Master’s Thesis

Concise title that aptly describes the content, maximum length of 3 lines recommended

[Author’s First name Family name ]



University of Jyväskylä

Department of Biological and Environmental Science

DD Month YEAR

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| --- |
| UNIVERSITY OF JYVÄSKYLÄ, Faculty of Mathematics and ScienceDepartment of Biological and Environmental Science |
| [Degree programme, choose one: Master’s Degree Programme in Aquatic Sciences, Master’s Degree Programme in Ecology and Evolutionary Biology, Master’s Degree Programme in Cell and Molecular Biology, Master’s Degree Programme in Environmental Science, Master’s Degree Programme in Biological and Environmental Science, Master’s Degree Programme in Nanoscience] |
| [Author’s Last Name, First Name (Middle Initials optional N.) ] | [Compact and descriptive title] |
| MSci Thesis | XX p., Y appendices ([Number of pages in appendices] s.) |
| Supervisors: | [Position or Title First Name Second Name] and [Position or Title First Name Second Name] |
| [Month Year] |  |
| Keywords: [in alphabetical order, separated by comma, do not use same words as in the title] |

The Abstract is an independent, easily comprehensible entity that briefly describes the main sections of the thesis. The Abstract should arouse the reader’s interest in the thesis. The Abstract is written as one single paragraph, beginning with one or two general introductory sentences explaining the background and motivation of the study. These sentences should be easy for anyone to understand and should describe the more general issue to which the thesis topic is related. Next, you explain what you examined for the thesis and how. Third, you report your findings, highlighting the main points. In presenting these issues, you do not refer to literature, figures, or tables. If you use abbreviations in the Abstract, you should also explain their meanings in the Abstract. Either the present or the past tense is used in the Abstract. Use the past tense when presenting the work you carried out for this thesis or the new results you obtained: ‘The bioluminescence of *Vibrio fischeri* bacteria halved when the dichlorophenol content exceeded 3 mg/l’. If the main observations are based on earlier data, use the present tense: ‘The bioluminescence of *Vibrio fischeri* bacteria halves when dichlorophenol content exceeds 3 mg/l’. At the end of the Abstract, write the most important conclusion of your thesis, which relates the topic back to its broader context and significance. The Finnish and English Abstracts should have the same content, but not be just a word for word translation of each other. The language should be grammatically correct and a comprehensive whole. The Abstract may not be longer than one page (max 2200 characters, including spaces).

|  |
| --- |
| JYVÄSKYLÄN YLIOPISTO, Matemaattis-luonnontieteellinen tiedekuntaBio- ja ympäristötieteiden laitos |
| [Tutkinto-ohjelma, valitse yksi: Akvaattisten tieteiden maisteriohjelma, Ekologian ja evoluutiobiologian maisteriohjelma, Solu- ja molekyylibiologian maisteriohjelma, Ympäristötieteen maisteriohjelma, Master’s Degree Programme in Biological and Environmental Science, Master’s Degree Programme in Nanoscience] |
| [Tekijän Sukunimi, Etunimi (toisen alkukirjaimet mahdollisia N.] | [Tiivis ja sisältöä hyvin kuvaava otsikko] |
| Pro gradu tutkielma: | XX s., Y liitettä ([liitteiden sivumäärä] s.) |
| Työn ohjaajat: | [Arvo tai asema Etunimi Sukunimi ] ja [arvo tai asema Etunimi Sukunimi] |
| [Kuukausi Vuosi] |  |
| Hakusanat: [Pilkuilla erotettuina aakkosjärjestyksessä, älä käytä otsikon sanoja] |

Instructions for the Finnish abstract are the same as those described above. The Finnish and English Abstracts should have the same content, but not be just a word for word translations of each other. If Finnish is your native language, you need to write the Finnish Abstract even if you write the thesis in English. The language in each should be grammatically correct and a comprehensive whole. The maximum length of the Abstract is one page. For those who have done their BSc (LuK) degree in Finland, the Abstract is assessed as a maturity test, so it should be long enough to allow assessment of your writing skills (but not longer than one page) and written in high-quality language. Avoid translating word for word from English.

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Please, generate the table of contents with the automatic tool of your text editor programme. Maximally three levels of subtitles is recommended. Note that page numbering starts from the introduction and that the page numbering continues to appendices.

TERMS and abbreviations

Terms

**Agrodiversity** Biodiversity of a cultivation area

**Toxoid** An inactivated toxin

Abbreviations

**GFA** gross floor area

**HK** histidine kinase

**TLR** Toll-like receptor T

Between the Table of Contents and the Introduction, you can define the terminology you have used and explain the abbreviations. However, both should also be explained when they first appear in the actual text. Using a list of terms or abbreviations is justified if the text contains numerous terms or abbreviations that are unfamiliar to most readers. If you use an abbreviation only a few (maximum three) times, do not include it in the abbreviation list but explain it every time in the text. Common biological terms and abbreviations (e.g. DNA, RNA) need not be explained or included in the list. Chemical symbols need not be explained. Gene symbols are not listed in the list of abbreviations, but it is good to explain them when you use them in the text. Please note for example, related the above list of abbreviations, TLR1, TLR2, TLR3 etc. could be used as gene symbols. If these were used in the text instead of TLR, you would not need to have TLR in the list, unless you used TLR alone at least three times.

Use of artificial intelligence in the thesis

In my thesis, I have used AI applications: [yes / no]

I declare that I have used the following AI applications in my thesis during the thesis process:

* AI application names and versions: [list here all applications and versions used]
* purpose of use: [please describe here in detail for what purpose and how each application has been used]
* thesis sections where AI was used: [list all thesis steps and sections]

I acknowledge that I am fully responsible for the entire content of the thesis, including the sections where AI has been used, and accept responsibility for any potential breach of ethical guidelines.

# Introduction

It is utmost important that your thesis has a clear, logical story. You should start with the Introduction and end with the conclusions, but you are allowed to make exceptions to the canonical structure of subheadings introduced in this document, if the changes improve the overall clarity of the thesis.

The Introduction presents the subject to the reader, proceeding from a general presentation of the theme or background to a more specific topic. Here you can explain why the chosen theme is important. The aim of scientific writing is to produce new knowledge or to present/apply existing data in a new way. One good approach to this aim is to identify a gap in current knowledge or understanding. In the Introduction, the author should demonstrate understanding of the most recent existing knowledge by, for instance, referring to the most recent scientific studies or their syntheses, such as review articles.

The literature you refer to in your thesis should be reliable scientific publications and, for the most part, the most recent information. Good sources include scientific journals and official reports or other permanent information sources that can be unambiguously identified based on, for example, publication series numbers and page numbers. A good source describes the method that has been used to produce the data originally. In scientific compilation articles and summaries (review articles), the data production methods are usually not reported because they are based on the original publications compiled for the summary, which are referred to as sources. Websites are secondary sources because the information they present is not permanent, but can be changed (updated), as can the internet address. The use of websites as thesis sources is acceptable when they are a primary source of information, for example websites provided by the authorities (e.g. FINLEX). Newspapers and magazines as well as textbooks (without referencing practices) are weak sources of information because their content is not necessarily based on research and data, and it is impossible to trace the initial source of information in these sources.

When writing the Introduction, as well as any other section of your thesis, remember to focus on your topic. Only use the observations from the literature that relate to your topic– do not present broader themes with all their subplots. Because the Introduction presents previously known facts and published interpretations, the present tense should be used.

You can use figures and tables in the Introduction, but you must check the copyrights and re-publishing policies of any borrowed material. You must mention the original source of the figure, who has the copyright and how you have obtained the permission to use the figure in your work. If the original figure has been published under a creative commons license, you can use the figure according to the license terms given. If the original copyright owner has not given permission to use his/her material, instead of copying, draw your own figure or design a table and give the reference to the source of the data. Note, that direct translation of a figure or table requires the same permission as direct copying. Photos and artworks may not be used without copyrights.

The Introduction can consist of one unbroken section, or it can separate sections with clarifying subheadings. The last paragraph of the Introduction should provide as precisely as possible the aims of the study and should introduce the research questions and hypotheses. In this context, you should also briefly describe the approach chosen for achieving the aims (literature survey, experimental work, modelling, etc.). This section is written in the past tense because it specifies the work you carried out for this particular thesis. The technical implementation of the approach is described in detail in the Materials and Methods section.

Here is an example how a direct quote is shown in the text:

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Maecenas porttitor congue massa. Fusce posuere, magna sed pulvinar ultricies, purus lectus malesuada libero, sit amet commodo magna eros quis urna. Nunc viverra imperdiet enim. Fusce est. Vivamus a tellus (Last name et al. 2021).

# MATERIALS AND METHODS

In the Materials and Methods section, you explain the basis of the results or arguments presented in the thesis, as well as how (with what kinds of methods) those results were obtained or achieved. The heading of this section can also be, for example, Data and Methods. In this section, you specify in the past tense what you did to produce the content of your thesis. In describing the methods, you should follow the same principles as in original scientific publications. In other words, provide the reader sufficient information so that he/she can potentially repeat the test and obtain the same results. You can divide the section into subsections if needed. Units should follow the SI system of measurement.

##  Materials

The Materials (or Samples and Data) section is placed before the Methods section, and it describes from where and how the used materials were collected or acquired. For example, in the context of laboratory works, you can specify which cellular/algal/bacterial strains or DNA vectors and/or chemicals were used, and from where you received them for this study: ‘*Chlorella vulgaris* green algae (Varicon Aquat Ltd, U.K.) were cultivated.’ You can cover your field work by, for example, describing where, when and how the samples were collected: ‘The water sample was collected from Lake Jyväsjärvi (62.228°N 25.734°E) on 13 November 2014, at a depth of three metres, using a Limnos water sampler.

##  Methods

In the Methods section, you describe the technical details of experimental design and measurements. Briefly state the exact model of the instruments or equipment you used, as well as their manufacturer and place of manufacture. For example: ‘Solar radiation was measured at intervals of 12 seconds, using a global radiation meter (Vantage Pro 6450, Davis Instruments, Hayward, CA, U.S.A.).’ On the other hand, self-evident details should not be included. It is enough to say, for instance, that ‘the overall length of fish was measured with accuracy of 1 mm and their weight was measured with accuracy of 0.1 g’. You need not specify what kind of a ruler you used to measure the fish or the make and model the balance. For centrifugation, you need not indicate the make of the centrifuge – it is enough to specify the g-force and time.

It is often impossible to measure the main results directly, but they are instead calculated based on test results according to, for example, a theoretical model. In such cases, the applied formulas are reported among the methods. Mathematical equations are centred and numbered successively. The number must be in round brackets at the right margin of the page. Write equations using an equation editor. The symbols of quantities in equations are written in the text, tables and figures in the same way as they are in equations, that is, in italics:

’…particle settling velocity (*VST*) was calculated from the equation (Hinds 1999)

$V\_{ST}=\frac{ρ\_{p}d\_{a}^{2}g}{18η}$, (1)

where *ρp* is particle density (g/cm3), *η* gas viscosity (Pa s), *da* aerodynamic diameter of particle (mm) and *g* is the gravitational acceleration of Earth (m/s2)’. Your methods may also include chemical reaction equations needed to obtain the results. They are also centred and numbered. Chemical symbols are not italicised:

‘The reaction of diazomethane (CH2H2) and ozone (O3) was observed by measuring the increase in oxygen (O2) and nitrogen (N2) content, assuming that the reaction would comply with the following equation:

CH2N2 + O3 → HCHO + O2 + N2 (2)’

It is good to visualise the methods, for example, by attaching a chart or photo of the experimental setup.

If you use test animals in your study, the necessary licences must be presented in the Methods section. The same applies to research governed by the Nature Conservation Act, for example, when animals are trapped and handled in the study.

The applied statistical analyses are presented at the end of the Methods section. You should specify what analyses were used, which quantities were included in the statistical models (dependent and independent), whether covariants were used, and how the applicability of the test to the research data was evaluated. In addition, specify the software (SPSS, R) you used in the analyses. For example: ‘The data were analysed using IBM SPSS (version 24.1). Potential differences in mean values were studied using one-way analysis of variance, and pairwise comparisons were conducted with Tukey’s test. The limit of statistical significance was 0.05.’

# RESULTS

In the Results section, you should present the findings relevant to the aims presented at the end of the Introduction in a logical – not necessarily chronological – order, using the past tense. Only include results associated with your own thesis. In this section you can compare results found in your study, but comparison of results to those from earlier research should only be done later, in the Discussion section.

It is recommended to present the results mainly as illustrative figures and tables. The results should be presented only once; for example, if you have illustrated certain results in a figure, you do not need to repeat them in tables or text. If you present statistical analyses in a table, do not repeat the statistical significances in text. The purpose of the text is to introduce the reader to the figures and tables by referring to the findings presented in them and by highlighting the observations essential for achieving the aims. You must refer to all figures and tables in the text.

## Use of tables and figures

### Tables

Tables are numbered in the order they are referred to in the text, and you must refer to each table. Accordingly, place your tables in the order of reference so that the first one is Table 1 (note the capitalisation). Insert tables in between text paragraphs as smoothly as possible after the place in text where you refer to them. Large tables can be placed on the following page. If a table is very long or needs to be placed on a horizontal page, it is better to include it as an Appendix (for more about appendices, see the end of these instructions).

In addition to a number, each table has a title, which is placed above it. If necessary, you can specify the content of the table in a footnote. Tables and their headers should be self-contained so that the reader can understand the table without referring back to the text. The results and units of measurement presented in the table must be defined unambiguously. Avoid repeating table texts in the body text, and only explain what is essential for the results, that is, what the reader should focus on in the table. For example, do not repeat in the body text ‘the lifespan of an ethanol, water, mercury and diethyl hexyl phthalate (DOP) droplet in the air in 293 K is presented in Table 1’, but instead use an explanation such as ‘the lifespan of 1–40 µm sized water droplets varied between 0.001 s and 1.3 s (Table 1)’.

Formulate tables so that they are easy to read, and the contents of the various rows or columns are not easily confused. You can use a smaller font than used in the body text, as well as subheadings, indentation, vertical lines, and so on, to help make the table easier to read depending on the context. However, make sure that the table text and numbers are large and clear enough. Avoid unnecessary effects, such as background colours. Pay special attention to the precision of the data (the number of significant digits) you present in the tables.

TABLE 1. Lifespan of differently sized droplets of ethanol, water, mercury and diethyl hexyl phthalate (DOP) in air at 293 K.

|  |  |
| --- | --- |
| Initial size of the drople (µm) | lifespan (s) |
| Ethanol | Water | Mercury | DOP |
| 0.01 | 4 ´ 10-7 | 2 ´ 10-6 | 0.005 | 1.8 |
| 0.1 | 9 ´ 10-6 | 3 ´ 10-5 | 0.3 | 740 |
| 1 | 3 ´ 10-4 | 1 ´ 10-3 | 1.4 | 3 x 104 |
| 10 | 3 ´ 10-2 | 8 ´ 10-2 | 1200 | 2 x 106 |
| 40 | 4 ´ 10-1 | 1.3 ´ 100 | 2 x 104 | 4 x 107 |

###  Figures

If you illustrate content with a graph or present your findings graphically, try to do it as clearly as possible (Figure 1). Make the appearance of descriptors uniform (fonts, scaling, etc.). Scale the descriptors so that the issue you want to describe is clearly visible in the figure. The descriptors you intend to compare with each other must be presented on the same scale. Consider what would be the best division for the scales of the x- and y-axes, and what the best precision for the numerical values of the axes (how many decimals, the usability of scientific notation as powers of ten if the data are very big or small). Mark the scales, quantities and units of the x- and y-axes in the figures clearly and in single-values. Present units in axis titles in round brackets. Avoid decorations, shadowing and 3D effects (Figure 2). Consider what form of presentation (bar graph, line graph, etc.) would be the most suitable for your data. Draw the figures and choose screenings, rulings and symbols for your bar/line graphs and sets of points so that they can also be read as black-and-white prints. Figure captions are formatted in the same way as in tables but placed under the figures. They should also be comprehensible without reading the main text. Figures of the same type and related to the same data can be placed practically one after the other or side by side, using one a single caption.

Figures are numbered in the order they are referred to in the text, and you must refer to each figure. Place your figure in the order of reference so that the first one is Figure 1 (note the capitalisation), displayed between text paragraphs as smoothly as possible after the place in the text where you refer to them.



Figure 1. Demonstration of the sensitivity of the digital droplet PCR assay in detecting copies of a single gene (COX1) in dilution series. X-axis shows the dilution and y-axis shows the COX1 concentration (copies/μl) in log scale. Figure has been reproduced from Hiillos et al. 2021. © Hiillos, A.-L., Thonig, A, Knott, K.E. CC BY 4.0.

Figure 2. Another example of simple figure: Survival (%) of whitefish *Coregonus lavaretus* A) embryos and B) juveniles in various sulphate concentrations. The vertical bars are 95% confidence intervals. © Juha Karjalainen, University of Jyväskylä.

# DISCUSSION

By this stage, you have comprehensively presented the relevant literature and the study you conducted for the reader. The purpose of evaluating the results in the Discussion section is to integrate your findings, discuss potential controversies and their reasons, and to explain to the reader what would still be necessary to know in order to understand the issue or to utilise it in some other field, and so on. In this section, you can also discuss the significance and reliability of your results in light of earlier research.

Pay special attention to the balance between the Introduction and Discussion sections. Did you answer the questions you set out to address? What is the contribution of your study – does it offer new data on the theme, and is more research needed?

# CONCLUSIONS

The Conclusions section summarises the main observations of the study and links them to a broader context. When writing this section, you should have gained a profound understanding of your own research and its significance, so spend enough time on reflection. In this section, you no longer present detailed findings or use references. The Conclusions section can also be written as the last subsection or last paragraph of the Discussion section, and then it does not necessarily have a heading.

ACKNOWLEDGEMENTS

Here you can acknowledge different parties for their support during the study or funding for your master’s thesis. The heading is not numbered. In this context, you also mention if your research is part of a larger project. In general, you do not acknowledge your family or friends in theses or professional literature.

Jyväskylä January 1, 2019

Author

references

The heading of the reference list is not numbered. In every reference, the second and subsequent lines are indented (1 cm). All the literature in the References must be found cited in the text, and vice versa. If a source article is being published or has been accepted for publishing, it can be included in the References with the numerical and other data available. Do not translate the title of a source into another language if it has not been translated in the original publication. If the original title has been written using other than Roman script, see BER (Boreal Environment Research) instructions at <http://www.borenv.net/> . For the names of publication series or journals, use only their own abbreviations or the ones used in the Biological Abstracts or Science Citation Index publications. If you cannot find an abbreviation, use the whole name. Sources are arranged according to the following logic:

* Alphabetical order
* If the author or authors are exactly the same, arrange the sources according to the year of publication (ascending)
* If the author (or the first name in the author list) and the year are the same, mark the source that was mentioned first in the text with the letter a, the second one with the letter b, and so on. For example, in the text: (Järvinen et al. 2015a) and in the list of references: Järvinen, J., Virtanen, V. & Lahtinen, L. 2015a.

You can find the Boreal Environment Research citation format in the freely available reference management software, for instance Zotero and Mendeley. It is highly recommended to use these software programmes. You can create your own database using these programmes and add scientific articles and other types of references. Be aware that even if you download all citation information from web sources, your reference list can still have some errors and inconsistencies. It is highly recommended that in such cases you correct the errors in your database rather than only in your final thesis document. Be sure to double check your reference list to make sure the formatting is correct.

In the body text, you refer to literature with the author’s surname and year (Ylänne 2017). For two authors, use both surnames (Vallius and Ylänne 2015). For more than two authors, use ‘et al.’ (Vallius et al. 2014). If you refer to several sources in the same context, arrange the references in chronological order (Vallius and Ylänne 2015, Ylänne 2017).

Below you can find some typical examples of references [the notes in square brackets are comments for you – they are not intended for the final list!]. If you cannot find guidelines for your source in this list or in the subsequent guidelines for official sources, you can utilise the articles published by BER as examples.

Kulmala M., Vehkamäki H., Petäjä T., Dal Masoa M., Lauri A., Kerminen V.-M., Birmilic W. & McMurry P.H. 2004. Formation and growth rates of ultrafine atmospheric particles: a review of observations. *Aerosol Science* 35: 143176. [An article in a publication series: if the article has page numbers, you refer to it like this even if it were available online.]

BER 2017. Instructions to authors. http://www.borenv.net/(accessed on 17.8.2017) [The website of the Boreal Environment Research journal, on which you can find more instructions.]

Forsström S., Ström J., Pedersen C.A., Isaksson E. & Gerland, S. 2009. Elemental carbon distribution in Svalbard snow. *J. Geophys. Res.* 114, D19112, doi:10.1029/2008JD011480. [An online-only series, DOI (Digital Object Identifier) should be given.]

Forström J., Keränen J., Hytönen E., Soria A. & Szabó L. 2006. *Development of a model of the world pulp and paper industry.* Technical Report Series, EUR 22544 EN, retrieved from http://ftp.jrc.es/EURdoc/22544-ExeSumm.pdf. [A report available online]

Hänninen H. 1990. Modelling dormancy release in trees from cool and temperate regions. In: Dixon R.K., Melhdahl R.S., Ruak G.A. & Warren W.G. (eds.), *Process modelling of forest growth responses to environmental stress*, Timber Press Portland, pp. 159–165. [A section written by Hänninen in a book edited by Dixon et al.]

IPCC 2013: *Climate Change 2013. The Physical Science Basis*. Cambridge University Press, New York, USA.[A book without an actual author]

Kielijelppi 2014. Kirjoitusviestintä. http://www.kielijelppi.fi/kirjoitusviestinta (accessed on 20.11.2014) [A website: the website title or the maintaining organisation is given as the author in text and in References.]

Tikkanen T. 1986. *Kasviplanktonopas*. Gaudeamus, Helsinki. [Book, title in italics]

**BER does not give instructions for referring to official sources, so it should be done as follows** [the notes in square brackets are comments for you]**:**

Council Directive 96/61/EC. COUNCIL DIRECTIVE 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control. EYVL L257/26, 10.10.1996. Retrieved from: http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31996L0061:FI:HTML [official source: EU Directive]

HE 49/2004 vp. Hallituksen esitys Eduskunnalle päästökauppalaiksi sekä laeiksi ympäristönsuojelulain 43 §:n ja Energiamarkkinavirastosta annetun lain 1 §:n muuttamisesta. [official source: draft law, government bill]

Waste Act 3.12.1993/1072. [official source: reference to applicable law]

Act on Environmental Impact Assessment Procedure 10.6.1994/468. [official source: reference to applicable law]

Palosuo, T., Wihersaari, M. & Sievänen, R. 2001: Energiapuu ja kasvihuonekaasut. In: Nurmi, J. & Kokko, A. (eds.), Biomassan tehostetun talteenoton seurannaisvaikutuksia metsässä. – Finnish Forest Institute Research papers 816: 24–30. [article in a collection]

Finnish Treaty Series 13/2005. Kyoto Protocol to the United Nations Framework Convention on Climate Change. [official source: international treaty]

Appendix 1. Technical instruction for AppendiCes

Appendices are placed at the end of the thesis. You must refer to all the appendices in the text (in numerical order), and the appendices must have both a number and a descriptive heading. The headings of appendices are first-level headings so that they are also visible in the Contents. The page numbering continues from main text to the appendices.

APPENDIX 2. General guidelines for writing

Subheadings are ideal for clarifying your presentation, but the text should not be broken into many small pieces. There should be text under every heading – that is, no two headings should appear immediately after each other. Avoid paragraphs consisting of one sentence and sections consisting of one short paragraph only.

Write your text as smoothly as possible, in your own words and using grammatically correct English. The aim is for the reader to learn new things from your thesis. You can find writing spelling tips at, for example <http://sana.aalto.fi/awe/index.html>

Here are some common writing rules for numbers:

Avoid starting sentences with a number. However, this is allowed if a different word order would be awkward. You should also avoid writing numbers after each other in a sentence. Decimal numbers have full stops in English (but commas in Finnish). When expressing physical quantities, use the official abbreviations of the SI system. Note: Litre is l, not L. Numbers are separated from unit symbols by a space (e.g. 25 °C). Note: there is no space between a number and the % symbol in English writing. A number and a unit of measurement must be written on the same line. You can prevent line break by holding down the Shift and Ctrl keys when you press the space bar. When expressing a range of variation, the numbers are separated by an en dash (–) without spaces (e.g. 30–40 mg). In Word you get the en dash by pressing simultaneously the Ctrl key and the minus sign of the numeric keyboard. If a value is preceded by a sign, a space is left on both sides of the en dash, e.g. (-5 – -10 °C).

The names of species are always spelled in italics, for example: the species *Homo sapiens*. Foreign terms are also presented in italics: *ad libitum*.

Appendix 3: How to make your document accessible for disabled indivuduals

According to the Act on the Provision of Digital Serves, all online documents produced by universities should be formatted so that online reading is possible also for disabled individuals. This applies to all documents published in the JYX publication archive including Bachelor’s and Master’s theses.

This Thesis template has been made to help achieve accessibility. However, it is the responsibility of the Author to make sure that the minimal requirements are met. Please, read further instructions from : <https://openscience.jyu.fi/en/thesis-tutorial/bachelors-masters-thesis/publishing-your-thesis/thesis-accessibility>