



# **A GENERIC GUIDELINE FOR DISSERTATION WRITING DOCTOR OF ENVIRONMENTAL SCIENCE**

**Fourth Edition**

Doctor of Environmental Science  
School of Postgraduate Studies  
Diponegoro University  
Semarang  
2022

## **PREFACE**

Dissertation is a scientific work that is a result of independent research by promovendus with the guidance of a team of promoters, as one of the requirements for obtaining a doctorate degree. This scientific work is evaluated in the final examination (Dissertation Feasibility Examination, Dissertation Defence, and Doctoral Promotion), which is attended by team promoters and examiners specially appointed by Dean of the School of Postgraduate Studies/ Rector of Diponegoro University.

This guideline is a guideline that must be followed by Diponegoro University doctoral candidates, especially the doctoral candidates of Environmental Science, School of Postgraduate Science, Diponegoro University. In the preparation of the dissertation manuscript, adherence to these guidelines is a prerequisite for the acceptance of a dissertation from the doctoral candidate concerned.

With the completion of the preparation and publication of this guideline, we would like to thank all those who participated in the writing and review of this guideline.

Semarang, December 2022

Doctor of Environmental Science  
School of Postgraduate Studies

Head of Study Program

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## **I. SCOPE OF THE DISSERTATION**

Environmental science is an interdisciplinary academic field that integrates physical, biological, and information sciences (ecology, physics, chemistry, zoology, mineralogy, oceanology, limnology, soil science, geology, atmospheric science, geodesy, etc) to the study of the environment and the solution of environmental problems. Environmental studies incorporate more of the social sciences for understanding human relationships, perceptions, and policies toward the environment. Environmental engineering focuses on design and technology for improving environmental quality. The study can be categorized as environmental management which includes the internalization of the carrying capacity of the environment in spatial planning. Research related to environmental science is based on these two aspects. The environmental dimension or content of the research topic should be oriented towards an approach to a multidisciplinary perspective.

In the realm of dissertation research which is the highest level in level of scientific research, the work required is the creation of concepts and theories as a novelty. The research conducted is expected to produce a new model, both in terms of substance and procedure being developed. The urgency of the problem in dissertation research must come from an environmental perspective. Because it requires mastery of research methodology in the field of environment. To guarantee mastery of the theory that supports the dissertation, supporting courses that are relevant to the research topic are needed. The existence of the Philosophy of Science and Research Methodology course is the main support for students in mastering research methodology in a comprehensive manner. Ecology and Global Environmental Change course can provide additional insight to students regarding the search for solutions to the impact of global environmental problems, pressure on ecosystems, and the solutions including changes in quality and composition on a global scale with an energy and technology approach. The System Analysis and Environmental Modeling course emphasizes case studies with an analysis of environmental fields using software-based mathematical, statistical, and engineering models.

Mastery of theory from the application studied in dissertation research also needs to be supported by other courses that are relevant to student research topics. Therefore, other courses are also provided to support the dissertation. The results of student dissertation research must be disseminated in the form of scientific publications, both in peer-reviewed international journals and reputable international conferences. Therefore, students' ability to compile scientific work in the form of articles or manuscripts needs to be supported through the Scientific Article Writing course. Through this course, the process of preparing scientific

publications which is one of the mandatory requirements/outputs of the dissertation is expected to run more smoothly.

The stages of carrying out dissertation research have been detailed in Research courses which also serve as a form of monitoring and controlling the progress of the student's dissertation. The entire process has been designed to guarantee the completion of a dissertation that meets quality standards, both in terms of the scientific aspects of environmental science and the timeframe for completion of the dissertation and its publications.

After completing writing the dissertation, students are expected to be able to:

- 1). Have the ability to develop science and technology concepts through research in the environmental field.
- 2). Have the ability to manage, lead and develop research programs in the environmental field.
- 3). Have the ability of an interdisciplinary approach including abiotic, biotic, and culture.

The abilities possessed by students after completing the dissertation are in line with the learning outcomes of the environmental science doctoral program.

The following section describes the instructions and procedures for writing a doctoral dissertation in environmental science. The guidance of dissertation writing has also been equipped with examples which are explained in detail.

## II. DISSERTATION IN OUTLINE

The dissertation manuscript consists of 3 (three) Parts, namely The Initial Part, The Main Part, and The Final Part.

Below is given the completeness of each part.

### THE INITIAL PART

The Initial Part of the dissertation contains: Cover, Title Page, Title Explanation Page, Approval Page, Extra Pages, , Foreword, Table of Contents, List of Tables, List of Figures, List of Attachments, List of Abbreviations, Glossaries, Abstracts, and Summary. Below is a summary of each coverage.

All Headings in The Initial Part and their sections are not numbered sequentially and each Title is written on a new page.

Especially for the Preface, Table of Contents, List of Tables, List of Figures, List of Attachments, List of Abbreviations, Glossaries, Abstracts, Abstracts, Digest and Summary, the title name is written in the middle in bold and font size 14.

#### ➤ **Cover**

- On the Cover it is written in the middle (in order):  
**The symbol of Diponegoro University**, oval in shape measuring 3.5 x 5 cm, is black
- **Title of Dissertation Research**  
Arranged as short as possible in capital letters. Maximum 12 words. If more information is needed, it is written as Sub Title using lowercase letters. Behind the title is marked (:) to separate it from the subtitles.
- **Name of Doctoral Candidate**, written in full. First name, (Middle name), Family name, no degree.
- **Name of Institution :**  
At the bottom it is written: Diponegoro University, Semarang. Underneath it is written the month and year the dissertation was defended. (see Appendix 1)

#### ➤ **Title Page**

The title page is filled exactly with the Cover

#### ➤ **Title Explanation Page**

This page loads (in order from top to bottom in the middle)

#### ➤ **Title** (same as on Title Page)

#### ➤ Word : “Dissertation”

#### ➤ Statement: “To obtain a Doctorate in Environmental Science at Diponegoro University”.

#### ➤ Below: “To be defended in the Open Senate meeting on Date..... (date, month in letters, year)” and “hour”.

#### ➤ Kata “By” ;

- Underneath it is listed "Full Name of Doctoral Candidate" including First Name, (Middle Name) and Family Name”
- Underneath it is written “Born in..... (name of city/ district where the doctoral candidate was born)” (see attachment 2).

- **Approval Page**  
In order from top to bottom:
  - Title Dissertation
  - Name of promovendus
  - Names of Promoter and Co Promoter, as well as blank space for the date of approval and signature of the Promoters Team. (see attachment 3)
  
- **Ekstra Page**  
One page contains a doctoral candidate's personal statement including:
  - Statement: "Dedicated to ..."
  - Holy verse quotes, aphorisms.
  
- **Originality Statement Page**  
This page states that the dissertation prepared by the Doctoral Candidate is truly original in terms of ideas, formulations and research results. There are no works or opinions that have been written or published by other people unless they are written as a reference in the dissertation manuscript. The statement is signed by the Doctoral Candidate on a sufficient seal.
  
- **Preface**  
This chapter contains a statement of gratitude from the Doctoral Candidate to all people and institutions who have contributed to the implementation of doctoral studies and writing a dissertation manuscript.
  
- **Table of Content**  
This chapter contains the entire contents of the Dissertation, written up to 2 (two) or 3 (three) levels, namely Chapters and Sections.
  
- **List of Table/ Figure**  
This chapter contains sequentially the title of the figure and the page where the table/ figure is located.
  
- **List of Attachments**  
This chapter contains the title of the attachment and the page where the attachment is located.
  
- **List of Abbreviations**  
This chapter contains the order (in alphabetical order) the symbols and abbreviations used in the Dissertation Manuscript.
  
- **Glossary**  
This chapter contains the order (in alphabetical order) of the terminology used in the Dissertation Manuscript.
  
- **Abstract**  
This chapter contains a brief description of the objectives, methods and results of the research. Abstract is written in standard Indonesian and the translation is in English, not more than 250 words. Abstracts are written in a structured manner, including background, objectives, research methods, research results and conclusions and key words.
  
- **Summary**

This chapter contains a summary in Indonesian and English, about 5-7 quart size pages, 1.5 spacing, font size 12.

The summary is written in a structured manner, including the introduction, literature review, research methods, research results and conclusions, as well as selected bibliography cited

## **THE MAIN PART**

The main part of the Dissertation Manuscript contains the Introduction Chapters, Literature Review, Research Methods, Research Results and Discussion, Conclusions and Suggestions. Each chapter title is written in the middle in bold capital letters and font size 16.

Below is a brief but concise description of each chapter.

### **CHAPTER I INTRODUCTION**

This chapter covers the Background, Problem Formulation, Originality, Benefits and Research Objectives.

The title of each section is written on the left, in Bold font size 14.

The study in all sections is presented in a narrative manner, the transfer of discussion is carried out by moving paragraphs, without the inclusion of separate subsections..

Below each is detailed as follows :

#### **A. Background**

The background contains theories, or thoughts that form the basis for the need for research. In this section, certain symptoms, concepts or conjectures that encourage research to be carried out, provide arguments for why research is needed. In the first paragraph, the most important things that form the basis of the research rationale should be stated.

#### **B. Problem Formulation**

In this section interesting, necessary and important issues that can be answered through research that will be carried out by doctoral candidates are described clearly and completely and presented in a narrative manner. Then based on the presentation of the problem, then a Problem Formulation is written which includes definitions, assumptions and scope which will later be covered in the research. The formulation of the problem can be written in the form of a question sentence, or it can also be in the form of a statement that characterizes the problem. It should be noted that the consistency of this problem formulation is maintained throughout the writing of the Dissertation, including research objectives, conceptual framework, hypotheses and data analysis.

The problem formulated must be a researchable problem, namely:

- Feasible, in the sense that it can be researched by doctoral candidates, research facilities are available and the costs are affordable;
- Urgent, in the sense of urgent to be researched
- Scientific, in the sense of giving valuable and original scientific contributions;



- Current, warm; in the sense of presenting new developments in the science being occupied;
- Ethical, in the sense of conforming to ethical rules in all efforts to answer them.

**C. Originality**

This section discusses the originality of the research carried out, including the problem, or the answer, the approach or statistical analysis. In this section, the proposed research should be compared with other previous studies in terms of originality. An originality matrix that includes the name of the researcher/author, research objectives, results, and literature references can be presented in the appendix.

**D. Research Objectives**

The research objectives are derived from the problem formulation and are written in 2 levels, namely General Objectives and Specific Objectives.

**1. General Objectives**

The General Objectives describe in general the activities that will be carried out to find answers to the formulated problems.

**2. Specific Objectives**

The special purpose is a specific description of the general purpose, written in several sequences or decomposed using several domains according to its depth: explore, describe, examine, describe, analyze, etc.

**E. Research Benefit**

In this section, the proposed research contribution to the development of science and/ or technology is described. If possible, the contribution of research in solving development problems in various aspects related to research is also described.

**CHAPTER II LITERATURE REVIEW**

Literature review is an expression of the researcher's efforts in answering the research theoretically. In the literature review chapter, the results of previous studies that are related to the research carried out are described clearly. Also cited are various literatures that describe theories, findings, symptoms and signs, which give rise to ideas and the basis for the research conducted. The cited library is a library that are:

- Relevant to the research conducted, namely reaching and integrating with the problems described in the problem formulation in the previous section;
- Original, the articles used as references are original articles in journals or text-books;
- Up-to-date, referenced libraries are up-to-date.

The literature review is arranged systematically, starting with a library that focuses on the formulation of the problem, a library of problem formulation components, and continued with a library of answers or analogies of answers or parts of answers to the problems posed. Each study is sequenced, numbered sequentially (A, B, C and so on).

All cited literature must be presented in the Bibliography written in accordance with agreed rules and must be followed fully and consistently in the proposal text (for the Environmental Science Doctoral Program using the Harvard system).

## **CHAPTER III      THEORY FRAMEWORK, CONCEPT FRAMEWORK AND HYPOTHESES**

This chapter contains briefly the theoretical framework, conceptual framework and hypotheses, each of which is described separately.

### **1. Theory Framework**

The theoretical framework is the conclusion from the literatures studied. The writing of the theoretical framework is preceded by a narration as a summary of the literature review which has been described in Chapter II. Furthermore, the theoretical framework is expressed in the form of a flow chart/ diagram, a mathematical model, or only presented in a qualitative narrative form. This theoretical framework describes and explains the identification of variables, accompanying variables (if any) and the relationship between variables contained in the summary of the Literature Review.

### **2. Concept Framework**

The conceptual framework is a derivative of the theoretical framework, after being studied for its feasibility to be researched. In this framework, only the variables, accompanying variables (if any) and the relationship between variables will be studied. In this section, if necessary, explanations can also be given on how to control or negate the influence of other variables not studied. Like the Theoretical Framework, the Concept Framework is also preceded by a narrative as an explanation and then the framework is presented in the form of a diagram/ chart.

### **3. Hypotheses**

The hypothesis is a temporary answer to a problem that has been previously formulated based on a literature review. This provisional answer will be proven through the proposed research.

Like the research objectives, hypotheses should also be arranged in two levels, namely major hypotheses and minor hypotheses..

The two hypotheses are written in the form of a positive narrative statement, in a statement that is in accordance with the statistical analysis used in the proof..

#### **Major Hypotheses**

Provide general answers to the problems formulated previously. Major hypothesis is not tested statistically.

#### **Hipotesis Minor**

It is a description of the major hypothesis expressed in several specific answers that can be tested statistically in the proposed research.

In grounded or qualitative research, the conceptual framework and hypotheses do not have to be stated explicitly.

## CHAPTER IV RESEARCH METHODOLOGY

### A. Place and Time of Research

This section clearly describes the place of research and the characteristics of the place of research in question.

Research place is the location and/ or institution where data is obtained (research subjects, materials/ samples taken/ checked). State the reasons for choosing the research location.

### B. Research Design

The type of research can be:

- Quantitative Research (*survey*);
- Qualitative Research (*grounded*);
- *Action Research*

The design is aimed at answering research questions, as well as minimizing errors by maximizing reliability and validity. The type of research design really depends on the research problem, the extent to which the problem is known, and the extent to which possible data sources can be obtained. A clear description of the problem and identification of the various important factors that cause the problem are often sufficient information to design research.

The research design can be experimental (pure or quasi) or non-experimental (observational in nature can be cross-sectional, cohort, case-control, rapid survey, case reports and others) depending on the research problem to be studied.

This type of research design is exploratory, descriptive, and analytic, including the category of non-intervention research (observational studies) because it only makes observations. In this type of research, the researcher only describes and analyzes the object under study, but does not intervene, while intervention studies are experimental and quasi-experimental research. In intervention research, researchers can create conditions and measure the effect of each of these conditions. Usually, a comparison is made between the two groups. One group is intervened (for example by giving certain treatment), while the other group is not intervened (used as a control group).

The important thing to remember is that regardless of the type of research design and the type of research chosen, the conclusions produced must be valid and reliable. In other words, the stated conclusions of the research results must be correct, with the methods used in the same problem situation can be repeated by others. For laboratory research, the referenced method can be mentioned, especially for standard methods.

### C. Population and Sample

Research population is a collection of individual research subjects (humans, animals, compounds, or systems) with certain characteristics that have the same opportunity to be used as research samples.

The research sample is a group of individual subjects in an amount that is in accordance with the planned statistical analysis rules, representing the research population selected because it is in accordance with the inclusion criteria and is not included in the exclusion criteria. This section describes how to determine the selection involved in determining the research sample.

To get the appropriate sample, it must meet the inclusion and exclusion criteria. Inclusion and exclusion criteria must be stated clearly and logically.

Inclusion criteria are general requirements that must be met by research subjects in order to be included in the study. These requirements may include:

- Subject Characteristics,
- Demography,
- Geography,
- Time Period.

Exclusion criteria, also known as rejection criteria, are conditions that cause research subjects who meet the inclusion criteria but cannot be included in the study.

For example:

- There are contraindications,
- Subjects (humans) refuse to be studied,
- There are ethical problems,
- Research subjects die before the research is completed (eg for experimental animals),
- Others.

It should be noted that the population and sample descriptions above are for quantitative research types.

#### **D. Research Variable**

In experimental research, the variables to be collected must be clearly independent (independent) and dependent (dependent) variables. The independent variable is the variable that is considered to determine the dependent variable, can be a risk, predictor, cause and factor. The dependent variable is also called by many names such as the dependent variable, criteria, events, outcomes, benefits, effects and impacts.

In this subsection, the provision of research variables is written in full, it is recommended in the form of a matrix, including::

- Name of variable
- Definition of conceptual variable  
Are the limitations imposed on these variables. For example, for example the limitations of the following variables:
  - Air Pb: The ambient air Pb level for 24 hours in the study area which is the result of accumulation from various sources and emission of Pb contamination from the original source as well as Pb contamination emissions that are not observed and not studied.
  - Age: expressed in years based on the statement of the child's parent or guardian.
  - Pb concentration in blood: whole blood Pb levels taken from venous blood.
- Operational definitions of variables that provide:
  - Measuring methods and types of variable sizes
  - Variable scale
  - Unit variable
  - Variabel range

Variables can be presented in groups, for example groups of independent variables, dependent variables, confounding variables, and so on.

If in the proposed research a composite variable will be developed, then the development process, including the original variable, the development process and its scaling is detailed.

Operational definitions of variables are made to facilitate data collection and avoid interpellation differences and limit the scope of variables. The variables included in the operational definition are key/important variables that can be measured operationally and can be accounted for (references must be clear). With the operational definition, then:

- It can be determined the method used to measure the variable.
- There are no ambiguous meanings and terms which if not limited will lead to different interpretations.

Example of variable operational definition matrix:

No.	Variable	How to Measure/ Data Collection	Variable Scale	Variable Unit	Variable Value Range
1	Zn protoporphirin	Measured by means of a spectrofluorometer, standard excitation at 417 nm and 400 nm, and sample emission at 530 nm and 635 nm	Ratio	μmol ZPP/mol heme	0-69 μmol ZPP/mol heme
2	Age	Based on the statement of the parent or guardian of the child	Ratio	Year	5-10 years old
3	Education Level	Observation, interview, questionnaire	Nominal		
4	Income Level	Observation, interview, questionnaire	Interval	Rp	

#### E. Research Material

If the research is carried out on inanimate objects (including specimens from humans), an operational definition is set along with the inclusion and exclusion criteria for the material. Example of research material:

- Blood samples were used to measure the levels of Pb, Fe and Hb.
- Air samples are used to measure air Pb, taken from residential areas where the respondents' samples live.
- Water samples were used to measure Pb in the water used as a source of drinking water from the respondent's sample and taken from the residential area where the respondent's sample resided.
- Questionnaire sheets are used to determine the level of education and income level of respondents.

#### F. Data Collection Techniques

Data collection must be done systematically about the research subjects to be studied (humans, animals, compounds and systems) and various background events in order to answer research questions. Data collection methods and tools must be explained, among others:

- Secondary data is collected by means of a literature review, it can also be by data compilation forms, etc.
- In-depth interviews using questionnaires, tape recorders, checklists etc.
- Focus group discussions using discussion guidelines (for action research).
- Other relevant data collection techniques (eg Delphi technique, life history, mapping etc.)
- Observation, examination, collection with other tools such as clock, scale, microscope, spectro-photometer, and other laboratory equipment.
- Treatment description (for experimental design)
- Data collection time

The various methods of data collection mentioned above each have advantages and disadvantages, which can complement each other. Combining different ways can maximize the quality of the data collected and reduce bias.

### **G. Research Flow**

In this section, the research flow is presented which includes all the steps of the activities carried out in sufficient detail. Serving a flow chart is highly recommended.

### **H. Data Processing and Analysis**

- Data processing; how the data will be processed and analyzed needs to be explained (eg manually or using a computer). Included in data processing is making a summary of the data in the master sheet. If data processing is done manually, it needs to be explained in detail.

For example, before processing, the data is recorded on a tape recorder and then transferred into written form or made a table. If it is processed using a computer, it is necessary to explain what program package will be used, for example database, SPSS, Epi Info and other relevant programs.

- Data analysis; To answer the research objectives, it is necessary to mention the type of analysis used (t-test, ANOVA, regression and so on), also includes initial analysis to test the normality of the data, the trend of the data and various characteristics of the data which will lead to the final analysis.

For qualitative research, the data processing process uses a qualitative approach, namely:

1. Data validation by field analysis, triangulation, and
2. Use of contrast tables, followed by domain analysis, taxonomic analysis, component analysis if the analysis uses an ethnographic approach, findings and common threads to get meaning and conclusions.

### **I. Research Activity Schedule**

The schedule of research activities is usually presented in the form of a table containing a description of the activities to be carried out, the benchmarks and their respective units, and the target of activities within a certain period of time. Descriptions of activities need to be written sequentially starting from preparation (permit management, procurement of materials and tools, field preparation, questionnaire testing, etc.) implementation of research, data processing and analysis and manufacture.

## **CHAPTER V. RESEARCH RESULTS AND DISCUSSION**

In this chapter, the research results and discussion of these results are reviewed in separate formats, each in successive sections bagian.

### **A. Research Results**

In this section, all research results are presented in full, sequentially. The presentation can be in the form of narratives, illustrations of tables and pictures or charts and photos of laboratory results.

It is recommended to present the results in a separate section, including:

#### **1. Overview:**

This section is needed to provide an overview (descriptive) of the research results and to deliver the presentation of specific results in the next section.

#### **2. Descriptive data analysis presentation:**

This section specifically provides a descriptive description of the values of the research variables. Preliminary inferential analyzes, such as correlations or frequency tables can be presented in this section, to provide a presentation of the results in the next section.

#### **3. Inferential Data Analysis:**

This section specifically presents the results of inferential analysis (bi- and multivariate) to test the research hypotheses.

In this section, for each hypothesis is confirmed: ACCEPT or REJECT.

### **B. Discussion**

In this section, a discussion of the research results, especially the analysis of research hypotheses, their acceptance or rejection, is presented in the form of:

- Comparison between different parts of the research results;
- Comparison of research results with the results of other people's previous studies as listed in the Literature Review;
- Comparison of research results with existing theories, as described in the Literature Review.

For each comparison, a sufficient and thorough explanation is given.

It is possible to present research results and discussion in one section, according to the advice of the supervisor team and resource persons in the seminar presentation of research results.

## **CHAPTER VI CONCLUSION AND SUGGESTION**

This chapter includes research conclusions and suggestions based on research conclusions, in two separate sections sequentially.

### **A. Conclusion**

This section includes the conclusions (not summaries) of the study, which contain NEW FINDINGS that deserve to be disclosed.

Conclusions may be written in sequential numbering format.

### **B. Suggestion**

Suggestions are a consequence of research conclusions. Suggestions are focused on suggestions for further scientific development. Other suggestions in the field of national development can be added.

In this section suggestions may be written in numbered order.

## **THE FINAL PART**

The final part of the dissertation contains the bibliography and appendix. Both are not given a specific chapter number. Below are briefly presented these two contents.

## **REFERENCES**

This chapter describes the literature that is used as a reference, written in agreed writing rules. Because the Environmental Science Doctoral Program uses the Harvard system, the Bibliography is not numbered as in the Vancouver system, but is sorted alphabetically: A, B, C, D and so on..

In the provisions for writing the old Bibliography, if there is more than one author/author, the maximum number of names of authors/authors listed in the Bibliography is only six (6) people, the rest are written as et. al. However, in the latest provisions for writing a bibliography, even though the authors/authors are more than six (6) people, all the names must be written, no longer stated as et. al.

### **Example of writing a book:**

Kosnett M.J. 2004. Heavy metal intoxication & chelators. In Katzung B.G. (ed): Basic & Clinical Pharmacology, 9<sup>th</sup> Ed (International Ed), Boston, New York: Mc Graw Hill. p. 970-981.

Manahan S.E. 1992. Toxicological chemistry. New York: Lewis Publishers. P. 10-24

### **Example of journal writing:**

#### **If all you know is the journal number:**

Then the writing is in the following order: Author's name. Year. Article title. Standard abbreviation name for the journal; journal number: journal page. Example as follows:

Bateson T.F., Schwartz J, 2008. Children's response to air pollutant. J. Toxicol and environ health; 71:238-243.

Tecer L.H., Alagha O., Karaca F., Tuncel G., Eldes N. 2008. Particulate matter (PM<sub>2.5</sub>, PM<sub>10-2.5</sub>, and PM<sub>10</sub>) and children hospital admissions for asthma and respiratory diseases: A bidirectional case-crossover study. J. Toxicol and environ health; 71:512-520.

#### **If you know the volume and journal number:**

Then the writing is in the following order: Author's name. Year. Article title. Standard abbreviation name for the journal; journal volume number followed by journal number in parentheses: journal page. For example:

Lee S.S., Lee B.K., Lee G.S., Stewart W.F., Simon D., Kelsey K., Todd A.C., Schwartz B.S. 2001. Association of lead biomarkers and delta aminolevulinic dehydratase and vitamin D receptor genotypes with hematopoietic outcomes in Korean lead workers. Scand J Work Environ Health; 27(6):402-411

Mijares A., Lopez P., Rosado J.L., Cebrian A., Vera-Agular E., Alatorre J., Quintanilla-Vega M.B., Rojas Garcia A.E., Stolfus R.J., Cebrian M.E., Garcia-Vargas G. 2006. Delta aminolevulinic acid dehydratase genotype and its relationships with blood lead and zinc protoporphyrin levels in lead-exposed children living in a smelter community in Northern Mexico. Toxicology mechanism and methods; 16(1):41-47.



Ribeiro R., Baird D.J., Soares A.M.V.M., Lopes I. 2012. Contaminant driven genetic erosion: A case study with *Daphnia longispina*. *Environ Toxicol Chem*; 31(5):977-982.  
Sakai T. 2000. Biomarkers of lead exposure. *Ind Health*; 38(2):127-142

**If the author is unknown (anonim):**

In various publications published by Government Bodies, committees or other organizations, generally the author / authors are not listed. The provision for writing a bibliography for this matter is that the name of the government agency, committee, or organization that publishes the book or writing in question is listed as the corporate author. Avoid using the word “anonymous” or “anon” as an author. According to “The Chicago Manual” this provision applies to both the Harvard System and the Vancouver System, because no library in the world lists the words “anonymous” or “anon” as a catalog. The following are examples of writing a bibliography:

Departemen Kesehatan RI. 2000. Pedoman Pelaksanaan Uji Klinik Obat Tradisional. Direktorat Jenderal Pengawasan Obat dan Makanan, Direktorat Pengawasan Obat Tradisional.  
Republik Indonesia. Peraturan Pemerintah Nomor 41 Tahun 1999 Tentang Pengendalian Pencemaran Udara.  
Republik Indonesia. Undang-undang Nomor 23 Tahun 1997 Tentang Pengelolaan Lingkungan Hidup.  
U.S. Environmental Protection Agency. 1986. Air quality kriteria for lead. Washington D.C. Environmental Protection Agency (EPA-600/8-83/028aF-dF)  
World Health Organization. 1995. Environmental Health Kriteria 165 Inorganic Lead. Geneva: The United Nation Environment Programme, the International Labour Organization and the World Health Organization.  
World Health Organization Study Group. 1980. Recommended health-based limits in occupational exposure to heavy metals. WHO Geneva: WHO Tech Rep Ser 647:36-80

**APPENDICES**

If certain presentations in the Main Section of the Dissertation are deemed too long or too disturbing the flow of the presentation, then for everything that will clarify the contents of the Dissertation Manuscript it is recommended to be included in the Appendix, among others:

- Research Permit;
- *Informed Consent*;
- Approval from the research ethics commission;
- Data Collection technical procedures;
- Research Questionnaire;
- Tables and Figures/Charts;
- Computer Print out;
- Research Site Map;
- Taking pictures;
- Others.

All attachments are numbered sequentially: 1, 2, 3, and so on

### III. WRITING PROCEDURES

This chapter discusses writing procedures including: paper material and size, typing rules, language and numbering.

#### **Paper Material:**

- The proposal manuscript is printed on 90 gram white HVS paper in two-sided format.
- Proposal cover : Manila paper in dark blue (the identity color of Diponegoro University) without laminating, except for the hard cover..
- Paper size: A4 (8,27 x 11,69 inci)

#### **A. Typing**

##### **1. Margin**

Top	4 cm
Bottom	3 cm
Left	4 cm
Right	3 cm

##### **2. Line Spacing**

Line spacing 2 spaces for the entire proposal text.

##### **3. Language**

The language used is standard Indonesian as far as possible, try to use complete sentences: subject, predicate, object and description if needed. Sentences are made passive without first person (I) or second person (you). Use Indonesian terms, the standard reference for terms in Indonesian is taken from the Big Indonesian Dictionary or the Complete Indonesian Dictionary, or an agreement according to the professional group. If there are no terms in Indonesian, foreign terms may be used and printed in italics.

##### **4. Letter**

The typeface used is Times New Roman, font size 12 for the entire manuscript.

##### **5. Title, Sub Title and Chapter**

Titles, subtitles and chapter names are written in 16 font size.

##### **6. Sections and Subsections**

Sections and subsections are written using the font size 14.

##### **7. New Paragraph**

The new paragraph starts after the 8<sup>th</sup> tap from the left margin.

##### **8. Number and Unit**

Numbers in the body of the sentence are written in numbers (eg 19), except at the beginning of the sentence written in letters, numbers 1 to 9 are written in letters or numbers.

Decimal numbers are marked with a comma (e.g. 22,5)

Units of measure are written in official abbreviations without additional dots (e.g. kg, g, m).

## **9. Table and Figures**

### **a. Table**

Table titles are written above each table, in the middle, in bold letters, the size is the same as the size of the text in the manuscript. The table is arranged with only three horizontal rows namely the upper limit, the column delimiter and the lower limit.

If necessary, complete notes are given below the table to make the table self-explanatory.

### **b. Figures**

The title of the image is written below each image, in the middle in bold, the same size as the entire letter of the manuscript. If necessary, complete notes are given below the image to make the image 'self explanatory'

## **B. Numbering**

### **1. Page**

a. The beginning to the Table of Contents, Table of Contents, List of Figures, List of Appendices, List of Abbreviations, Glossaries, Abstracts/Abstracts, and Summary/Summaries are numbered in lowercase Roman numerals: i, ii, iii, iv, and so on. Page numbers are typed in the center 2 cm above the bottom edge.

b. The main and final sections are numbered in Arabic numerals: 1, 2, 3, and so on.

Page numbers are typed 2 cm from the right edge and 2 cm above the bottom edge.

### **2. Chapter and Section**

CONTINENTAL numbering system is used in 5 (five) hierarchies, as follows:

- Chapters: I, II, III, IV, and so on.
- Sections: A, B, C, D, and so on.
- (Subsections :) 1, 2, 3, 4, and so on.
- (Sub Sub-Section :) a, b, c, d, and so on.
- (Sub Sub Sub Sub Division :) i, ii, iii, iv, and so on.

### **3. Table and Figure**

Numbered sequentially with Arabic numerals, starting with Number 1.

Appendix 1 :  
Sample of Cover and Title Page  
(Customized paper size, letters and logo)



**BIOMARKER PADA IKAN SEBAGAI ALAT MONITORING PENCEMARAN  
LOGAM BERAT KADMIUM, TIMBAL DAN MERKURI DI PERAIRAN  
KALIGARANG SEMARANG**

**Nur Kusuma Dewi  
NIM L5K008009**

**PROGRAM DOKTOR ILMU LINGKUNGAN  
SEKOLAH PASCASARJANA  
UNIVERSITAS DIPONEGORO  
SEMARANG  
2022**

Appendix 2 :  
Sample of Title Explanation Page  
(Customized paper size, letters and logo)

**BIOMARKER PADA IKAN SEBAGAI ALAT MONITORING PENCEMARAN  
LOGAM BERAT KADMIUM, TIMBAL DAN MERKURI DI PERAIRAN  
KALIGARANG SEMARANG**

Disertasi  
Untuk memperoleh gelar Doktor  
dalam Ilmu Lingkungan

Untuk dipertahankan di hadapan  
Dekan Sekolah Pascasarjana dan Tim Penguji pada Ujian Promosi  
Sekolah Pascasarjana Universitas Diponegoro  
pada tanggal .....bulan.....tahun..... pukul ..... WIB.

Oleh  
**Nur Kusuma Dewi**  
**NIM L5K008009**  
Tempat Lahir

Appendix 3 :  
Sample of Approval Page

**BIOMARKER PADA IKAN SEBAGAI ALAT MONITORING PENCEMARAN LOGAM  
BERAT KADMIUM, TIMBAL DAN MERKURI DI PERAIRAN KALIGARANG  
SEMARANG**

Oleh :  
**Nur Kusuma Dewi**  
**NIM L5K008009**

Telah diuji dan dinyatakan lulus ujian pada tanggal.....Bulan.....Tahun..... oleh tim penguji  
Program Studi Doktor Ilmu Lingkungan, Sekolah Pascasarjana Universitas Diponegoro.

Promotor

.....  
Tanggal .....

Ko Promotor I

Ko Promotor II

.....  
Tanggal .....

.....  
Tanggal .....

Mengetahui,

Dekan  
Sekolah Pascasarjana  
Universitas Diponegoro

Ketua Program  
Doktor Ilmu Lingkungan  
Sekolah Pascasarjana  
Universitas Diponegoro

.....  
NIP.....

.....  
NIP.....

**BIOMARKER PADA IKAN SEBAGAI ALAT MITORING PENCEMARAN LOGAM  
BERAT KADMIUM, TIMBAL DAN MERKURI DI PERAIRAN KALIGARANG  
SEMARANG**

Oleh :  
**Nur Kusuma Dewi**  
**NIM L5K008009**

Telah disetujui oleh :

Pimpinan Sidang :  
Prof. Dr. dr. Anies, M.Kes., PKK  
Prof. Dr. Ir. Purwanto, DEA

Anggota Tim Penguji :

Penguji Eksternal

Penguji

Penguji

Penguji

Penguji

Ko Promotor

Promotor

Appendix 4:  
Sample of Statement of Originality

Yang bertanda tangan di bawah ini:

Nama : Nur Kusuma Dewi  
NIM : L5K008009  
Mahasiswa : Program Studi Doktor Ilmu Lingkungan  
Sekolah Pascasarjana Universitas Diponegoro

Dengan ini menyatakan bahwa:

- 1) Disertasi yang berjudul “**Penataan Ruang Pada Usaha Peternakan Sapi Perah Rakyat Dalam Rangka Mewujudkan Usaha Peternakan Sapi Perah Rakyat Berkelanjutan**” adalah karya ilmiah asli dan belum pernah diajukan untuk mendapatkan gelar akademik (dokter) di perguruan tinggi manapun.
- 2) Disertasi ini adalah murni ide, rumusan dan hasil penelitian saya serta dilakukan tanpa bantuan orang lain, kecuali Tim Promotor dan narasumber.
- 3) Disertasi ini tidak terdapat karya atau pendapat yang telah ditulis atau dipublikasikan orang lain, kecuali secara tertulis dicantumkan sebagai acuan dalam naskah dengan disebutkan nama pengarang dan judul aslinya serta dicantumkan dalam daftar pustaka.
- 4) Pernyataan ini dibuat dengan sesungguhnya dan apabila di kemudian hari terdapat penyimpangan dan ketidak benaran dalam pernyataan ini, saya bersedia menerima sanksi akademik berupa pencabutan gelar yang telah saya peroleh, dan sanksi lain sesuai dengan norma yang berlaku di Universitas Diponegoro.

Semarang,  
Yang Membuat Pernyataan,

Meterai

Nama mahasiswa