

UNIVERSITY OF OULU
Faculty of Biochemistry and Molecular Medicine

Instructions for writing Pro gradu Thesis

Please also see the mark scheme used by examiners ([link](#)) and Instructions for publishing in the series Acta Universitatis Ouluensis:

(http://www.oulu.fi/sites/default/files/content/Actan_ohje_2014_kirjoituspohjalle_eng_1.pdf)

Page layout: left margin 3 cm and right margin 2 cm, top and bottom 2.5 cm margins, text aligned to both left and right margins.

Line spacing: 1.5 (24-26 dots), First level headings always start from a new page. Add an empty line before and after a heading. First chapter under heading starts without indent, second chapter with indent.

Font: Times New Roman 12 in text, headings as shown later.

Page numbers: in the top and center of page, beginning with the introduction page. Typical thesis around 50-60 pages long

Pro gradu thesis contains following pages and sections:

Cover and cover sheet: See the models at the end of these instructions.

One page detailing the place of experimental work and the name of supervisor should be added after cover sheet.

The abbreviations used should be listed in alphabetical order at the beginning of thesis.

Table of contents: Example contents layout:

Contents

Abbreviations

Contents

I LITERATURE SECTION

1. Introduction	1
2. Review of the literature	2
2.1. Title	x
2.2. Title	x
2.2.2. Title	x
2.2.2.2. Title	x
II EXPERIMENTAL PART	
3. Aim of the project	x
3.1. Title	xx

3.2. Title	xx
3.2.2. Title	xx
3.2.2.2. Title	xx

I LITERATURE SECTION

1. Introduction (bold 14 dots)

Briefly, in one page, introduce reader to the subject of your thesis and present the purpose of your project.

2. Review of the literature

The review of the literature should be a comprehensive overview of the field that is accessible to the non-specialist. **You must acquire permission for the use of copyrighted material (pictures, drawings, maps and photographs) by contacting the publisher. Instructions and a template for requesting permission can be found on Oulu University library webpage: http://libguides oulu fi/theses/copyright_issues.**

References should be abbreviated in the text and listed comprehensively at the end of thesis in the section List of References

Citations styles:

In the text citations are with name and year e.g. (Stetler-Stevenson 1990) not with number.

If a name of author is a part of a sentence citations are of the form Stetler-Stevenson (1990).

If there are two authors they are separated by ampersand e.g. (Cox & Hughes 1975).

If there are more than two authors citations are of the form Stetler-Stevenson and co-workers (1990) or (Stetler-Stevenson *et al.* 1990).

Citations are indicated by parentheses at the end of sentence (oldest first). Citations published in the same year are listed in alphabetical order.

If there are two or more entries by the same author(s) they are listed in the order of year (1986, 1990). Entries published by the same authors in the same year are distinguished by letters e.g. (Cox & Hughes 1989a, 1989b).

If the reference is cited in only one sentence, the full stop at the end of the sentence is placed after the parentheses e.g.

Xxxxxxx (Jones 1970, Crossley 1986, Paillette *et al.* 1991).

If the reference is cited in many sentences, the full stop is placed at the end of the last sentence after the parentheses e.g.

Xxxxxx. Xxxxxx. Xxxxxx. (Jones 1993).

The review of the literature, as other parts of Pro gradu thesis, is divided into paragraphs which have a chapter heading (not more than 4 heading styles).

Abbreviations are not allowed in the chapter headings. The style should be:

2.1. (bold 12 dots)
2.1.1. (bold, italics 12 dots)
 2.1.1.1.(italics 12 dots)

II EXPERIMENTAL PART

Experimental part must contain the following main points:

3. Aim of the Project

Is expressed shortly and precisely.

4. Materials and Methods

Principles of the methods used are briefly presented with **reference(s)** and possible modifications are explained. The methods are presented briefly but sufficiently to permit a qualified reader to repeat the experiments. Pipetting instructions are not allowed; instead the concentrations of each reagent for example in reaction mixture are presented.

Concentrations of solutions used should be presented. Composition of the solution is written in full at the first time it is mentioned in the text. Later on the abbreviations can be used for solutions. For example:

Homogenization buffer (10 mM Na-Phosphate buffer, pH 7.0, 0,25 M sucrose, 1 mM EDTA, 1 mM PLP)

Buffer A (1.25 M Tris-HCl, 2.5 mM DTT, 1 mM EDTA pH 7.5)

TE-buffer (10 mM Tris-HCl, 1 mM EDTA pH 8.0)

For centrifugation time and speed (g-value) should be written. If an rpm value is written instead the type of rotor used must be written as well.

5. Results

Experiments and results must be reported clearly. Tables, diagrams, photos and graphics should be used when possible. If results can be processed statistically standard deviation, standard error and significance must be reported. Tables and figures must be referred to in the text. Tables are numbered with Roman numerals and must have a title above. Tables are aligned center to the text and should not have a text wrapping. The style of a finalized table is shown in table I.

Table I Finalized table.

Amino acids of truncated LH3 molecules	GGT activity % of normal
Normal LH3 ¹ : 33-738	100
Mutation 1: 33-231 a frame shift ² and translation stop at 356	0,1
Mutation 5: 33-389	10
Mutation 7: 33-402	22
Mutation 2: 33-521	23
Mutation 4: 33-668 a frame shift ² and translation stop at 698	47

¹full lenght LH3, without a signal sequence, covering amino acids 33-738

²one nucleotide deletion causing a frame shift in the sequence

Figures are numbered with Arabic numerals and include a short legend sufficient to be able to understand the figure without reading the main text. Figures are aligned center to the text and should not have a text wrapping. A figure legend is aligned to both left and right margins as the rest of the text.

6. Discussion

Sections 6 and 7 can be combined to Results and Discussion.

In this section the results obtained are discussed, results are compared to earlier results (with references) and the general importance of results are discussed. Author can express his own opinions but objectively and with logical grounding. If results are different from those expected, their reliability must be discussed (including possible sources of error) and what, if anything, could be done to confirm the results. It is possible that new results can change the interpretation of old results. In this case additional experiments should be discussed to test the new theory.

7. Conclusions

The purpose of the study and the results obtained should be presented in a condensed form. There should be enough information to use this section as a summary of the whole work.

8. References

References are listed in alphabetical order. If two or more references have the same authors then they are listed according to the date of publication. If there are two or more references by the same authors published in the same year the first reference has the year of publication followed by “a”, the second by “b” and so on. Use of a reference database software like RefWorks is recommended.

The family name of the author(s) is written first and then the initials of their first name(s). If there are two or more authors the name of last author is preceded by ampersand (&). The names of magazines and serial publications are abbreviated according to their own practice.

Examples:

Article in a periodical (scientific journals)

- Burgoyne PS (1998) The mammalian Y chromosome: a new perspective. *Bioessays* 20:363-366.
- Hunt MC, Solaas K, Kase BF & Alexson SE (2002) Characterization of an acyl-coA thioesterase that functions as a major regulator of peroxisomal lipid metabolism. *J Biol Chem* 277:1128-1138.
- Lilius EM & Marnila P. (2001) The role of colostral antibodies in prevention of microbial infections. *Curr Opin Infect Dis* 14:295-300.

Open access and other online scientific journals, which are not published as printed:

- Ignatev A, Bhargav SP, Vahokoski J, Kursula P & Kursula I (2012) The lasso segment is required for functional dimerization of the Plasmodium formin 1 FH2 domain. *PLoS One* 7:e33586.

References appearing as e-pubs (in press) should have the DOI number after the journal title:

- Aphasizheva I, Aphasizheva R & Simpson L (2004) RNA editing terminal uridylyl transferase 1: identification of functional domains by mutational analysis. *J Biol Chem* 10.1074/jbc.M401234200.

Author anonymous (Anon)

- Patent breafing (2001) *Drug Deliv* 8: 179-181.

Periodical Evans CF & Engelke DR (1990) Yeast extracts for transfer RNA gene transcription and processing. *Methods Enzymol* 181:439-450.

Haapalainen A (2002) Structure-function studies of the mammalian peroxisomal multifunctional enzyme type 2 (MFE-2). *Acta Univ Oul A* 389.

Electronic sources

- BirdLife International (2008) A range of threats drives declines in bird populations. Presented as part of the BirdLife State of the world's birds website. URI: <http://www.birdlife.org/datazone/sowb/casestudy/120>. Cited 2013/8/19.

PECBMS (Pan-European Common Bird Monitoring Scheme) (2012) Trends of commonbirds in Europe, 2012 update. URI: <http://www.ebcc.info/index.php?ID=485> Cited 2012/11/8.

Book or other monograph

Blow D (2002) Outline of crystallography for biologists. Oxford University Press, New York
Klug WS & Cummings MR (2002) Concepts of genetics. 6th ed. Upper Saddle River, NJ, Prentice Hall.

Article in an edited publication

Cartwright T (2001) Protein purifications from mammalian cell culture. In Roe S (ed) Protein purification applications: a practical approach. 2nd ed. Oxford, Oxford University Press: 49-71.

Patterson SD, Aebersold R & Goodlett DR (2001) Mass spectrometry-based methods for protein identification and phosphorylation site analysis. In Pennington SR & Dunn MJ (eds) Proteomics: from protein sequence to function. New York, NY, BIOS: 87-130.

Thesis

Aro J (2008) Regulation of cardiac gene expression in experimental models of pressure overload. Pro gradu thesis. University of Oulu, Department of Biochemistry.

Abstract

Gomez NN, Ojeda MS & Gimenez MS (2002) Lung lipid composition in zinc-deficient rats (abstract). Lipids 37:291-6.

Example of cover

TITLE(20 dots)

AUTHOR (16 dots)

Example of cover sheet:

Pro gradu (16 dots)

Title(20 dots)

Author(16 dots)

University of Oulu (12 dots)
Faculty of Biochemistry and Molecular Medicine
2017