

# TABLE OF CONTENTS

<b>CHAPTER 1: GENERAL REQUIREMENTS OF A THESIS</b>	<b>1</b>
1.1 Introduction	1
1.2 Language	1
1.3 Submission of Thesis	1
1.4 Technical Specifications for Thesis	1
1.4.1 Font Type and Size	1
1.4.2 Page Layout	2
1.4.3 Margins	2
1.4.4 Spacing	2
1.4.5 Pagination	2
1.4.6 Paper and Size	3
1.4.7 Binding	3
1.5 Use of an Editorial Services	3
<b>CHAPTER 2: FORMAT OF A THESIS</b>	<b>5</b>
2.1 Introduction	5
2.2 Title page	6
2.3 Dedicated Page	6
2.4 Abstract	6
2.5 Acknowledgements	6
2.6 Approval Sheets	7
2.6.1 Approval Sheet No.1	7
2.6.2 Approval Sheet No.2	8
2.7 Declaration Form	8
2.8 Table of Contents	8
2.9 List of Tables	8
2.10 List of Figures	8
2.11 List of Abbreviations/Notation/Glossary of Terms	9
2.12 List of Transliteration (if any)	9
2.13 Text of Thesis	9
2.13.1 Body	9
2.13.2 Tables	10
2.13.3 Figures	10
2.13.4 Numbering the Chapters and Sub-sections	11
2.13.5 Equations	11
2.13.6 Footnotes	11
2.13.7 Citations	12

2.13.8 Quotations	12
2.14 References	12
2.15 Appendices	12
2.16 Biodata of the Author	12
2.17 Header and Footer	12
<b>CHAPTER 3: REFERENCE STYLE</b>	<b>13</b>
3.1 Introduction	13
3.2 Author and Year System	13
3.2.1 Citing the Sources	13
3.2.2 List of References	14
3.2.3 Writing Style for Authors' Names in the List of References	14
3.2.4 Writing Style for Various Types of Publication Materials in the List of References	15
3.3 Number System	18
3.3.1 Citing in the Text	18
3.3.2 Writing Style for Various Types of Publication Materials in the List of References	19
3.4 APA Reference	21
3.5 Harvard Style Referencing	21
3.6 Reference Sources from the Internet	21
<b>CHAPTER 4: WRITING CONVENTIONS</b>	<b>22</b>
4.1 Introduction	22
4.2 Units of Measure	22
4.3 Numbers	22
4.4 Elliptical Mark	22
4.5 Use of Square Brackets []	23
4.6 Use of Symbol for Percentage	23
4.7 Policy on Direct Quotations	23
<b>APPENDIX A: Numbering a chapter and sub-heading                 In the chapter</b>	<b>24</b>
<b>APPENDIX B: Page continuation</b>	<b>25</b>
<b>APPENDIX C: Spine and Cover of a Thesis</b>	<b>26</b>
<b>APPENDIX D: Title Page</b>	<b>27</b>
<b>APPENDIX E: Dedication</b>	<b>28</b>
<b>APPENDIX F1: Abstract (English)</b>	<b>29</b>
<b>APPENDIX F2: Abstract (Bahasa Melayu)</b>	<b>31</b>

<b>APPENDIX G: Acknowledgements</b>	<b>33</b>
<b>APPENDIX H: Table of Contents</b>	<b>34</b>
<b>APPENDIX I: List of Tables</b>	<b>36</b>
<b>APPENDIX J: List of Figures</b>	<b>37</b>
<b>APPENDIX K: List of Abbreviations</b>	<b>38</b>
<b>APPENDIX L: List of Transliteration</b>	<b>39</b>
<b>APPENDIX M: Sample of a Table in the Text</b>	<b>42</b>
<b>APPENDIX N: Sample of a Figure in the Text</b>	<b>43</b>
<b>APPENDIX O: Sample of a Quotation in the Text</b>	<b>44</b>
<b>APPENDIX P: Appendices</b>	<b>45</b>
<b>APPENDIX Q: Reference List Using Author and Year System</b>	<b>46</b>
<b>APPENDIX R: Reference List Using Number System</b>	<b>47</b>
<b>APPENDIX S: APA Reference List</b>	<b>48</b>
<b>APPENDIX T: Harvard Style Referencing</b>	<b>51</b>

### 1.1 Introduction

Thesis in this manual refers to a documented report of the process followed and the results of original research conducted by a student in fulfilment of the requirements for a graduate degree. The thesis should be presented in a manner that will reflect credit on the student, the School/Institute/Centre, and the University. The term *thesis* used throughout this manual refers to doctoral and master's theses.

### 1.2 Language

- i. The thesis must be written in standard **British English** or standard **Bahasa Melayu or other languages approved by the Postgraduate Committee of UMT**. There must be consistency in the use of the language throughout the thesis. The Roman alphabet must be used unless otherwise required by the relevant Faculty/Institute/Centre.
- ii. The use of other languages in thesis writing mentioned in clause (i) is only applicable for the field of **Applied Linguistic**.

### 1.3 Submission of Thesis

As prescribed in the Acts and Regulations of the Higher Degree Programme of the University, candidates intending to submit their theses should comply with the following procedures:

- i. A candidate shall give at least three months' notice in the prescribed Form **PG-16**, obtainable from the School/Institute/Centre of his intention to submit his/her thesis for examination.
- ii. On completion of the approved programme of study and research, a Master's candidate shall submit to the Dean/Director of the School/Institute/Centre four (4) copies of his/her thesis for examination, while a doctoral candidate shall submit five (5) soft bound copies together with the completed **PG-17** form. It is advisable to submit to the School/Institute/Centre a draft copy of the thesis before submitting the four/five examination copies. This is to ensure that the proper format is adhered to before the thesis is sent for examination.
- iii. Upon approval by the University Senate, a candidate must submit four (4) hard bound copies and two (2) compact-discs of the approved thesis (Word and PDF format) and the **PG-20** form. The candidate should also submit one hard bound copy to each member of the Supervisory Committee.

### 1.4 Technical Specifications for Thesis

The thesis should be typed using word or text processors for fast and easy editing. Hardcopy should be printed on one (1) side of each sheet only using a laser printer or similar quality machines. Lettering and drawing must be clear and should be reproducible satisfactorily without loss of any information.

#### 1.4.1 Font Type and Size

Font type and size that are commonly used for printed academic materials should be used throughout the thesis. If *Microsoft Word* is chosen, font type *Times New Roman*

with font size 12-point and one and a half line spacing should be used. The character size for capital letters should **not be less** than 0.2 cm and for small letters 0.15 cm. A new chapter must start on a new page. Chapters and their sub-sections must be given titles. The title of a chapter should be in capital letters, bold print and centred but not underlined (see **Appendix A** and **Appendix B**).

#### 1.4.2 Page Layout

The text should be presented in the portrait layout. The landscape layout may be used for figures and tables.

#### 1.4.3 Margins

All pages should be set with the same margin.

Top	: 2.50 cm (File Page Setup Margin)
Bottom	: 2.50 cm
Left	: 4.00 cm
Right	: 2.50cm

#### 1.4.4 Spacing

The following guidelines should be observed:

- i. The spacing of the chapter number from the top margin should be 2.5 cm;
- ii. The number and the title of sub-section should be aligned to the left margin;
- iii. The first line of a paragraph should be indented from the left margin by 1.27cm (0.5 inch);
- iv. A new paragraph should not begin on the last line of a page;
- v. Use two (2) line spacing:
  - between the title of a sub-section and the first line of a text,
  - between paragraphs,
  - between the last line of a text and a table, or a figure or an illustration;
- vi. Use four (4) line spacing:
  - between the chapter number and the title, between
  - the title and the first line of a text,
  - between the last line of a text and the title of a sub-section;
- vii. Text must be typed using 1.5 linespacing.
- viii. Use one (1) character spacing after a comma (,);
- ix. Use two (2) character spacing after a full stop (see **Appendices A** and **B**).

#### 1.4.5 Pagination

All pages of a thesis must be counted and numbered consecutively as shown in Table 1.1. Page numbers should be printed on the top right-hand corner, 1.25 cm from the top edge and 2.5 cm from the right edge. Numbering should be as follows:

- i. Preliminary pages of a thesis preceding Chapter 1 should be numbered in lowercase Roman numerals (i, ii, iii, etc.); the texts should be numbered using Arabic numerals (1, 2, 3, etc.).
- ii. The first page should be the title page. It should not be numbered although it is counted as page i.
- iii. Page 1 is the first page of the text but is not numbered. Similarly, the first page of all

chapters should be counted but not numbered.

- iv. If a thesis is made up of a number of parts, separating pages can be inserted but these pages should not be counted and numbered.

#### 1.4.6 Paper and Size

White simile A4 size (210 mm x 297 mm) paper (at least 80 g) or paper of equivalent quality should be used.

#### 1.4.7 Binding

When a thesis is completed and all necessary signatures obtained, check that all pages are in correct order and the University requirements have been met before seeking for a reliable binder. The School/Institute/Centre has a checklist on the University requirements.

A thesis submitted to the University must be permanently bound in hard cover. The following colour codes must be observed:

Thesis	Colour	Colour code
DOCTORATE	Blue Black	598
MASTER'S	Maroon	567

The following details must be written on the thesis spine using 18-point gold block font:

Name of candidate;  
Degree for which the work is submitted; and  
Year of Senat

The following details must be written on the thesis front cover using 18-point gold block font:

Title of thesis; Name  
of candidate;  
Degree;  
Name of university; and  
Year of Senat

(See **Appendix C**)

### 1.5 Use of an Editorial Service

Candidates may employ professional editors to proofread and edit their written thesis. This should be done before the thesis is sent for examination. The School/Institute/Centre does not insist that theses be sent to professional editors (who charge a fee for their services). However, candidates should know that the School/Institute/Centre accepts only theses that are reasonably free from minor and typographical errors. The supervisors cannot be held responsible for errors in the student's thesis as the responsibility of a supervisor is for the content of the thesis and not the language used.

Upon submission of the final draft prior to binding, the School/Institute/Centre will browse through the thesis to ensure that it conforms to the current Guide.

2.1 Introduction

A thesis generally consists of three main parts: the preliminary pages, the text or main body (usually divided into chapters and sections), and the ending pages.

The preliminary pages include the title page, dedication, abstracts in English and Bahasa Melayu, acknowledgements, approval sheets, declaration form, table of contents, list of tables, figures and abbreviations.

The ending pages consist of references, appendices and biodata of the author. The arrangement of the three parts in a thesis, from preliminary to text and to ending pages, is shown below. It is recommended that this sequence be used as a guide, although not every thesis includes all the items listed in Table 1.1:

Table 1.1: Arrangement of parts in a thesis

SECTION	SUBJECT	STATUS	EXAMPLE (APPENDIX)	NOTES
	Blank Paper	-	-	-
2.1	Title Page	Compulsory	D	Without page number but counted as (i)
2.2	Dedication	Optional	E	Page number using Roman numeric (if any)
2.3	Abstract (English) Abstrak (Bahasa Melayu)	Compulsory	F1 F2	Page number using Roman numeric
2.4	Acknowledgements	Optional	G	Page number using Roman numeric (if any)
2.5	Approval Sheets No. 1 Approval Sheets No. 2	Compulsory	-	Page number using Roman numeric
2.6	Declaration Form	Compulsory	-	Page number using Roman numeric
2.7	Table of Contents	Compulsory	H	Page number using Roman numeric
2.8	List of Tables	Compulsory	I	Page number using Roman numeric
2.9	List of Figures	Compulsory	J	Page number using Roman numeric
2.10	List of Abbreviations/ Notation/Glossary of Terms	Compulsory	-	Page number using Roman numeric
2.11	List of Transliteration	Optional	K	Page number using Roman numeric (if any)
2.12	Text	Compulsory	-	Page number using Arabic numeric starting with page 1
2.13	References	Compulsory	-	Page number using Arabic numeric continue from the text
2.14	Appendices	Optional	O	Page number using Arabic numeric continue from the text
2.15	Biodata of the Author	Compulsory	-	Page number using Arabic numeric continue from the



				text
	Blank Page	-	-	-

## 2.2 Title Page

Title page should include the following information (see **Appendix D**):

- i. Title of the thesis (uppercase);
- ii. Full name of the student (uppercase);
- iii. Degree for which the thesis is submitted;
- iv. Name of the institution (Universiti Malaysia Terengganu);
- v. School/Institute/Centre where the student registered; and
- vi. Month and Year of submission (Senate date).

The title should capture the content of the thesis accurately and concisely and should be single-spaced.

## 2.3 Dedication Page

The dedication must be brief, not more than one paragraph, and must not contain any number, chart or photograph (see **Appendix E**).

## 2.4 Abstract

An abstract is a concise summary of the thesis. It describes the problem, the procedures or methods used, and the results and conclusions of the research. It must include the following:

- i. A brief theme sentence to orientate the reader about the overall issue addressed in the thesis;
- ii. The academic and/or practical importance;
- iii. The methodology used in the study;
- iv. The main findings of the study;
- v. A statement of conclusion to indicate the contribution of the study to the literature;
- vi. The practical or managerial implications of the study's findings.

The abstract must be written in both English and Bahasa Melayu. For a thesis written in Bahasa Melayu, the abstract must first be written in Bahasa Melayu and followed by the English translation. If the thesis is written in English, the abstract must be written in English and followed by the translation in Bahasa Melayu. The abstract should be brief, written in one paragraph and does not exceed 350 words. It must be written using one and a half (1.5) spacing (see **Appendix F1** and **Appendix F2**).

## 2.5 Acknowledgements

Acknowledgements usually contain written expressions of appreciation for the guidance and assistance received from individuals and institutions in producing the thesis (see **Appendix G**).

## 2.6 Approval Sheets

Two approval sheets are required. One sheet bears the signature of the Dean/Director of the School/Institute/Centre certifying the approval of the thesis by the Thesis Examination Committee. The other approval sheet also bears the signature of the Dean/Director of the School/Institute/Centre after the University Senate has awarded the degree.

### 2.6.1 Approval Sheet No. 1.

The wordings on the page should read as follows:

#### APPROVAL

I certify that an Examination Committee has met on 14<sup>th</sup> November 2016 to conduct the final examination of Muhamad Syukeri Bin Ahmad, on his Master of Science thesis entitled "**Characterization of antifouling metabolites from boat hulls and carapace of horseshoe crab, *Tachypleus gigas***" in accordance with the regulations approved by the Senate of Universiti Malaysia Terengganu. The Committee recommends that the candidate be awarded the relevant degree. The members of the Examination Committee are as follows:

Ahmad Shamsudin Ahmad, Ph.D  
Associate Professor  
School of Marine and Environmental Science  
Universiti Malaysia Terengganu (Chairperson)

Jasnizat Saidin, Ph.D  
Lecturer  
School of Marine and Environmental Science  
Universiti Malaysia Terengganu  
(Internal Examiner)

Annie Christianus, Ph.D  
Associate Professor  
Faculty of Agriculture  
Universiti Putra Malaysia  
(External Examiner)

\_\_\_\_\_  
**NAME,**

**Ph.D.**

Professor/Dean@Director of School@Institute@Centre Universiti  
Malaysia Terengganu

Date:

## 2.6.2 Approval Sheet No. 2

The wordings on the page should read as follows:

This thesis has been accepted by the Senate of Universiti Malaysia Terengganu in fulfilment of the requirement for the degree of Master of Science.

\_\_\_\_\_  
**NAME,**

**Ph.D.**

Professor/Dean@Director of School@Institute@Centre  
Universiti Malaysia Terengganu

Date:

## 2.7 Declaration Form

The declaration form should read as follows:

### DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UMT or other institutions.

(signed) \_\_\_\_\_

NAME OF CANDIDATE

Date:

## 2.8 Table of Contents

The Table of Contents page must start on a new page. It should list all sections, chapters and sub-headings with their corresponding page numbers. The titles must be written using the same words as those written in the text (see **Appendix H**).

## 2.9 List of Tables

This page should list the exact titles of all the tables in the thesis with the respective page numbers. The table numbers must be arranged in sequence and according to the chapters (see **Appendix I**).

## 2.10 List of Figures

Figures include diagrams, photographs, drawings, graphs, charts, maps and other form of graphic illustrations. The exact titles of all figures with their corresponding page numbers must be listed in sequence. (see **Appendix J**).

## 2.11 List of Abbreviations/Notation/Glossary of Terms

Whenever abbreviations and acronyms (e.g. FAO, DOA, MARDI, PORIM) are used in the thesis, it is best to list them in a list of Abbreviations/Notation/Glossary of Terms together with their meanings, even though the full names are already given at the first mention in the text. This list serves as a ready reference to readers who are not familiar with the abbreviations used in the thesis. Universally recognised scientific symbols (OC, cm, mm, kg, ha) need not be listed (See **Appendix K**).

## 2.12 List of Transliteration (if any)

Transliteration refers to the representation of foreign letters by using the Latin symbols. For the Arabic language, some letters and sounds do not exist and do not have a direct equivalent to the Latin letters. Therefore, special characters are used for the purpose of transliterating Arabic words such as 'd' for the Arabic letter 'ض'. Works that include transliteration of Arabic letters must adhere to the transliteration list provided in **Appendix L**.

## 2.13 Text of Thesis

### 2.13.1 Body

The body of a thesis normally consists of the sections listed below. These can either be organised as separate chapters or be included as subheadings in a chapter or various chapters.

**Introduction:** This chapter introduces the problem being studied and indicates its importance and relevance. It sets forth the context, the hypotheses to be tested and the research objectives to be attained.

**Literature Review:** This section is a critical review of the literature related to the topic of the thesis. It acts as a base for the experimental/analytical section of the thesis. The literature selected must be up to date, analysed and synthesised logically. It is important to note that a review is not merely a summary of works of different authors.

**Materials and Methods/Methodology:** This section describes the methods and techniques used in the study. It may also contain validation of methods used. It contains a description and justification of the materials, theoretical approaches, experimental designs and methods (including statistical analysis) used to achieve the stated objectives of the study undertaken. In social science, a theoretical or conceptual framework should be included. In engineering and in the pure and applied sciences, this may include, but is not limited to, a description of the methodology, theoretical development, hypothesis description, fundamental philosophical foundation, experimental design and standard procedure description.

**Results:** This chapter reports on the findings of the study with the inclusion of non-textual elements such as tables, figures, charts, photos etc. It narrates the key findings and highlights important observations that are most relevant to the topic under investigation. All analyses must be focused on answering the research questions and addressing the research problems.

**Discussion:** This chapter examines and interprets the results in relation to the research questions and hypotheses and in relation to the literature in the specific discipline. It evaluates the findings and postulates about what may be happening for such outcomes. This chapter reminds the readers of the purpose of the study, explains inconsistent results and provides generalisations, implications and recommendations based on the main findings.

OR

**Results and Discussion:** Another option to writing the results and discussion of the study is to combine both into one chapter. For this option, the findings and results of the study are presented first in the form of text and illustrations such as tables, figures, charts and etc. Important observations that are most relevant to the research problems and research questions are highlighted. Under the discussion section, these results are interpreted, evaluated and given meaning. Unexpected results should be explained if possible. This section requires the student to look back on the literature and the research problems in order to explain the phenomenon under study.

**Conclusion:** The conclusion chapter should provide an overview of the research problems and the whole study before explaining the phenomenon in terms of the key findings. It assesses the relevance of the key findings and reflects on the background of the study. This chapter also outlines the implications (on theory, practice and further research) and addresses the limitations of the study.

### **2.13.2 Tables**

All tables must be numbered using Arabic numerals. The caption should be centered. If the caption is more than one line, it should be aligned to the left. Tables must be numbered by the chapters they are in. For example, Table 4.3 is the third table that appears in chapter 4. A table should be positioned after it is referred to for the first time in the text. All tables must be listed in the List of Tables page (see **Appendix M**).

### **2.13.3 Figures**

Figures are maps, charts, graphs, drawings, diagrams, photographs and all other graphic illustrations. All figures must be clear, of high quality and must be numbered using Arabic numerals. The caption should be located at the bottom of the figure. If the caption is a single line, it should be centred. If the caption is more than one line, it should be aligned to the left. Figures are numbered by the chapters they are in.

A figure should be positioned after it is referred to for the first time in the text. All figures in the chapter can also be grouped together and positioned at an appropriate location. All figures must be listed in the List of Figures page (see **Appendix N**).

Illustrations in the form of compact discs, slides and others should be placed in specially made pockets glued to the inner side of the back cover of the thesis. Oversized illustrations in the form of plans, maps, charts, graphs and others should be reduced to fit a single page unless the oversized materials are absolutely necessary for clarity and understanding.

It is advisable to scan all illustrations using a scanner and print them using a high quality colour printer.

#### 2.13.4 Numbering the Chapters and Sub-sections

All chapters and their sub-sections must be labelled and numbered. The chapters are numbered using Arabic numerals, i.e. Chapter 1, Chapter 2, Chapter 3, and so on. The sub-sections should not be indented but arranged in a structured manner not more than four levels as follows:

- 2 First level (Title of the chapter)
- 2.1 Second level (Title of the sub-section)
- 2.1.1 Third level (Title of the sub-sub-section)
- 2.1.1.1 Fourth level (Title of the sub-sub-sub-section)

If the length of a title of a chapter or any level exceeds one line, same line spacing as in the text should be used. Sub-sections beyond level four should be labelled using characters (see **Appendix A and Appendix B**).

If a thesis is divided into parts, separation sheets should be used to separate them. The separation sheets should be labelled with capital letters, i.e. PART 1, PART 2, PART 3, and so on.

#### 2.13.5 Equations

All equations, mathematical and/or chemical, are considered as text and should be numbered according to the chapter. If detailed derivation is needed, it is to be placed in the appendix.

#### 2.13.6 Footnotes

Footnotes should be used sparingly in a thesis regardless of the field of study as extensive footnoting tends to distract the reader from the main argument in the text. They should be used only to clarify a certain term, to state conversion factors or exchange rates and should not be used in citing authority for specific statements or research findings. If footnotes are necessary, the indicators (the reference numbers in the text) are usually superscripted (e.g. <sup>1</sup>, <sup>2</sup>, and <sup>3</sup>). The numbering of footnotes should begin with 1 and must be continuous within each chapter or appendix, and not throughout the whole text.

Footnotes for references are written differently in the terms of author's name and the use of punctuation. The author's name should be written in full. Comma or quotation mark should be used to separate author's name, title of the article and publication details. The font size used should be two (2) points smaller than the text.

##### Style for writing reference as footnotes:

Arabic numeral            Author, "Title of article." publication details, year, page.

##### Example:

<sup>10</sup>Mary Duncan Carter, Wallace John Bonk, and Rose Mary Magrill, "Building Library Collections." Fourth edition. Metuchen, N. J.: Scarecrow Press, 1974, pp.61 - 66.

### **2.13.7 Citations**

Citation is a means of formally recognizing within the text, the resources from which the information or idea was obtained. The purpose is to acknowledge the work of others, to demonstrate the body of knowledge in which the work is based on and to lead others for further information. Citation in the texts must be written according to any one of the styles described in Chapter 3.

### **2.13.8 Quotations**

A quotation must be written in a separate paragraph. If the quotation is in a different language, it must be written in *italic* (see **Appendix O**)

## **2.14 References**

References are full information of the sources from which works were cited in the thesis. All references must be listed at the end of the text. They must be arranged using one of the methods discussed in Chapter 3.

## **2.15 Appendices**

Appendices are not a necessity in a thesis but are supplementary materials which are too detailed or lengthy to be in the text. These include tables, charts, computer program listings, data used for analysis, example of questionnaires, maps, photographs and other materials. All appendices should come after the reference section (see **Appendix P**). Each appendix should be labelled as Appendix A, Appendix B and so on and be given specific title.

## **2.16 Biodata of the Author**

This section is compulsory. It contains information about the author such as name, educational background, degree that is being pursued, professional work experience (if any), and other information that may interest the readers. It is suggested that the *vitae* be written in an essay form not exceeding 200 words, rather than a mere resume.

## **2.17 Header and Footer**

The use of Header and Footer is not allowed.

### 3.1 Introduction

The details of the published or unpublished references cited in the text should be included in the List of References and placed at the end of the thesis. The list of sources actually cited must be arranged either alphabetically (Harvard System), numerically (Number System) or using the American Psychological Association Style (APA Style). The style selected must be used consistently throughout the thesis.

### 3.2 Author and Year System

This system is also known as the Harvard System.

#### 3.2.1 Citing the Sources

The references cited in the text should be indicated using the name of the author and the date of publication. Examples are as follows:

- i. If the name of an author is written as part of a sentence, the year published should be written in parentheses or round brackets.

"Works by Yao (1993) have shown that in order to maintain the behavioural link between the offsprings and their parents, the use of crossover operator should be avoided."

- ii. If the name of an author is not written as part of a sentence, both the name and year published should be written in parentheses.

"ANN offers useful properties and capabilities such as non-linearity, input and output mapping, adaptability and fault tolerance among others (Haykin, 1999)."

- iii. If there are two authors for a cited reference, both names should be written.

"In designing the model for a non-linear system, the parsimonious principle (Soderstrom and Stoica, (1989) is critical because a non-linear model involves an excessive number of parameters."

"Syu and Chang (1999) successfully used neural networks to adaptively control *Penicillin acylase* fermentation."

- iv. If there are more than three authors for a cited reference, use *et al.* after the name of the first author.

"The algorithm can be calculated by applying Gram-Schmidt procedures as described by Korenberg *et al.* (1988)."

- v. If two or more works by the same author in the same year are cited, use lowercase letters (a, b, c, and so on) after the year to distinguish them.

"Some of the basic principles widely used by many researchers are Lagrange- Euler (LE) equations (Vicker, 1965; Bejczy and Paul,1981), Newton-Euler (NE) equations (Luh *et al.*, 1980a) and d'Alcumbert (G-D) equations (Lee *et al.*, 1983)."



"Luh *et al.* (1980b) presented an example of an acceleration control of robot arm/manipulator."

- vi. Cross referencing is not allowed in a thesis. Only primary sources should be used.

### 3.2.2 List of References

All references cited should be listed in the List of References at the end of the last chapter. The references should be listed alphabetically. If more than one published materials by the same author are cited, these materials should be listed chronologically. For example, an article by Scholfield published in 1964 should be listed before the one published in 1967.

### 3.2.3 Writing Style for Authors' Names in the List of References

In general, authors' names are listed using surname followed by their initials. The followings are examples of writing style according to the name of the author:

- i. Single and multiple authors

Example (single author):

Veres, S. M. (1990). *Structure Selection of Stochastic Dynamic Systems*. New York: Gordon and Breach Science Publishers.

Example (two or more authors.):

Soderstrom, T., and Stoica, P. (1989). *System Identification*. United Kingdom: Prentice Hall International Ltd.

Luh, J. Y. S., Walker, M. W., and Paul, R. P. (1980). Resolved-Acceleration Control of Mechanical Manipulators. *IEEE Trans. Automatic Control*. 25(3): 468-474.

- ii. Editor

Example:

Martin, A. M. (Ed.) (1991). *Peat as an Agent in Biological Degradation of Waste*. London: Elsevier

Lees, R. H. and Thomas T. R. (Eds.) (1974). *Chemical Nomenclature Usage*. Chichester: Ellis Horwood.

- iii. Corporate author/editor

Example:

Engineers Joint Council (1969). *Thesaurus of Engineering and Scientific Terms*. New York: Engineers Joint Council.

### 3.2.4 Writing Style for Various Types of Publication Materials in the List of References

There are different types of publications cited in a thesis. The style of writing the details of the different publications in the List of References are as follows:

i. Book

Author (Year). *Title*. (Edition). Place published: Publisher.

Example:

Theusen, G. J. and Fabrycky, W. J. (1984). *Engineering Economy*. (6<sup>th</sup> ed.) Englewood Cliffs, N. J.: Prentice Hall.

ii. Article in a book

Author of the article (Year). *Title of the article*. In author or editor of the book. *Title of the book*. (page). Place published: Publisher.

Example:

Hussein, S. B., Jamaluddin, H., Mailah, M. and Zalzal, A. M. S. (2000). An Evolutionary Neural Network Controller for Intelligent Active Force Control. In Parmee, I. C. (Ed.) *Evolutionary Design and Manufacturing*. (pp. 351 -362). London: Springer-Verlag.

iii. Journal articles

Print format

Author (Year). Title of the article. *Title of the Journal*. Volume (Issue no.), page.

Example:

Billings, S. A. (1980). Identification of Nonlinear Systems: A survey. *Proc. IEE, Part D*. 127(6), 272-284.

Electronic format

Author (Year). Title of the article. *Title of the Journal*. Volume (Issue no.), page. Publisher

Example:

Borman, W. C. (1993). Role of Early Supervisory Experience in Supervisor Performance. *Journal of Applied Psychology*, 78, 443 - 449. American Psychology Association.

iv. Conference articles

Author (Year). Title of the article. *Name of the conference*. Date of the conference. Place, page.

Example:

Sheta, A. F. and De Jong, K. (1996). Parameter Estimation of Nonlinear Systems in Noisy Environments Using Genetic Algorithms. *Proceedings of the 1996 IEEE International Symposium on Intelligent Control*. 15-18 September. Dearborn, Michigan: IEEE, 360 - 365.

v. Thesis

Author (Year). *Title of the thesis*. Thesis awarded. Place published.

Example:

Adnan bin Hassan (2002). *On-line Recognition of Developing Control Chart Patterns*. PhD Thesis Page 31, Universiti Teknologi Malaysia, Skudai.

vi. Legislations

Name of the country (Year). *Title of the legislation*. Legislation number.

Example:

Malaysia (1983). *Perintah Monumen Lama dan Tapak Tanah Bersejarah*. P.V.(A)41 1983.

vii. Standards

Name of the institution (Year). *Standard number*. Place published: Publisher

Example:

British Standards Institution (1990). *B.S. 764*. London: British Standards Institution.

viii. Patent

Print format

Author (Year). *Patent number*. Place published: Official source.

Example:

Smith, I. M. (1988). *U.S. Patent No. 123, 445*. Washington DC: V.S. Patent and Trademark Office.

Electronic format

Author (Year). *Patent number*. Retrieved on date, year, from VRL address of the patent database.

Example:

Ulrich, K. (2001). *European Patent No. EP1162184*. Retrieved on March 7, 2002, from <http://ep.espacenet.com/>

ix. Brochure

Name of organization (Year). *Title* [Brochure]. Place published: Publisher.

Example:

Research and Training Center (1993). *Guidelines for Reporting and Writing About People with Disabilities*. [Brochure]. Lawrence, KS: Macmillan

x. Measured drawings

Author (Year). *Title*. [Measured drawing]. Name of organization: Place published.

Example:

Salim Man (1989). *Pengisi Sekam ke Dalam Kontena Penyimpan: Pandangan Isometrik*. [Lukisan Teknik]. Universiti Teknologi Malaysia: Skudai.

xi. Unpublished materials

Author (Year). *Title*. Unpublished note, Name of organization.

xii. Newspaper article

Print format

No author

Title of article. (Year, date). *Name of newspaper*, page.

Example:

Gearing up to meet new challenges. (2000, February 22). *The Star*. p. 2.

Author

Author. (Year, date). Title of article. *Name of newspaper*, page.

Example:

Izatun Shari (2000, April 18). K-economy: draft out in October. *New Straits Times*. p. 2-4.

Electronic format

Author. (Year, date). Title of article. *Name of newspaper*, Retrieved date, year, from VRL address of the newspaper.

Example:

Rosmawati Mion (2006, June 17). Sindiket judi haram tumpas. *Utusan Malaysia*. Retrieved June 19, 2006, from <http://www.utusan.com.my>

xiii. Magazine

Author. (Year). Title of article. *Name of magazine*, Volume/Issue no., page

Example:

Smith, B. L. (1994). Biofeedback. *Science*, 62, 673 - 675

xiv. CD-ROM

Author. (Year). Title of article. [CD-ROM]. *Title of Journal*, Volume, page. Publisher.

Example:

Ivry, R. B. (1995). Perception and production of temporal intervals across a range of durations. [CD-ROM]. *Journal of Experimental Psychology*, 21, 3-18. American Psychological Association.

Example of a List of References using author and year system is shown in **Appendix Q**.

### 3.3 Number System

#### 3.3.1 Citing in the Text

All references cited in the text must be assigned numbers using Arabic numerals. The first cited reference should be assigned with number 1. Subsequent references should be given consecutive numbers. One of the methods below can be used when citing:

- i. If the name of an author is written as part of a sentence, the reference number should be inserted in parenthesis or square brackets or superscript after the author's name, for example:

"Genetic algorithm was introduced by Holland (1) and was extensively explored by Goldberg (2)."

OR

"Genetic algorithm was introduced by Holland [1] and was extensively explored by Goldberg [2]."

OR

"Genetic algorithm was introduced by Holland<sup>1</sup> and was extensively explored by Goldberg<sup>2</sup>."

- ii. If the name of an author is not part of a sentence, the reference number should be inserted in parenthesis or square brackets or superscript at the appropriate location; for example:

"Recently, evolutionary programming has been applied to various optimization problems (1) and it offers many advantages such as having global search characteristics."

OR

"Recently, evolutionary programming has been applied to various optimization problems [1] and it offers many advantages such as having global search characteristics."

OR

"Recently, evolutionary programming has been applied to various optimization problems<sup>1</sup> and it offers many advantages such as having global search characteristics."

### 3.3.2 Writing Style for Various Types of Publication Materials in the List of References

In the list of references, the numbers assigned to the references cited in the text are listed in incremental order. The following are the writing style for cited publications as they should appear in the List of References:

i. Book

Author. *Title of the book*. Edition (if not the first). Place published: Publisher. Year

Example:

Theusen, G. J. and Fabrycky, W. J. *Engineering Economy*. 6th. ed. Englewood Cliffs, N. J.: Prentice-Hall. 1984

ii. Article in a book

Author. Title of the article. In: Author of the book. *Title of the book*. Place published: Publisher. page; Year.

Example:

Hussein, S. B., Jamaluddin, H., Mailah, M. and Zalzal, A. M. S. An Evolutionary Neural Network Controller for Intelligent Active Force Control. In: Parmee, I. C. ed. *Evolutionary Design and Manufacturing*. London: Springer-Verlag. 351-362; 2000

iii. Journal articles

Author. Title of the article. *Title of the Journal*. Year. Volume (number): page.

Example:

Billings. S. A. Identification of Nonlinear Systems: A Survey. *Proc. IEE Part D*, 1980. 127(6): 272-284.

iv. Conference articles

Author. Title of the article. *Name of the conference*. Date of the conference. Place published: Publisher. Year. page.

Example:

Sheta, A. F. and De Jong, K. Parameter Estimation of Nonlinear Systems in Noisy Environments Using Genetic Algorithms. *Proceedings of the 1996 IEEE International Symposium on Intelligent Control*. September 15-18, 1996. Dearborn, Michigan: IEEE. 1996. 360-365.

v. Thesis

Author. *Title of the thesis*. Thesis awarded. Name of Institution; Year

Example:

Adnan bin Hassan. *On-line Recognition of Developing Control Chart Patterns*. Ph.D. Thesis. Universiti Teknologi Malaysia; 2002

vi. Standards

Name of the Institution. *Title of the standard*. Place published, Standard number. Year

Example:

British Standards Institution. *Tongued and Grooved Software Flooring*. London, BS 1297. 1987

vii. Patent

Owner's name. *Title of the patent*. Patent number. Year.

Example:

Lindgren, E. A. *Screen Room Air Inlet and Wave Guard*. V.S. Patent 2, 925, 457. 1960.

viii. Commercial catalogue

Name of distributor. *Title*. Place published: Note. Year

Example:

Howick Partitioning Ltd. *Howick: Partitioning in Business*. Redhill (V.K.): Trade brochure. 1984.

ix. Measured drawings

Name. *Title*. Place published: Note. Year

Example:

Zairul Azidin Badri. *Rumah Kutai Haji Sahak, Kampung Tanjung, Kampung Gajah, Perak*. VTM: Lukisan Terukur. 1980.

Salim Man. *Pengisi Sekam ke Dalam Kontena Penyimpan: Pandangan Isometrik*. VTM: Lukisan Teknik. 1989.

Example of Reference List using Number System is in **Appendix R**.

### **3.4 APA Reference**

Example of APA Reference is in **Appendix S**.

### **3.5 Harvard Sytle Referencing**

Example of Harvard Style Referencing is in **Appendix T**.

### **3.6 Reference Sources from the Internet**

Although the internet provides a large source of references, the information from the internet may not be accurate and therefore unreliable. Thus, citing internet sources must be done with caution and should only be used to retrieve primary sources of reference.



#### 4.1 Introduction

Conventions represent the piece's level of correctness ~~the extent to which the writer uses~~ grammar and mechanics with precision. Conventions include anything a copy editor might deal with. The whole purpose of this trait is to enhance readability to make the writing enticing and accessible to the reader.

#### 4.2 Units of Measure

Use internationally recognised units of measure, preferably Standard International (SI), such as:

1 litre (1 L)
20 millilitres (20 mL)
5 kilogram (5 kg)
20 kilometre (20 km)
2.5 hectare (2.5 ha)
3.7 metric tonnes (3.7 t)
45 parts per million (45 ppm)
12 gram (12 g)
500 U.S. Dollars (USD500)
3.4 metric tonne/hectare (3.4 t/ha)

The numbers before the measurement units should not be spelt out, e.g. 5 kg, not five kg even if they are below 100 (see Section 4.2), unless they appear as the first word of sentences.

#### 4.3 Numbers

All integers less than ten should be spelt out unless they are attached to units of measure (e.g. 5 kg, 10 ml). Use figures for the number 10 or more than 10. If a sentence begins with a number, write the number in words, e.g. "Three hundred and eighty-five farmers from the study area were interviewed."

Use numerals for a series of figures, for example:

- i. There were 4 chairs, 12 boxes, 13 books, 10 files, 9 umbrella and 8 pairs of shoes in the office.
- ii. The number of taxi permits issued during the past five years was 8, 53, 27, 38, 52 and 90.

#### 4.4 Elliptical Mark

Writers often use the ellipsis mark to show an omission from quoted materials. The ellipsis consists of three-spaced full stops (...). When an ellipsis follows a sentence, it appears as four full stops ( ). One full stop marks the end of the sentence and the other three signals the omission. For example:

<p>Khatijah (1985: 4) wrote about the conference: "Members at the conference at Kuala Lumpur agreed that the world educational crisis sketched in the document was real ...."</p>
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

#### **4.5 Use of Square Brackets [ ]**

Within direct quotations, brackets are used to enclose any explanatory note inserted by the thesis writer, e.g.

This year [1996] alone, we had two hundred applicants wanting to join our holiday camp (Mustafa, 1996).

Candidates should use "sic" within square brackets [sic] to indicate a certain doubt as to meaning or factual error. It is used in quotations to show that the original version is being faithfully reproduced even though it is incorrect or seems to be so. Errors, which are obviously typographical, should be corrected as a matter of professional courtesy.

#### **4.6 Use of Symbol for Percentage**

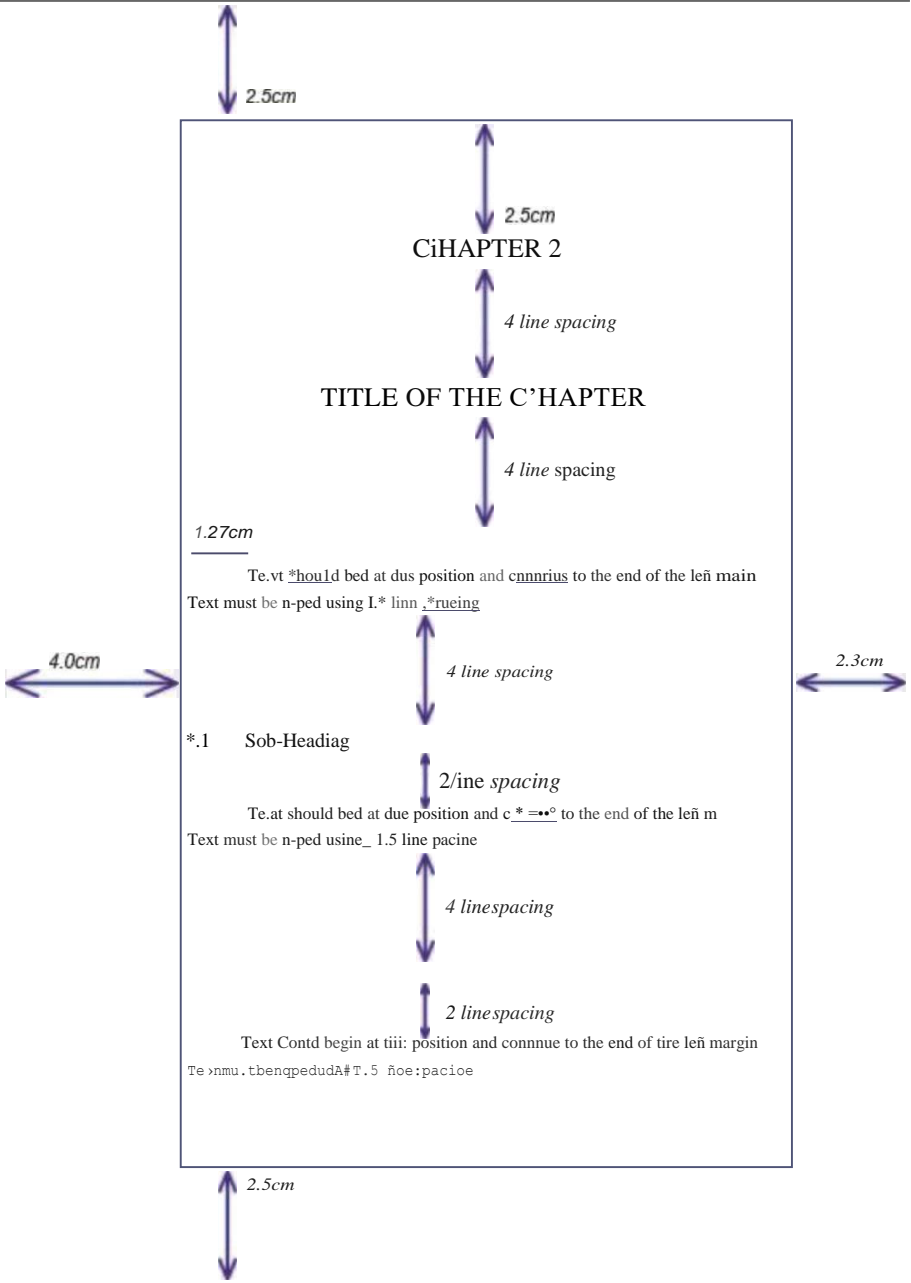
The symbol % may be used in place of the word "percent", e.g. 27.3% and typed without a space. If the candidate prefers to write 27.3 percent in full, consistency should be maintained throughout the thesis. In tables, the abbreviation Pct may be used at the head of a column to mean percent.

#### **4.7 Policy on Direct Quotations**

Direct quotations must be minimised except in some fields of study such as the literature (e.g. quotations from Shakespeare).

**APPENDIX A**  
**Numbering a chapter and sub-heading in the chapter**

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2.n.1.1 Sub-sub-sub-Heading

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**APPENDIX C**

**Spine and Cover of a Thesis**

<p><b>MUHAMAD SYUKERI BIN AHMAD</b></p> <p><b>MASTER OF SCIENCE</b></p> <p><b>2017</b></p>	<p><b>THE COMPOSITION AND DISTRIBUTION OF CORALS AND MICROALGAE IN PULAU BIDONG AND THEIR PROPOSED MANAGEMENT PLAN</b></p> <p><b>MUHAMAD SYUKERI BIN AHMAD</b></p> <p><b>MASTER OF SCIENCE</b> <b>UNIVERSITI MALAYSIA TERENGGANU</b></p> <p><b>2017</b></p>
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**APPENDIX D**

**Title Page**

---

**CHARACTERIZATION OF ANTIFOULING METABOLITES FROM BOOK  
GILLS AND CARAPACE OF HORSESHOE CRAB, *Tachypleus gigas***

**MUHAMAD SYUKERI BIN AHMAD**

**Thesis Submitted in Fulfilment of the Requirements for the Degree of Master of  
Science in the Institute of Marine Biotechnology  
Universiti Malaysia Terengganu**

**2017**

## APPENDIX E

### Dedication

---

*Dedicated this thesis to:*

*My supervisor, Associate Professor Noraznawati Ismail, PhD.*

*My beloved parents and siblings and lastly, P.N.H*

*For all their dedication, sacrifice and endless love.*

## APPENDIX F1

### Abstract (English)

---

Abstract of thesis presented to the Senate of Universiti Malaysia Terengganu in fulfilment of the requirements for the degree of Master of Science

#### **CHARACTERIZATION OF ANTIFOULING METABOLITES FROM BOOK GILLS AND CARAPACE OF HORSESHOE CRAB, *Tachypleus gigas***

**MUHAMAD SYUKERI BIN AHMAD**

**2017**

**Main Supervisor : Associate Professor Noraznawati Ismail, PhD**

**School/Institute : Institute of Marine Biotechnology**

Horseshoe crabs have roamed the world for almost 450 million years since the first fossil was discovered. Their survivality was due to various adaptations and potent defence system; in which hemolymph is one of them. Few studies emphasize on the horseshoe crabs book gills and carapace. The carapace was known as the armour that protects the soft tissue below them. Despite being submerged almost all the time and has a flat surface, the horseshoe crabs seem not to be affected much by biofouling phenomena. The objectives of this study were to determine the metabolite profiles of the book gills and carapace extracts, to identify the antifouling activities they possess and to characterize the metabolites that contributes to the antifouling activities. In this study, book gills and carapace crude extracts were screened for antifouling activities along with their modes of actions; detachment and preventive actions. Fractionations were conducted after the modes of action of the antifouling activities have been determined. The components of the extracts that exhibit significant activities were



analysed using thin layer chromatography, recycling high performance liquid chromatography and gas chromatography-mass spectrometry to obtain their chemical profiles. It was found that book gills and carapace extracts possess significant antifouling activities and exhibit chemical interactions such as synergism and antagonism effects that play a major role in their activity levels. The book gills and carapace extracts exhibit significant detachment actions ( $\geq$  40%). Both extracts possess similar chemical profiles which were composed of terpenoids, phenols and organic acids such as simple sugar and amino acids. These organic acids were found to be the key to the detachment actions due to the nutrient-induced biofilm dispersal mechanism. In conclusion, both book gills and carapace possess antifouling activities, which might explain their ability to remove attached fouling organisms. Further analysis should be done for better understanding on their defence mechanisms. This may lead to discovery of new biofilm dispersal agents in the future.

## APPENDIX F2

### Abstract (Bahasa Melayu)

---

Abstrak tesis yang dikemukakan kepada Senat Universiti Malaysia Terengganu sebagai memenuhi keperluan untuk Ijazah Sarjana Sains

#### **PENCIRIAN METABOLIT ANTI BIO-LEKATAN DARIPADA INSANG BUKU DAN KARAPAS BELANGKAS, *Tachypleus gigas***

**MUHAMAD SYUKERI BIN AHMAD**

**2017**

**Penyelia utama : Profesor Madya Noraznawati Ismail, PhD**

**Pusat Pengajian/Institut : Institut Bioteknologi Marin**

Belangkas telah hidup hampir 450 juta tahun sejak fosil pertama ditemui. Kemandirian spesies mereka adalah disebabkan kebolehan mereka untuk beradaptasi dan sistem pertahanan badan mereka yang kuat, antaranya ialah hemolimfa yang telah dikaji dari pelbagai aspek. Anggota-anggota badan lain pada belangkas kurang diberikan perhatian dalam kajian tentang sistem pertahanan semula jadi mereka, antaranya ialah insang buku dan karapas. Insang buku ialah organ pernafasan manakala karapas ini dikenali sebagai perisai yang melindungi tisu-tisu lembut di bawah mereka. Walaupun insang buku dan karapas sentiasa berada di dalam air dan berisiko tinggi terhadap fenomena biofيلم, mereka seolah-olah tidak terjejas dengan masalah ini. Antara objektif- objektif kajian ini ialah untuk menentukan profil metabolit ekstrak buku insang dan karapas, untuk mengenal pasti aktiviti-aktiviti anti bio-lekatan yang mereka miliki dan untuk mencirikan metabolit yang menyumbang kepada aktiviti anti bio-lekatan. Ekstrak insang buku dan karapas telah disaring untuk aktiviti anti bio-lekatan menggunakan kaedah bioasai kristal ungu. Komponen ekstrak yang

mempamerkan aktiviti yang signifikan seterusnya dianalisis menggunakan kromatografi lapisan nipis, kitar semula kromatografi cecair berprestasi tinggi dan gas kromatografi-spektrometri jisim untuk mendapatkan profil kimia mereka dan mencirikan komponen yang aktif. Didapati bahawa kedua-dua ekstrak mempunyai aktiviti anti bio-lekatan yang ketara dan menunjukkan interaksi kimia seperti kesan sinergi dan kesan kepentingan bertentangan yang memainkan peranan utama dalam menentukan tahap aktiviti mereka. Ekstrak mempamerkan mod tindakan penyahlekatan. Kedua-dua ekstrak mempunyai profil kimia yang sama terdiri daripada terpenoid, fenol dan asid organik seperti gula dan asid amino. Asid organik didapati kunci kepada tindakan anti bio-lekatan, mungkin disebabkan oleh mekanisme penyahlekatan biofilem yang disebabkan oleh kandungan nutrisi yang berlebihan yang mendorong bakteria untuk berpisah daripada biofilemnya. Kesimpulannya, kedua-dua insang buku dan karapas mempunyai aktiviti anti bio-lekatan yang mungkin menjelaskan kemampuan mereka untuk mengatasi masalah biofilem. Analisis lanjut untuk mencari sebatian penting lain perlu dilakukan untuk mengkaji mengenai mekanisme pertahanan badan mereka.

## APPENDIX G

### Acknowledgements

---

All praises are due to Allah SWT that I could complete my project and thesis writing on time. All praises and honours are to the Almighty for His guidance. There are no words that can express my thankfulness and gratitude especially to my supervisor, Associate Professor Dr. Noraznawati Ismail, for giving me the opportunity to conduct a research under her supervision, sharing with me her vast knowledge and giving invaluable advice during my study. I would also like to thank everyone involved throughout this study who helped make this journey possible and this thesis a reality. Thank you to all my lab partners in the horseshoe crab laboratory and my biology postgraduate laboratory members; Azmi Ismun, Siti Athirah and everyone at the Institute of Marine Biotechnology for their support and assistance. I would also like to thank Dr Malinna Jusoh for her guidance in my thesis writing. My deepest gratitude also goes to my family for their moral supports and sacrifices throughout my study. This thesis is dedicated especially to my parents, Ahmad Bin Ibrahim and Rubiah Binti Abdul Halim. Lastly, I would like to thank the late Izzatul Huda Abdul Ghani for becoming my mentor and setting an excellent example as a researcher. Al-Fatihah.

## APPENDIX H

### Table of Contents

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		<b>Page</b>
<b>DEDICATION</b>		iii
<b>ABSTRACT</b>		iv
<b>ABSTRAK</b>		vi
<b>ACKNOWLEDGEMENTS</b>		viii
<b>APPROVALS</b>		ix
<b>DECLARATIONS</b>		xiv
<b>LIST OF TABLES</b>		xv
<b>LIST OF FIGURES</b>		xiv
<b>LIST OF ABBREVIATIONS</b>		xvii
<b>LIST OF APPENDICES</b>		xviii
<b>CHAPTER</b>		
<b>1</b>	<b>INTRODUCTION</b>	1
	1.1 Background of study	1
	1.2 Problem statements	2
	1.3 Significance of study	3
	1.4 Objectives	3
<b>2</b>	<b>LITERATURE REVIEW</b>	4
	2.1 Horseshoe crabs	4
	2.1.1 Hemolymph	7
	2.1.2 Carapace	9
	2.1.3 Book gills	10
	2.2 Biofouling and Antifouling studies	13
	2.3 Chromatography techniques	18
<b>3</b>	<b>MATERIALS AND METHODS</b>	21
	3.1 Sample collection	21
	3.2 Sample preparation and screening	21
	3.2.1 Sample extraction	23
	3.2.2 Screening of crude extracts	25
	3.2.2.1 Bioactivity screening: Antifouling and antibacterial assay	25
	3.2.2.2 Chemical profiling using Thin Layer Chromatogray	27
	3.3 Fractionation and characterization of active fractions	29
	3.3.1 Fractionation: Liquid-liquid separation	29
	3.3.2 Bioactivity screening and chemical profiling of active fractions	29
	3.3.3 Semi purification of active fractions using Recycling High Performance Liquid Chromatography	30

3.3.3.1	Bioactivity screening of semi-purified fractions	31
3.3.3.2	Characterization of semi-purified fractions using Gas Chromatography-Mass Spectrometry (GC-MS)	31
3.4	Statistical analyses	31
<b>4</b>	<b>RESULTS AND DISCUSSION</b>	<b>32</b>
4.1	Recovery of crude extracts and fractions	32
4.2	Antifouling and antibacterial activities investigation and chemical profiling of the crude extracts and fractions	36
4.3	Isolation and characterization of active fractions	52
<b>5</b>	<b>CONCLUSION</b>	<b>63</b>
	<b>REFERENCES</b>	<b>64</b>
	<b>APPENDICES</b>	<b>76</b>
	<b>CURRICULUM VITAE</b>	<b>86</b>

## APPENDIX I

### List of Tables

---

#### LIST OF TABLES

Table		Page
4.1	Methanolic crude extract yield of book gills and carapace of <i>T. gigas</i>	32
4.2	Fractions yield from book gills and carapace crude extracts of <i>T. gigas</i> with respective weight and solvents: Petroleum ether (p.e), ethyl acetate (e.a) and water (H <sub>2</sub> O)	35
4.3	Antibacterial activities of book gills and carapace crude extracts determined by disc diffusion test (inhibition zone in mm)	44
4.4	Chemical profiling of <i>T. gigas</i> book gills and carapace methanolic crude extracts	45
4.5	Chemical profiles from aqueous book gills and carapace fraction from <i>T. gigas</i>	52
4.6	GC-MS profiles of the active fractions; Bg F2 and C F4	55
4.7	Composition of metabolites in the active fractions of <i>T. gigas</i> . C F4 has more groups of compounds compared to Bg F2. Amino acid is the major components in the both fractions and simple sugar is the lowest	60

## APPENDIX J

### List of Figures

---

#### LIST OF FIGURES

Figure		Page
2.1	Anatomy of horseshoe crabs; (a) dorsal and (b) ventral view adapted from (Silva, 2011) *highlights the book gills and carapace of the horseshoe crab	6
2.2	Differences between deoxygenated hemocyanin (b) (Deoxy-Hc); dotted line and oxygenated hemocyanin (a) (Oxy-Hc); solid and their absorbance (Coates and Nairn, 2014).	7
2.3	Description of the coagulation process in the hemolymph when exposed to endotoxins (Iwanaga <i>et al.</i> , 1998). Endotoxins triggers the *Degranulation of granules that leads to *Gelation and killing of the Gram-negative bacteria due to the antimicrobial proteins from the small granules.	8
2.4	The book gills of horseshoe crab where the operculum covers the other pairs of appendages (Wright, 2010).	12
2.5	Complete process of biofouling, beginning with the conditioning of films composed of nutrients that leads to microfouling organisms attachment. This provides a favourable site of attachment for macrofoulers (macrofouling) (Cao <i>et al.</i> , 2011).	14
3.1	Balok, Pahang is the sampling site for the horseshoe crab, maps adapted from Google map (2016).	22
3.2	Schematic diagram for sample preparations in compound identification. It begins with sample preparation to obtain the methanolic crude extracts of book gills and carapace, which were screened for their antifouling activities. Fractionations of the crude extracts yields three fractions; however only aqueous fraction was found active. Further separation was conducted using RHPLC and two active fractions were profiled using GC- MS.*Indicates the sections in the thesis where the processes were further described.	24



## APPENDIX K

### List of Abbreviations

---

#### LIST OF ABBREVIATIONS

MeOH	Methanol
Cu <sup>2+</sup>	Copper (II) ion Cu <sup>3+</sup>
Copper (III) ion Bg	Book gills
C	Carapace
mg	milligram
Pe	Petroleum ether
Ea	Ethyl acetate
L-amino acids	Left handed (Laevus)- amino acid

## APPENDIX L

### List of Transliteration

---

#### 1. Letters

<u>Arabic Letter</u>	<u>Latin Letter</u>	<u>Example</u>	<u>Transliteration</u>
أ	ʾ	سأل	saʾala
ب	b	بدل	badala
ت	t	تمر	tamr
ث	th	ثورة	thawrah
ج	j	جمال	jamal
ح	ḥ	حديث	ḥadīth
خ	kh	خالد	khālīd
د	d	ديوان	dīwān
ذ	dh	مذهب	madhhab
ر	r	رجب	rajab
ز	z	زمزم	zamzam
س	s	سراب	sarāb
ش	sh	شمس	shams
ص	ṣ	صبر	ṣabr
ض	ḍ	ضمير	ḍamīr
ط	ṭ	طاهر	ṭāhir
ظ	ẓ	ظهر	ẓuhr
ع	ʿ	عيد	abd
غ	gh	غيب	ghayb
ف	f	فقه	fiqh
ق	q	قاضى	qāḍī

<u>Arabic Letter</u>	<u>Latin Letter</u>	<u>Example</u>	<u>Transliteration</u>
ك	k	كأس	ka`s
ل	l	لبن	laban
م	m	مزمارة	mizmār
ن	n	نوم	nawm
هـ	h	هبط	habaṭ
و	w	وصل	wasl
ي	y	يسار	yasār

## 2. Short Vowels

<u>Arabic Letter</u>	<u>Latin Letter</u>	<u>Example</u>	<u>Transliteration</u>
اَ	a	فَعَلَ	fa`ala
اِ	i	حَسِبَ	ḥasiba
اُ	u	كُرِمَ	karuma

## 3. Long Vowels

<u>Arabic Letter</u>	<u>Latin Letter</u>	<u>Example</u>	<u>Transliteration</u>
اَ، آ	ā	قَضَى، كَاتِبَ	kātib, qaḍā
اِ، إِ	ī	كَرِيمَ	karīm
اُ، أُ	ū	حُرُوفَ	ḥurūf

## 4. Diphthong

<u>Arabic Letter</u>	<u>Latin Letter</u>	<u>Example</u>	<u>Transliteration</u>
اَوْ	aw	قَوْلَ	qawl
اَيَّ	ay	سَيْفَ	sayf
اَيَّ	iyy	رَجَعِي	raj`iyy or raj`ī(occurring at the end)
اَوْ	uww	عَدُوَّ	`aduww or

°adū (occurring at  
the end)

## 5. Tā' Marbūṭah

### Example

المكتبة

قلعة

شريعة

### Transliteration

al-maktabah

qal'ah

shari'ah

**APPENDIX M**

**Sample of a Table in the Text**

Table 4.2 Fractions yield from book gills and carapace crude extracts of *T. gigas* with respect to weight and solvents: Petroleum ether (p.e), ethyl acetate (e.a) and water (H<sub>2</sub>O).

Samples	Solvents	Dry weight (g)	Weight (fractions)	Yield (%)
			(gram)	
<b>Bg</b>	p.e	2.00	0.47	23.50
	e.a	2.00	0.04	2.00
	H <sub>2</sub> O	2.00	0.84	42.00
<b>C</b>	p.e	1.00	0.33	33.00
	e.a	1.00	0.06	6.00
	H <sub>2</sub> O	1.00	0.54	54.00

Notes: BG: Book gills C: Carapace

## APPENDIX N

### Samples of a Figure in the Text

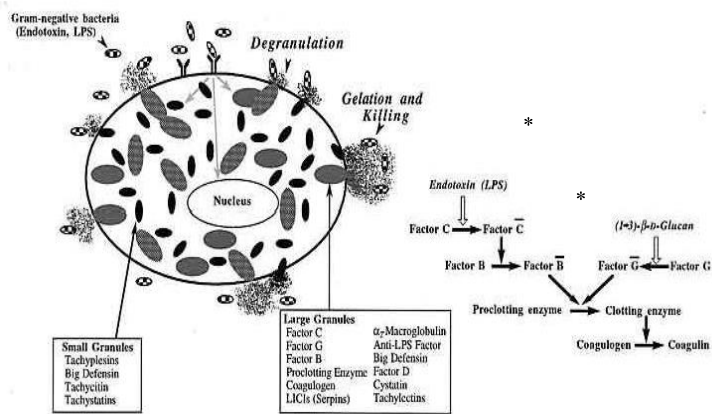


Figure 2.3 Description of the coagulation process in the hemolymph when exposed to endotoxins (Iwanaga *et al.*, 1998). Endotoxins triggers the \*Degranulation of granules that leads to \*Gelation and killing of the Gram-negative bacteria due to the antimicrobial proteins from the small granules.

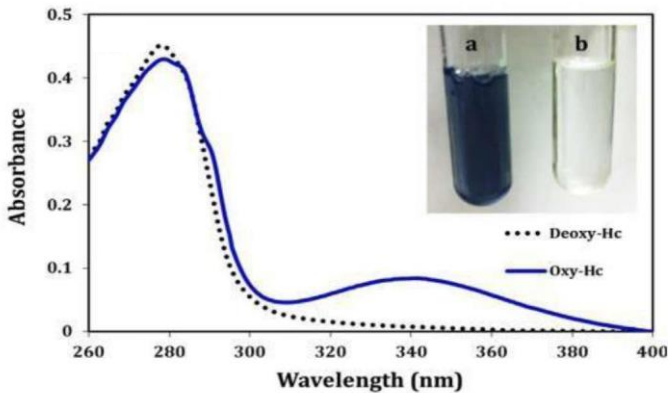


Figure 2.2 Differences between deoxygenated hemocyanin (a) (Deoxy-Hc); dotted line and oxygenated hemocyanin (b) (Oxy-Hc); solid and their absorbance (Coates and Nairn, 2014).

## APPENDIX O

### Sample of a Quotation in the Text

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After deliberating on the doctoral education in Australia in the 1990s, one observer in Australia writes:

The lack of any significant formal course work within our Ph.D. and master degrees by research has continued for three decades. The focus of our Ph.D. research type degrees continues to be the research project, and this is almost the only medium by which education is accomplished.

(Stranks, 1984:171)



## APPENDIX P

### Appendices

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#### LIST OF APPENDICES

<b>Appendix</b>		<b>Page</b>
1	Chromatograms of crude extracts and fractions	72
2	Statistical analysis for antifouling bioassay	73
3	Mass fragmentation of Bg F2 and C F4	78

## APPENDIX Q

### Reference List Using Author and Year System

---

- Amann, R. I., Binder, B. J., Olson, R. J., Chisholm, S. W., Devereux, R. & Stahl, D.A. (1990). Combination of 16S rRNA-targeted oligonucleotide probes with flow cytometry for analyzing mixed microbial populations. *Applied Environmental Microbiology* 56, (1919-1925).
- Farley, R. D. (2012). Ultrastructure of book gill development in embryos and first instars of the horseshoe crab *Limulus polyphemus* L. (Chelicerata, Xiphosura). *Frontiers in Zoology*, 91, (4).
- Mercado, L., Schmitt, P., Marshall, S. H., & Arenas, G. (2005). Gill tissues of the mussel *Mytilus edulis chilensis*: A new source for antimicrobial peptides. *Electronic Journal of Biotechnology*, (284-290).
- Tunney, M. M., Patrick, S., Curran, M. D., Ramage, G., Hanna, D., Nixon, J. R., Gorman, S. P., Davis, R. I., & Anderson, N. (1999). Detection of prosthetic hip infection at revision arthroplasty by immunofluorescence microscopy and PCR amplification of the bacterial 16S rRNA gene. *Journal of Clinical Microbiology*, 3710, (3281-3290).
- Wagner, H. (2011). Synergy research: Approaching a new generation of phytopharmaceuticals. *Fitoterapia*, 821, (34-37).
- Wyse, G. A. (2010). Central pattern generation underlying *Limulus* rhythmic behavior patterns, 56(5), 537-549.
- Yebra, D. M., Kiil, S., & Dam-Johansen, K. (2004). Antifouling technology past, present and future steps towards efficient and environmentally friendly antifouling coatings. *Progress in Organic Coatings*, 502, (75-104).

## APPENDIX R

### Reference List Using Number System

---

1. Theusen, G. J. and Fabrycky, W. J. *Engineering Economy*. 6th edition. Englewood Cliffs, N. J.: Prentice-Hall. 1984.
2. Sukiman Sarmani. Pencemaran Radioaktif. Dlm.: Ahmad Badri Mohamad. *Perspektif Persekitaran*. Petaling Jaya: Fajar Bakti. 71-87; 1987
3. Billings. S. A. Identification of Nonlinear Systems: A Survey. *Proc. Instn Electr. Engrs, Part D*, 1980, 127(6): 272-284.
4. Sheta, A. F. and De Jong, K. Parameter Estimation of Nonlinear Systems in Noisy Environments Using Genetic Algorithms. *Proceedings of the 1996 IEEE International Symposium on Intelligent Control*. September 15-18, 1996. Dearborn, Michigan: IEEE, 1996. 360-365.
5. Ahmad Zaki Abu Bakar. *Pemprosesan Teks Bahasa Melayu Untuk Pemahaman Komputer*. Tesis Doktor Falsafah. Universiti Teknologi Malaysia; 1989
6. British Standards Institution. *Tongued and Grooved Software Flooring*. London, BS 1297. 1987
7. Lindgren, E. A. *Screen Room Air Inlet and Wave Guard*. U.S. Patent 2, 925, 457. 1960.
8. Howick Partitioning Ltd. *Howick: Partitioning in Business*. Redhill (U.K.): Trade brochure. 1984.
9. Sheta, A. F. and De Jong, K. Parameter Estimation of Nonlinear Systems in Noisy Environments Using Genetic Algorithms. *Proceedings of the 1996 IEEE International Symposium on Intelligent Control*. September 15-18. Dearborn, Michigan: IEEE. 1996. 360-365.

**APPENDIX S**  
**APA Reference List**

---

**1. Book with Single Author:**

Gore, A. (2006). *An inconvenient truth: The planetary emergency of global warming and what we can do about it*. Emmaus, PA: Rodale.

**In-text reference:** (Gore, 2006)

**2. Book with Two Authors:**

Michaels, P. J., & Balling, R. C., Jr. (2000). *The satanic gases: Clearing the air about global warming*. Washington, DC: Cato Institute.

**In-text reference:** (Michaels & Balling, 2000)

**3. Book with Editor as Author:**

Galley, K. E. (Ed.). (2004). *Global climate change and wildlife in North America*. Bethesda, MD: Wildlife Society.

**In-text reference:** (Galley, 2004)

**4. Brochure or Pamphlet:**

New York State Department of Health. (2002). After a sexual assault. [Brochure]. Albany, NY: Author.

**In-text reference:** (New York, 2002)

**5. An Anonymous Book:**

*Environmental resource handbook*. (2001). Millerton, NY: Grey House.

**In-text reference:** (Environmental Resource Handbook, 2001)

## **6. Articles in Reference Books (unsigned and signed):**

*Greenhouse effect.* (2005). *American heritage science dictionary*. Boston, MA: Houghton Mifflin.

Schneider, S. H. (2000). *Greenhouse effect. World book encyclopaedia* (Millennium ed. Vol. 8, pp. 382-383). Chicago, IL: World Book.

**In-text references:** (Greenhouse effect, 2005) & (Schneider, 2000)

## **7. Magazine Articles:**

Allen, L. (2004, August). Will Tuvalu disappear beneath the sea? Global warming threatens to swamp a small island nation. *Smithsonian*, 35(5), 44-52.

Begley, S., & Murr, A. (2007, July 2). Which of these is not causing global warming? A. Sport utility vehicles; B. Rice fields; C. Increased solar output. *Newsweek*, 150(2), 48-50.

**In-text references:** (Allen, 2004) (Begley, 2007)

## **8. Newspaper Articles (unsigned and signed):**

College officials agree to cut greenhouse gases. (2007, June 13). *Albany Times Union*, p. A4.

Landler, M. (2007, June 2). Bush's Greenhouse Gas Plan Throws Europe Off Guard. *New York Times*, p. A7.

**In-text references:** ("College Officials", 2007), (Landler, 2007)

## **9. Journal Article with Continuous Paging:**

Miller-Rushing, A. J., Primack, R. B., Primack, D., & Mukunda, S. (2006). Photographs and herbarium specimens as tools to document phenological changes in response to global warming. *American Journal of Botany*, 93, 1667-1674.

**In-text reference:** (Miller-Rushing, Primack, Primack, & Mukunda, 2006)

**10. Journal Article when each issue begins with p.1:**

Bogdonoff, S., & Rubin, J. (2007). The regional greenhouse gas initiative: Taking action in Maine. *Environment*, 49(2), 9-16.

**In-text reference:** (Bogdonoff & Rubin, 2007)

**11. Journal Article from a Library Subscription Service Database with a DOI (digital object identifier):**

Mora, C., & Maya, M. F. (2006). Effect of the rate of temperature increase of the dynamic method on the heat tolerance of fishes. *Journal of Thermal Biology*, 31, 337-341. doi: 10.1016/j.jtherbio.2006.01.055

**In-text reference:** (Mora & Maya, 2006)

**12. Website:**

United States Environmental Protection Agency. (2007, May 4). Climate Change. Retrieved From the Environmental Protection Agency  
<http://www.epa.gov/climatechange>

**In-text reference:** (United States Environmental, 2007)

Gelspan, R. (2007). The Heat Is Online. Lake Oswego, OR: Green House Network. Retrieved from The Heat Is Online  
<http://www.heatisonline.org>

**In-text reference:** (Gelspan, 2007)

These are examples of how to cite MOST COMMON types of sources. For a complete list of examples please refer to the Publication Manual of the American Psychological Association, 6th edition.

## APPENDIX T

### Harvard Style Referencing

Material Type	In-Text Example	Reference List Example
<b>Book: Single Author</b>	(Holt 1997) or Holt (1997) wrote that...	Holt, D.1997. <i>Management principles and practices</i> . Sydney: Prentice- Hall.
<b>Book: 2 or 3 Authors</b>	(McCarthy, William & Pascale 1997)	McCarthy, E., William, D. and Pascale, G.1997. <i>Basic marketing</i> . Sydney: Irwin.
<b>Book: More Than 3 Authors</b>	(Bond et al. 1996)	Bond, W., Smith, J., Brown, K. and George, M.1996. <i>Management of small firms</i> . Sydney: McGraw-Hill.
<b>Book: No Author</b>	(A history of Greece 1994)	<i>A history of Greece</i> .1994. Sydney: Irwin.
<b>Book: Editor</b>	(ed. Jones 1998)	Jones, M. ed. 1998. <i>Management in Australia</i> . London: Academic Press.
<b>Book: 2 or More Editors</b>	(eds Bullinger & Warnecke 1985)	Bullinger, H. and Warnecke H. eds. 1985. <i>Toward the factory of the future</i> . Berlin: Springer-Verlag.
<b>Book, edition other than first.</b>	(Drafke, 2009)	Drafke, M. (2009). <i>The human side of organizations</i> , 10th ed. Upper Saddle River, N.J: Pearson/Prentice Hall.
<b>Book: Translator &amp; Author</b>	(trans. Smith 2006)	Colorado, J. 2006. <i>Economic theory in the Mexican context: recent developments on the ground</i> , trans. K Smith. Oxford: Oxford University Press
<b>Book: Organisation as Author</b>	(Australian Bureau of Agricultural and Resource Economics 2001)	Australian Bureau of Agricultural and Resource Economics.2001. <i>Aquaculture development in Australia: a review of key economic issues</i> . Canberra: ABARE
<b>Book: Chapter or Article in Edited Book</b>	A number of disturbing facts intrude' (Milkman 1998, p 25)	Milkman, R. 1998. The new American workplace: high road or low road? In P. Thompson & C. Warhurst, eds., <i>Workplaces of the Future</i> . London: Macmillan Press, pp. 22-34.
<b>eBook</b>	(Aghion & Durlauf 2005)	Aghion, P. & Durlauf, S., eds. 2005. <i>Handbook of economic Growth</i> . Amsterdam: Elsevier. [Accessed 4 November 2004]. Available from Elsevier books.

<b>eBook: Chapter or Article in an Edited eBook</b>	Historical thinking is actually a Western perspective' (White 2002, p112)	White, H. 2002. The westernization of world history. In J. Rusen, ed., <i>Western historical thinking: an intercultural debate</i> . New York: Berghahn Books, pp. 111-119. [Accessed 14 May 2009]. Available from ACLS Humanities E-Book.
<b>Book: Different Works by Same Author in Same Year</b>	(Bond 1991a) (Bond 1991b)	Bond, G. 1991a. <i>Business ethics</i> . Sydney: McGraw-Hill. Bond, G. 1991b. <i>Corporate Governance</i> . London: Irwin.

### Citing Company Information

Material Type	In-Text Example	Reference List Example
<b>Company Report</b>	(Aspect Huntley 2009)	Aspect Huntley DatAnalysis. 2009. <i>National Australia Bank Limited company report</i> . [20 May 2009]. Available from: Aspect Huntley DatAnalysis.
<b>Company Profile</b>	(Datamonitor 2009)	Datamonitor. 2009. <i>Wesfarmers Limited Company Profile</i> . [20 May 2009]. Available from: Business Source Premier.
<b>Financial Data</b>	(Datastream 2009)	Datastream. 2009. <i>S&amp;P/ASX200 daily index data 2000-2009</i> . [20 May 2009]. Available from: Datastream.

### Citing Conference Proceedings

Material Type	In-Text Example	Reference List Example
<b>Conference Proceeding Paper: Print</b>	(Riley 1992)	Riley, D. 1992. Industrial relations in Australian education. In: <i>Contemporary Australasian Industrial Relations: Proceedings of the Sixth AIRAANZ Conference</i> , ed. D Blackmur, AIRAANZ. Sydney. pp. 124-140.
<b>Conference Proceeding Paper: Electronic</b>	(Fan, Gordon & Pathak 2000)	Fan, W., Gordon, M. and Pathak, R. 2000. Personalization of search engine services for effective retrieval and knowledge management. In: <i>Proceedings of the Twenty-first International Conference on Information Systems</i> , pp. 20-34. [24 June 2004]. Available from: ACM Portal: ACM Digital Library.
<b>Conference Proceeding Paper: Unpublished</b>	(Brown & Caste 1990)	Brown, S. and Caste, V. 2004. Integrated obstacle detection Framework. Paper presented at the <i>IEEE Intelligent Vehicles Symposium</i> , IEEE, Detroit MI.



**Citing material from the Internet/websites: examples**

<b>Material Type</b>	<b>In-Text Example</b>	<b>Reference List Example</b>
<b>Book: Single Author</b>	(Holt 1997) or Holt (1997) wrote that...	Holt, D.1997. <i>Management principles and practices</i> . Sydney: Prentice- Hall.
<b>Book: 2 or 3 Authors</b>	(McCarthy, William & Pascale 1997)	McCarthy, E., William, D. and Pascale, G.1997. <i>Basic marketing</i> . Sydney: Irwin.
<b>Book: More Than 3 Authors</b>	(Bond et al. 1996)	Bond, W., Smith, J., Brown, K. and George, M.1996. <i>Management of small firms</i> . Sydney: McGraw-Hill.
<b>Book: No Author</b>	(A history of Greece 1994)	<i>A history of Greece</i> .1994. Sydney: Irwin.
<b>Book: Editor</b>	(ed. Jones 1998)	Jones, M. ed. 1998. <i>Management in Australia</i> . London: Academic Press.
<b>Book: 2 or More Editors</b>	(eds Bullinger & Warnecke 1985)	Bullinger, H. and Warnecke H. eds. 1985. <i>Toward the factory of the future</i> . Berlin: Springer-Verlag.
<b>Book, edition other than first.</b>	(Drafke, 2009)	Drafke, M. (2009). <i>The human side of organizations</i> , 10th ed. Upper Saddle River, N.J: Pearson/Prentice Hall.
<b>Book: Translator &amp; Author</b>	(trans. Smith 2006)	Colorado, J. 2006. <i>Economic theory in the Mexican context: recent developments on the ground</i> , trans. K Smith. Oxford: Oxford University Press
<b>Book: Organisation as Author</b>	(Australian Bureau of Agricultural and Resource Economics 2001)	Australian Bureau of Agricultural and Resource Economics.2001. <i>Aquaculture development in Australia: a review of key economic issues</i> . Canberra: ABARE
<b>Book: Chapter or Article in Edited Book</b>	A number of disturbing facts intrude' (Milkman 1998, p 25)	Milkman, R. 1998. The new American workplace: high road or low road? In P. Thompson & C. Warhurst, eds., <i>Workplaces of the Future</i> . London: Macmillan Press, pp. 22-34.
<b>eBook</b>	(Aghion & Durlauf 2005)	Aghion, P. & Durlauf, S., eds. 2005. <i>Handbook of economic Growth</i> . Amsterdam: Elsevier. [Accessed 4 November 2004]. Available from Elsevier books.

<b>eBook: Chapter or Article in an Edited eBook</b>	Historical thinking is actually a Western perspective' (White 2002, p112)	White, H. 2002. The westernization of world history. In J. Rusen, ed., <i>Western historical thinking: an intercultural debate</i> . New York: Berghahn Books, pp. 111-119. [Accessed 14 May 2009]. Available from ACLS Humanities E-Book.
<b>Book: Different Works by Same Author in Same Year</b>	(Bond 1991a) (Bond 1991b)	Bond, G. 1991a. <i>Business ethics</i> . Sydney: McGraw-Hill. Bond, G. 1991b. <i>Corporate Governance</i> . London: Irwin.

### Citing material from the Internet/websites: examples

<b>Material Type</b>	<b>In-Text Example</b>	<b>Reference List Example</b>
<b>Webpage: No Author</b>	(Improve indigenous housing 2007) <i>Use first few words of the page title</i>	<i>Improve indigenous housing now, government told</i> . 2007. Available from: < <a href="http://www.architecture.com.au/i-cms?page=10220">http://www.architecture.com.au/i-cms?page=10220</a> >. [8 February 2009].
<b>Webpage: No Date</b>	(Jones, n.d.)	Jones, MD n.d. <i>Commentary on indigenous housing initiatives</i> . [6 June 2009]. Available from: < <a href="http://www.architecture.com.au">http://www.architecture.com.au</a> >
<b>Web Document</b>	(Department of Industry, Tourism and Resources 2006)	Department of Industry, Tourism and Resources. 2006. <i>Being prepared for an influenza pandemic: A kit for small businesses</i> , Government of Australia. [28 February 2009]. Available from: < <a href="http://www.innovation.gov.au">http://www.innovation.gov.au</a> >.
<b>Website</b>	(Australian Securities Exchange 2009)	Australian Securities Exchange. 2009. <i>Market Information</i> . [5 July 2009]. Available from: < <a href="http://www.asx.com.au/professionals/market_information/index.htm">http://www.asx.com.au/professionals/market_information/index.htm</a> >.
<b>Blog</b>	(Newton 2007)	Newton, A. 2007. Newcastle toolkit. 16 January 2007. <i>Angela Newton: Blog</i> . [23 February 2007]. Available from: < <a href="https://elgg.leeds.ac.uk/libajn/weblog/">https://elgg.leeds.ac.uk/libajn/weblog/</a> >.
<b>Computer Software</b>	(OpenOffice.org 2005)	OpenOffice.org, computer software 2005. [11 January 2005]. Available from: < <a href="http://www.openoffice.org">http://www.openoffice.org</a> >.
<b>Web Based Image/table/figure</b>	(The Lunar Interior 2000)	<i>The Lunar Interior</i> , 2000. [28 November 2000]. Available from: < <a href="http://www.planetscapes.com/solar/browse/moon/moonint.jpg">http://www.planetscapes.com/solar/browse/moon/moonint.jpg</a> >

### Citing Journal Articles

Material Type	In-Text Example	Reference List Example
CMO Article	(Jennings 1997)	Jennings, P. 1997. The performance and competitive advantage of small firms: a management perspective. <i>International Small Business Journal</i> , <b>15</b> (2), pp. 63-75. Available from: The University of Western Australia Library Course Materials Online. [1 September 2004].
Journal Article: Print	(Conley & Galeson 1998)	Conley, T.G. and Galeson, D.W. 1998. Nativity and wealth in mid-nineteenth century cities. <i>Journal of Economic History</i> , <b>58</b> (2), pp. 468-493.
Journal Article: Electronic Database	(Liveris 2011)	Liveris, A. 2011. Ethics as a strategy. <i>Leadership Excellence</i> , <b>28</b> (2), pp.17-18. Available from: ProQuest. [23 June 2011].

### Citing Lecture Notes

Material Type	In-Text Example	Reference List Example
Lecture Notes	(Foster 2008)	Foster, T. 2004. <i>Balance sheets</i> . Lecture notes distributed in Financial Accounting 101. 2 November, The University of Western Australia, Crawle.

### Citing Multimedia Materials

Material Type	In-Text Example	Reference List Example
Video/DVD	(Effective performance appraisals 1994)	<i>Effective Performance Appraisals</i> . 1994. [video recording], Melbourne, Educational Media Australia.
Television Programme	(Crystal 1993)	Crystal, L (Executive Producer). 1993. <i>The MacNeil/Lehrer news hour</i> (television broadcast) 11 October 1993, New York and Washington DC, Public Broadcasting Service.
Audio Podcast	(Van Nuys 2007)	Van Nuys, D. (Producer). 2007. The anatomy of a lobotomist [Show 84], <i>Shrink Rap Radio</i> (podcast). [11 April 2007]. Available from: < <a href="http://www.shrinkrapradio.com/">http://www.shrinkrapradio.com/</a> >.
Video Podcast	(Kloft 2006)	Kloft, M. (producer/director) 2006. The Nuremberg trials (motion picture), in M.Sameuls (executive producer), <i>American experience</i> (podcast). [4 March 2006]. Available from: < <a href="http://www.pbs.org/wgbh/amex/rss/podcast_pb.xml">http://www.pbs.org/wgbh/amex/rss/podcast_pb.xml</a> >.
Music Track from an Album	(Shocked 1992)	Shocked, M. 1992. <i>Over the waterfall</i> . <i>Arkansas Traveller</i> (CD). New York, Polygram Music.

<b>Video Blog Post</b>	(Norton 2006)	Norton, R. 2006. <i>How to train a cat to operate a light switch.</i> (video file). [4 November 2006] Available from: < <a href="http://www.youtube.com/watch?v=Vja83KLQXZs">http://www.youtube.com/watch?v=Vja83KLQXZs</a> >.
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### Citing Newspaper Articles

Material Type	In-Text Example	Reference List Example
<b>Newspaper: Print</b>	(Ionesco 2001)	Ionesco, J, 2001. Federal election: new Chip in politics. <i>The Advertiser</i> 23 October, p. 10.
<b>Newspaper: Electronic Database</b>	(Meryment 2006)	Meryment, E. 2006. Distaff winemakers raise a glass of their own to their own. <i>The Australian</i> . 7 October, p. 5. Available from: Factiva. [2 February 2007].
<b>Newspaper: From a Website</b>	(Hilts 1999)	Hilts, P. 1999. In forcasting their emotions, most people flunk out. <i>The New York Times</i> . 16 February. [19 February 2000]. Available from: < <a href="http://www.nytimes.com">http://www.nytimes.com</a> >.

### Citing Patents

Material Type	In-Text Example	Reference List Example
<b>Patent</b>	(Cookson 1985)	Cookson, A. 1985. <i>Particle trap for compressed gas insulated transmission systems</i> . US Patent 4554399.
<b>Patent: Retrieved From a Database</b>	(Mccallum 2008)	Mccallum, J. 2008. <i>Method for and composition of excipient suitable for use in herbal formulations and formulations derived therefrom</i> . Australian Patent AU 2008100919. [8 December 2008]. Available from: SciFinder Scholar.

### Citing Standards

Material Type	In-Text Citation	Reference List Entry
<b>Standard: Retrieved From a Database</b>	(Standards Australia 2008)	Standards Australia. 2008. <i>Personal floatation devices- General requirements</i> . AS 4758.1-2008. [1 December 2008]. Available from: Standards Australia Online.
<b>Standard: Published</b>	(Standards Australia/New Zealand Standard 1994)	Standards Australia. 1994. <i>Information processing - text and office systems - office document architecture (ODA) and Interchange format: part 10: formal specifications</i> . AS/NZS 3951.10:1994, Standards Australia, NSW.

## Citing Theses

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<b>Material Type</b>	<b>In-Text Citation</b>	<b>Reference List Entry</b>
<b>Thesis: Unpublished</b>	(Hos 2005)	Hos, J.P. 2005. <i>Mechanochemically synthesized nanomaterials for intermediate temperature solid oxide fuel cell membranes</i> . Ph.D. thesis, University of Western Australia.
<b>Thesis: Published</b>	(May 2007)	May, B. 2007. <i>A survey of radial velocities in the zodiacal dust cloud</i> , Bristol UK, Canopus Publishing.
<b>Thesis: Retrieved From a database</b>	(Baril 2006)	Baril, M. 2006. <i>A distributed conceptual model for stream salinity generation processes: a systematic data-based approach</i> . WU2006.0058. [12 August 2008]. Available from: Australasian Digital Theses Program.