members alongwith their qualifications, designations and place of work.
4. **Title.** The title should be brief, specific and reflect the main objectives of study. It should neither be too short nor too long to exceed fifty words. Superfluous phrases or expressions such as 'an investigation into' must be avoided.
5. **Project summary.** A project summary describes the proposed research giving a clear idea about the background information, research question and student's intent to explore the key issues. The student should summarise the major components of the research proposal including a background/ rationale of study, short statement of the problem, objectives/ hypothesis of the study, research design, methodology of data analysis and anticipated results and their significance.
6. **Keywords.** This section is an alphabetically ordered list of the appropriate keywords up to 5-8 that would help to find out the recent literature on the relevant subject in a search engine. The words should be separated by semi-colon (;).
7. **Introduction.** Gives the background of the project and the rationale for conducting the study. The introduction consists of well-written three paragraphs to efficiently and meaningfully set the context of the proposed research. The first paragraph introduces the main area of research and relevant background in the subject area in precise manner. The problem under study must be relevant to the community and national needs to improve the healthcare system. The second paragraph introduces the project by describing the specific gap in the present knowledge or existing problem in the basic biomedical field/healthcare system particularly in Pakistan. It should further

describe critical analysis of the problem being studied in precise and clear terms based on the review of recent scientific literature. It is important that in this paragraph, the research question for which the proposed investigation aims to find an answer is explicitly formulated. The third which is the final paragraph should highlight the proposed objectives and justification for the conduct of the study. An explanation of its significance should be used as an opportunity to demonstrate that research has not been conducted/performed before and that the proposed project will really add something new to the existing scientific literature.

8. **Objectives of the Study.** All research projects should have 'SMART' objectives (Specific, Measureable, Achievable, Relevant and Time-bound). They must be consistent with the problem and identify the variables involved in the research. The objectives should be clearly stated and logically presented. Students are advised to resist any temptation to put too many objectives or over-ambitious objectives that cannot be adequately achieved under the protocol. Objectives are written in 'action verbs' 1. to determine 2. to compare.... etc. After statement of the primary objective, secondary objectives may be mentioned.
9. **Hypothesis.** The researchers formulate a hypothesis as an expectation concerning the relationship between the variables in the research project. Generally, there are two types of hypotheses, null and alternate. The null hypothesis: where the researcher makes a statement of no difference from an expected outcome. In the alternate hypothesis: the researcher makes a statement that a true difference does exist between expected and obtained outcomes. However, it must be kept in mind that descriptive studies do not carry or involve any hypothesis.
10. **Significance/ impact/ benefits of study.** It emphasizes on the significance/ importance of the research work/ study; vital contribution of the results of the study and who will benefit from it. Convince the reviewers that the proposed research will make a significant and substantial contribution to increase the knowledge in the particular subject/area /literature. It should be possible in most cases to predict the specific and general benefits for people and policy-maker on completion of the proposed research.
11. **Review of literature/ justification for the research problem.** Review of literature in a synopsis helps the reviewer in assessing the knowledge of the researcher. It familiarises the reviewers to the problem under study and the work done by other researchers at local or international level on similar subjects. A comprehensive and up-to-date literature review clearly highlights the existing gaps. It assists in identifying various variables in the research project and conceptualises their relationship. Research methodology of the researcher can be structured and modified after reviewing the literature. It helps the researcher to understand the difficulties faced by others and the corrective steps taken or modifications made by them. The reviewer can assess the work put in by the researcher, assists in the feasibility and justification of the proposed research project to address the national needs. Use of very old

references (more than 5 years old) when adding information from literature should be avoided. References must be properly cited in all paragraphs using author/ year format.

12. **Research methodology (plan).** Student should specify what research methodology is chosen to conduct the study and justify the specific approach selected to substantiate the proposed research project. This section should also include the following:

- a) **Setting:** State the place where research work will be undertaken and data will be collected. This may be a hospital and / or its department(s)/ labs or the community or both.
- b) **Study design:** Mention the name of the appropriate study design which should preferably relate to objectives (qualitative or quantitative research). A single study design or a combination can be selected e.g. cross-sectional study or survey; observational analytical designs; prospective study; experimental designs or clinical or field trials.
- c) **Sample size:** The sample size should be adequate to apply all relevant tests of statistical significance and has appropriate power. The sample size depends on the study design. The sample size must be justified scientifically as how it was calculated. The parameters used for sample size calculations must be clearly mentioned and referenced.
- d) **Sampling technique:** The study population can be healthy people, patients or recipients of certain treatment, animal or medical device. There are many methods for sampling like simple random, systemic and stratified sampling, cluster sampling, etc. The sample should be representative of the population and should be reliable. This minimises sampling errors. Type of sampling employed for each category of subjects under study should be mentioned.
  - i. **Inclusion criteria,** on what bases will the study subject be inducted in the study? Background variables which are considered for inclusion must be stated. In case of special circumstances, the criteria must clearly state the inclusion strategy.
  - ii. **Exclusion criteria,** on what bases will the study subject be excluded from the study? How the variables mentioned in exclusion criteria are detected? Exclusion must also be justified as what pushed the researcher to exclude a particular subject from the study.

13. **Ethical approval.** Wherever necessary, Ethical Committee's approval from the institute must be obtained and attached with the synopsis. Ethical approval is required in all human and animal studies. Consent as approved by Institutional Review Board should invariably be used.

14. **Analytical Methods/ Data collection procedure.** Complete details of data collection procedure should be mentioned. The researcher will have to describe the method of data collection, which may be in the form of a questionnaire(s), interviews, screening

procedures, medical examination, laboratory investigations/ experiments/ instruments and quality control to get reliable and valid data. Clinical trials should have the proprietary names, chemical composition, dose and frequency of administration of drugs in the trial protocol.

**15. Data/ statistical analysis,** Data analysis is an important part of a research project and must mention the statistical package use for data analysis like SPSS. A good analysis leads to good results. The plans for data analysis should be mentioned as follows:

- a. Type of variables alongwith analysis plan must be mentioned.
- b. Type of statistical test in case of analytical studies, corresponding to type of comparing variables, correlation, regression, ANOVA must be mentioned.
- c. Level of significance for rejecting the null hypothesis must be mentioned (less than 0.05 is significant).
- d. Computer program/software used and data sorting method must be mentioned.

**16. Collaborating organisations.** The researchers are encouraged to collaborate with partner(s) within and outside Pakistan. In this regard, the researcher is required to identify complementarity and/or justify the need for collaboration, clearly identify the part(s) of research that will be carried out in the collaborator’s laboratory and include a letter from collaborating partner/agency expressing willingness to collaborate.

**17. Facilities and budget.** The details of facilities (equipment available for the research project in the host university/ institution and budget estimate for proposed project should be reported as under:

Description	% of time devoted to project	year 1	year 2	Amount (in million Rs.)
Equipment				
Subtotal:				
Reagents/kits				
Subtotal:				
Subtotal:				

Subtotal:				

**18. Duration/ Timeline:** The expected duration of research study and why this duration is required (number of patients, hospital tests, data collection and analysis, report writing, etc.). A detailed timetable (Gantt chart) of students' activities on a weekly or monthly basis, outlining targets that he expects to achieve per week or month for the entire duration of the study.

**19. References:** References are given in Harvard, style i.e. body of the text and take the form of the author's surname followed by the date of the publication, all within parentheses, e.g., (Johnston, 1917). Detail is given in the Appendix E.

**Official documents required,** all applicants are required to fill in the following forms as related to their study. Blank forms can be downloaded from NUMS' website. e.g. ***synopsis format and forms, etc.***

- i. Covering letter (subject: consideration of synopsis)
- ii. Ethical Approval letter from the concerned Institution Review Board (IRB)
- iii. Informed consent form Consent form taken must also be attached
- iv. Plagiarism report

**20. Format of synopsis:**

- a. **Language:** English.
- b. **Text:** should be in a single column and black in color.
- c. **Page size:** Page size should be A4.
- d. **Margins:** The left margin should measure 1.5 inches. The right, bottom and top margins should each measure 1 inch.
- e. **Line spacing:** Line spacing, of all text, including bibliographic references, should be 1.5. Figures, tables and their captions should be single-spaced. Line spacing should be 6 points (before and after) between the paragraphs.
- f. **Font style:** Times New Roman font style should be used.
- g. **Font size:** should be 12 points in main body text. For figures, tables, captions and charts, a font size of 10 points is to be used.
- h. **Headings and sub-headings:** Headings should appear at center of the page, all in capitals, bold 14 point font, sub-headings should be left aligned, all in capitals, bold and 12 point font.
- i. **Page numbering:** Page numbers should be placed at the center bottom of the page. Page numbers must be in the same font and font size as your text. Except for the title page, page numbers must be placed on each page of the synopsis. All pages of the synopsis should be numbered consecutively in Arabic numerals (1, 2, 3...).

# SYNOPSIS

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Title:

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*Dr.* \_\_\_\_\_

Ph.D. Trainee in -----

(Registration No. -----)



**Academic Supervisor**

\_\_\_\_\_  
\_\_\_\_\_

Department of -----

Institute -----

**National University of Medical Sciences, Rawalpindi**



**NUMS**  
NATIONAL UNIVERSITY  
OF MEDICAL SCIENCES

<b>Title of Research Project:</b> _____ _____	
<b>Synopsis submitted for:</b> <input type="checkbox"/> Master <input type="checkbox"/> M.Phil. <input checked="" type="checkbox"/> Ph.D.	<b>Discipline:</b> Pathology (Chemical Pathology)
<b>Name of the Applicant:</b> Dr. _____	<b>Qualifications (list all; with date)</b>
<b>Date of Enrollment:</b> _____	<b>Registration No.</b> _____
<b>Supervisor</b> <b>Signature:</b> _____ <b>Name:</b> _____ <b>Qualification:</b> _____ <b>Designation:</b> _____	
<b>Address:</b> Department of Chemical Pathology & Endocrinology, AFIP/AFPGMI Rawalpindi.	
<b>Phone No: 03-----.....</b>	<b>Email: ..... @yahoo.com</b>
<b>Head of Department</b> <b>Signature:</b> _____ <b>Name:</b> _____	

## References

References are given in Harvard style i.e. body of the text and take the form of the author's surname followed by the date of the publication, all within parentheses, e.g., (Johnston, 1917).

**References book.** The standard reference format for a book is: author(s) or editor(s) surname (s)/ and the initial(s) of their first name(s), year of publication, title of book (italicised), book edition (where the book is beyond the 1<sup>st</sup> edition), place of publication, publisher, page numbers you have taken information from (in case of a direct quote or a diagram, picture, etc.). Examples are given below:

<b>Material Type</b>	<b>In-text Example</b>	<i>Reference List Example</i>
<b>Book: Single author</b>	Costanzo (2006) wrote that...	Costanzo L. (2006). <i>Physiology</i> , Philadelphia: Saunders Elsevier.
<b>Book: 2 authors</b>	(Pears & Shields, 2008).	Pears, R. & Shields, G. (2008). <i>Cite them right: The essential referencing guide</i> , 3 <sup>rd</sup> ed. New York: Springer Publishing Co.
<b>Book: more than 2 authors</b>	(Simon et al., 1996).	Simon, L.S., Lipman, A.G. and Jacox, A.K. (2002). <i>Pain in Osteoarthritis, Rheumatoid Arthritis and Juvenile Chronic Arthritis</i> , 2 <sup>nd</sup> ed. Glenview, IL: American Pain Society.
<b>Book: no author</b>	Black's medical (1979).	<i>Black's medical dictionary</i> , (1979). 32 <sup>nd</sup> ed. London: A. & C. Black.
<b>Book: editor</b>	(Galanter, 2001).	Galanter, M. (ed.) (2001). <i>Services Research in the Era of Managed Care</i> , New York: Kluwer Academic/Plenum.
<b>Book: 2 or more editors</b>	(Patrick & Scambler, 1986).	Patrick, D. & Scambler, G. (eds.) 1986. <i>Sociology as applied to medicine</i> , London: Balliere Tindall.
<b>Book: chapter or article in an edited book</b>	Bergeron and Lowe (2003) stated that...	Bergeron, C. and Lowe, J. (2003). Frontotemporal degeneration: introduction. In: Dickson, D.W. (ed.) <i>Neurodegeneration: The Molecular Pathology of Dementia and Movement Disorders</i> , Switzerland: Neuropath Press, pp.342-348.



<b>eBook</b>	Veletsianos (2010) stated that. . .	Veletsianos, G. (2010). <i>Emerging technologies in medical education</i> , London: Routledge. Retrieved from: eBrary database. [Accessed 29 September 2015].
<b>eBook: chapter in an eBook</b>	(Resnick, 2001).	Resnick, N.M. (2001). Geriatric medicine. In: Braunwald, E., A.S. and Isselbacher, K.J. (eds.) <i>Harrison's Online</i> . Based on: Braunwald, E., Hauser, S.L., Fauci, A.S., Kasper, D.L., Longon, D.L. and Jameson, J.L. (eds.) <i>Harrison's Principles of Internal Medicine</i> . New York: McGraw-Hill. Retrieved from: <a href="http://www.hslls.pitt.edu/resources/documentation/harri-sonsinfo.html">http://www.hslls.pitt.edu/resources/documentation/harri-sonsinfo.html</a> . [Accessed 6 December 2015].

**References from journals' articles.** use last name followed by authors' first name initials. Write the year of publication (in parentheses), title of article, name of journal (in italics, capitalise the first letter of each word). Mention volume of journal and issue (in parentheses). Write pages of articles at the end with hyphen in between the first and last page of article. Examples are as under:

<b>Material Type</b>	<b>In-Text Example</b>	<b>Reference List Example</b>
<b>Journal article: print</b>	(Henderson, 2005)  (Arrami & Garner, 2008)  (Nowotny et al., 2015)	Henderson, J. (2005). Google Scholar: A source for clinicians? <i>Canadian Medical Association Journal</i> , 172 (12) 1549-1550.  Arrami, M. & Garner, H. (2008). A tale of two citations. <i>Nature</i> , 451 (7177) 397-399.  Nowotny, K., Jung, T. and Grune, T. (2015). Advanced glycation end products and oxidative stress in type 2 diabetes mellitus. <i>Biomolecules</i> , 5 (1) 194-222.
<b>Journal article: electronic database</b>	(Castell, 2008)	Castell, F. (2008). Professionalism in nursing practice. <i>Nursing Journal</i> , 12(9) 13-17. Retrieved from CINAHL. [Accessed 13 October 2015].
<b>Journal article: online only journal (volume &amp; issue number available)</b>	(Koopman, 2001)	Koopman, W. J. (2001). Prospects for autoimmune disease: Research advances in rheumatoid arthritis. <i>JAMA: Journal of the American Medical Association</i> , 285(5) 648-650. Retrieved from: <a href="http://jama.ama-assn.org/">http://jama.ama-assn.org/</a> [Accessed 13 October 2015].

<b>Journal article: Digital Object Identifier (DOI)</b>	(Strachan et al., 2008)	Strachan, M.W., Price, J.F. & Frier, B.M. (2008). Diabetes, cognitive impairment, and dementia. <i>BMJ</i> , 336 (7634) 6. doi: 10.1136/bmj. [Accessed 10 November 2016].
<b>Website</b>	World Health Organisation, (2010)	World Health Organisation. (2010). Tuberculosis. <a href="http://www.who.int/mediacentre/factsheets/fs104/en/">http://www.who.int/mediacentre/factsheets/fs104/en/</a> [Accessed 14 February 2012].
<b>Dissertations and Theses</b>	(Khan, 2016)	Khan, N.A. (2016). <i>Mechanisms of Antibiotic Resistance</i> . Ph.D. thesis, National University of Medical Sciences.
<b>Conference proceedings/abstracts</b>		Khuri, F.R., Lee, J.J. and Lippman, S.M.(2003). Effects on head and neck cancer tumors. In: Proceedings from the American Society of Clinical Oncology; May 30-31; Chicago, IL. Abstract 359.