



Sveučilište u Zagrebu Agronomski fakultet  
University of Zagreb Faculty of Agriculture

# **GRADUATE STUDY PROGRAMME**

## **Instructions for preparation of the Master thesis**

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Zagreb, March 2019

## 1. Thesis

Graduate study programme ends by finishing examination, the fulfilment of all student and other obligations prescribed in the study programme and the preparation and public defence of the Master thesis.

Master thesis represents the student's task and workload totalling 30 ECTS credits and implies activities within the Master Thesis – Seminar course and the actual preparation of the Master thesis.

The Master thesis is a written: a) **a research**, b) **an expert-project** or c) **a review** thesis that systematically and clearly addresses a specific problem, project or theoretical entity from the areas of competence of the study programme in a contemporary and technologically advanced manner. With the thesis, the student demonstrates that he/she understands the fundamentals of research and the profession - the latest knowledge from the programme's areas of competence, especially from the Master thesis mentor's courses, but also interdisciplinary knowledge. The student demonstrates this through the ability to locate and utilise relevant and current literature, as well as defining hypotheses and objectives, problem solving, and writing his/her own synthesis and conclusions appropriate to the title and objectives of the assigned thesis.

The preparation of the Master thesis includes the Master thesis application with all required sections in the thesis Application form (see [3. Master thesis application](#)). The student proposes the topic of the Master thesis and selects the mentor within the deadline. If the student fails to do so, the Study Programme Board will assign the topic and mentor to the student. Literature necessary for the preparation of a Master thesis can be found by searching databases with the mentor's advice (important keywords, authors, journals, books, etc.).

The Master thesis is an independent research, an expert-project or a review thesis in which the student works on the chosen topic under the guidance and with the help of the mentor and the members of the Committee. It is recommended that the Master thesis has a length of 20 – 50 pages of basic text on paper in A4 format – excluding covers, content, literature and appendices (see [6. Technical editing of the Master thesis](#)). The final length depends on the specifics of the area and the topic.

The student is responsible for all parts of the Master thesis and signs statement on academic integrity (see [1.1. Academic integrity](#)). His/her responsibility includes the accuracy of the data given, the labelling of quotations from other works, and spelling and grammatical correctness (see [4. Language and writing style](#) and [8. Useful links and additional literature on thesis writing](#)).

When preparing the Master thesis, structural, content-related (see [2. Structure and content of the Master thesis](#)) and technical specifications (see [6. Technical editing of the Master thesis](#)) must be followed.

The thesis is presented and defended in front of the Committee for Master thesis evaluation (see [7. Master thesis presentation](#)).

### 1.1. Academic integrity

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#### Plagiarism = Authorship theft

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Plagiarism in a thesis is the presentation of texts, images or data from other people as one's own. Any form of plagiarism of work and ideas is considered a violation of the Code of Ethics of the University of Zagreb (Art. 18. and 19.) ([https://www.agr.unizg.hr/upload/dokumenti/unizg\\_eticki\\_kodeks.pdf](https://www.agr.unizg.hr/upload/dokumenti/unizg_eticki_kodeks.pdf)).

You can read more about scientific and academic integrity on the online pages of the Faculty of Agriculture (<https://www.agr.unizg.hr/hr/714/Etika>) and in Bilić-Zulle (2007) and Baždarić et al. (2009) (see [8. Useful links and additional literature on thesis writing](#)).

To avoid any form of plagiarism, even unintentional – as a result of ignorance, it is important to follow the rules of citation (see [5. Rules of citation and creation of reference list](#) and [8. Useful links and additional literature on thesis writing](#)).

Accordingly, in the continuation is the text of the statement on academic integrity that the student will sign.

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## STUDENT STATEMENT ON THE ACADEMIC INTEGRITY

I, \_\_\_\_\_, JMBAG \_\_\_\_\_, born on dd month yyyy in \_\_\_\_\_, declare that I independently prepared the Master thesis entitled:

\_\_\_\_\_

With my signature I guarantee:

- that I am the sole author of this Master thesis;
- that all literature sources used, both published and unpublished, are appropriately cited or paraphrased and listed in the reference list at the end of the Master thesis;
- that this Master thesis does not contain any parts of work previously submitted to the Faculty of Agriculture or other higher education institutions for the purpose of completing university or specialist study programme
- that the electronic version of this Master thesis is identical to the printed version which has been reviewed by the Committee and approved by the mentor
- that I am acquainted with the regulations of the Code of Ethics of the University of Zagreb (Article 19).

In Zagreb, \_\_\_\_\_  
(date)

\_\_\_\_\_  
(signature of the student)

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## 2. Structure and content of the Master thesis

(arbitrary – according to form/type of the thesis)

Depending on the form/type, the Master thesis can be: a) **research**, b) **expert-project** or c) **review** thesis. A thesis with conducted research may or may not have the characteristics of a scientific paper. This categorisation is arbitrary and serves to make it easier for the student and the supervisor to agree on and choose a topic, as well as to structure the Master thesis in accordance with the instructions given in this text.

### a) Research Master thesis

The preparation of a research Master thesis implies an independent and original work based on a small-scale research or part of it, which the student carries out, analyses, describes and presents the results according to the usual and established chapters – IMRAD<sup>1</sup>. It should be based on the basic postulates of science - **actuality**, **originality**, **repeatability**. The research work is preceded by a search and study of the relevant literature, and very likely an additional expansion of knowledge not covered by the graduate course.

#### Structure and content of the research Master thesis

The structure of the research Master thesis is defined according to the basic organisational structure of a scientific paper. Chapters with description of the content are:

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<sup>1</sup> IMRAD = Introduction, Methods, Results and discussion

- The **title of the thesis** (in Croatian and English) should contain the main idea and be short (up to 100 characters with spaces), clear, logical and unambiguous. The Latin names of genera and species should always be written in *italics*.
- The student can add a page with a **personal acknowledgment** for the help in preparing the Master thesis (not obligatory).
- The **table of contents** is a list of chapter and subchapter titles with page numbers.
- In the **summary** (in Croatian and English) it is necessary to briefly present the entire thesis - describe the problem, present the main ideas and objectives, material and methods, results and conclusions, without citations, tables and graphs. The length of the summary is up to 1000 characters with spaces. At the end of the summary, it is necessary to list **3 – 5 keywords**.
- The **introduction** should clearly and concisely describe the topic of the thesis and the problems being addressed. The purpose of the thesis should be described in the introduction and the problem presented. The introduction must answer the question of what the research is about, what was researched and why, and what is original about it. The introduction can be 1-2 pages long.
- In the **objectives of the research**, it is necessary to state (list) what exactly the research is intended to determine. The aim is preceded by a research hypothesis, i.e. an assumption is made about what the research intends to test, i.e. what kind of result is expected. The stated research aim must allow the research hypothesis to be tested, i.e. its rejection or support (statistically - the null hypothesis cannot be proven).
- Finding relevant literature is extremely important for the research work. The literature review describes what is known about this problem from the current research of other scientists whose work must be cited as a source (see [5. Rules of citation and creation of reference list](#)). It can be written in sub-chapters according to the most important aspects of the topic.
- **Hypotheses, research objective and literature review** can be sub-chapters of the **introduction** in agreement with the mentor.
- The chapter **Materials and methods** of research ensures the repeatability of the research. This chapter describes in detail what (material) and how (methods) was investigated. The procedure for conducting the research is described chronologically and logically in order. It describes and defines:
  - parts of the experiments or treatment, respondents, facilities, ...
  - sampling procedures, methods of data collection
  - the manner in which the experiments are conducted
  - places / locations, environmental conditions, temporal occasions in the years of research
  - experimental plantation / farm / laboratory
  - species (varieties, cultivars) / breeds / strains
  - characteristics (variables) to be investigated: by measurement (with measurement units – see [Appendix 7.1.](#) in the [Template – Master thesis](#)), by observation and by making notes with the dates of data collection – dependent variables (in the sense of statistical analysis)
  - analytical methods - laboratory (device, instrument), statistics (purpose, software).
- The **results** are an important part of the Master thesis, in which they answer the question of what was determined in the research, and they are presented logically in order. As a rule, the results are presented in tables, graphs or images, which are explained in the text. In agreement with a mentor, they can be placed in the same chapter as the **discussion**, i.e. in the **Results and Discussion** chapter. In the discussion, the results obtained are commented on and compared with the research results of other authors in the field of the thesis topic (listed in the reference list), the results of testing the research hypotheses are explained together with the significance of the results obtained. The results and discussion should be written in logically organised sub-chapters
- The **conclusion** is the final part of the Master thesis. As a rule, the conclusion should briefly (up to 1 page long) and clearly respond to the research objectives set and state what has been found with the research, as well as provide guidelines and ideas for further research. No new findings, data or information are presented in the conclusion and, as a rule, no new sources or references are cited.

- All sources used in the paper are listed in alphabetical order in the **reference list**. Only those sources and works are cited that are mentioned in the text of the thesis. Works that are not cited in the thesis or that are not referred to in the thesis are not listed (see [5. Citation rules and creation of reference list](#)).
- In the **appendix**, the student can attach various documents, forms, tables, plans, maps, questionnaires, parts of the result of the analysis and similar, which he/she has used in the preparation of the thesis.

#### **Briefly – Chapters related to the questions to be answered:**

- |                           |  |
|---------------------------|--|
| – Title                   | – What is the main idea?   |
| – Introduction            | – What is it about, what is being researched and why?  |
| – Literature review       | – What is known about the problem?   |
| – HYPOTHESIS              | – What is the expected outcome (probable result, basis of the solution)                        |
| – The aim of the research | – What is to be determined? (concise and clear: 1., 2., 3., ...)                               |
| – Material                | – What was the research about, when and where was it carried out?<br>(detailed, chronological) |
| – Methods                 | – How was the research conducted? (laboratory, statistical - model?,<br>purpose)               |
| – Results                 | – What was found? (tables, graphs, ...)  |
| – Discussion              | – What do these results mean?  |
| – Conclusions             | – Answers to the objectives set!   |

### **b) Expert-project Master thesis**

The expert-project Master thesis implies the creation of a specific task - for example, the solution of a more complex problem in the landscape planning and design of an area; or the elaboration of a business idea based on a concrete example; or the solution of agrotechnical, agromeliorative or agrohyrotechnical problems, etc.

The project task should fall within the scope of the curriculum and knowledge acquired in the programme (learning outcome). To create a successful expert-project thesis, the student must:

- study the problem well
- determine the meaning and purpose of the task
- work out and argue the idea for solving the problem - conceptual solution
- present a detailed solution proposal for the problem - an elaborated conceptual project

When preparing an expert-project Master thesis, depending on the task, the student visits the field/location to gain insight into the problem, collects and uses relevant documents and materials (individual examples of previous project solutions, cartographic representations and other documentation on the existing state of the space, own photographs, etc.) or collects business information (statistical reports, economic and financial data, market research results, etc.), which should be professionally and creatively processed and analysed.

Based on the collected data and analysed material, the student elaborates his/her idea, argues for improvements (e.g. in relation to the existing situation), selects the most favourable variant of the possible solution and, using appropriate methods and tools, states his/her project solution with a cost estimate and a possible implementation plan.

### **c) Review Master thesis**

The review Master thesis has a cognitive value as it provides a comprehensive overview of a particular problem or topic based on previously published works and studies, which requires a thorough analysis of the

extensive literature. The used literature is processed by paraphrasing the text, i.e., describing it in one's own words, and using direct quotations where appropriate, which must be clearly marked with quotation marks. The relevant literature researched must be presented in an orderly manner – synthesising and critically processing knowledge.

Writing a review Master thesis with a clearly and specifically defined topic implies:

- Familiarising yourself with domestic and foreign literature related in the broadest or narrowest sense to the given topic or problem (books and textbooks, articles by various authors, relevant websites, monographs, etc.)
- Analysing the studied literature to select relevant information, attitudes, data and quotations
- Synthesising the studied material and organising the chapters into a logical sequence.

### Structure and content of an expert-project and review Master thesis

Chapters with a Description of the Content:

- The **title of the Master thesis** (in Croatian and English) should reflect the main idea of the thesis and be concise (up to 100 characters with spaces), clear, logical and unambiguous. Latin species names should always be written in italics.
- The student may add a page of **personal acknowledgements** for help in preparing the thesis (not obligatory).
- The **content** is a list of chapter titles and subheadings with page numbers.
- The **summary** (in Croatian and English) should briefly present the entire work – describe the problem, express the main ideas and objectives, methodology, results and conclusions, without citations, tables and graphs. The abstract should not exceed 1000 characters (including spaces). At the end of the abstract, **3-5 keywords** should be listed.
- The **introduction** should clearly and concisely describe the topic of the thesis and the problems to be addressed. The introduction should describe the purpose of the work and introduce the problem. The introduction must answer the question of what the research is about, what was researched and why, and what is original about it. At the end of the introduction or in a separate sub-chapter, the objective of the thesis should be stated – what exactly is to be solved or achieved. The introduction should be 1-2 pages long.
- In the **central part of the thesis**, the problem of the thesis should be developed systematically and with correct citation of sources (see 5. Citation rules and preparation of the bibliography):
  - In a **review thesis**, the **literature should be extensively developed**, and the researched material should be summarized.
  - In an **expert-project thesis**, the **methods** (the known and recommended methods for solving the problem) should be **described in detail** and the **student's own solution presented**.

The central part consists of several interconnected chapters with corresponding titles, in which the individual parts of the main topic/task/project are broken down into key aspects and organised into logical units according to key aspects. For better clarity, it is desirable to design subheadings (up to 3 levels) in consultation with the mentor.

- The **conclusion** is the final part of the thesis. In the conclusion, the relevant findings, information, facts and attitudes that have been developed in detail in the central part should be presented briefly (up to 1 page) and clearly. No new findings, data or information should be presented in the conclusion. As a rule, new sources are not cited and no references to the literature are given. The conclusion should answer the stated objectives of the thesis and briefly state what is important about the topic/task/project dealt with, as well as possible directions for the development or improvement of the addressed topic/task/project.
- All sources used in the thesis are listed in alphabetical order in the reference list. Only sources that are mentioned in the text of the final thesis are listed. Works that are not cited or referenced in the thesis are not listed (see 5. Citation rules and creation of reference list).

- In the **appendix**, the student can attach various documents, forms, tables, plans, maps, questionnaires, parts of the output analysis and similar materials that were used in the preparation of the thesis.

### 3. Master thesis application

Based on an agreement with the study programme coordinator, the student writes a Master thesis application and expects feedback and evaluations from his/her **mentor and committee members**.

The application form can be found at the following link: <https://www.agr.unizg.hr/hr/467/Dokumenti+studija>

#### 3.1. Filling the form

<b>Problem:</b>  <b>What is the topic and what is being investigated?</b>	<b>Maximum 2000 characters including spaces</b>  Introduce the topic, explain its significance and state what is known about it so far. Define the problem and the hypothesis of the research. This part will be included in the INTRODUCTION section of the thesis.
<b>Aim and expected outcomes:</b>  <b>What does this research aim to establish, verify, investigate?</b>	<b>Maximum 1500 characters including spaces</b>  Define the problem and the hypothesis of the research. Briefly state (list) what this research will determine in order to test the hypotheses. It is a list of actions to be taken to test the proposed claims (hypotheses). Explain expected outcomes of the research.
<b>Material and methods:</b>  <b>What is analysed, when, where and how?</b>	<b>Maximum 2000 characters including spaces</b>  Explain the entire research process step by step. Mention the place and time of conducting the research, the method of experimental design and sampling, the size and number of samples, all methods used – analytical, statistical...
<b>References:</b>  <b>Primary sources for facts, knowledge, information and citations</b>	<b>15 – 20 references</b>  Follow the citation guidelines given in this material!



### 3.2. Steps in research work

- Defining and justifying the research problem,
- Reviewing and analysing existing knowledge,
- Formulating – establishing hypotheses,
- Defining research objectives,
- Determining materials and methods of the research,
- Analysing data and interpreting results,
- Drawing conclusions,
- Publishing and presenting – writing!!!

After thoroughly defining the problem, and studying the literature, and having asked a sufficient number of questions, the next step is to formulate hypotheses.

A hypothesis = hypo + thesis (Greek) = underlying idea = foundation of the solution

A scientific hypothesis is a temporary and highly probable result of research – the solution to the problem. It is based on existing knowledge and experience – anything that cannot be verified by research is not a scientific hypothesis.

#### – Formulating – setting hypotheses

A hypothesis is the researcher's judgement or assessment of the research problem. Every hypothesis must represent a solution to the problem. The task of research is to verify it.

We differentiate between hypotheses according to their content: 1. descriptive, 2. classifying, 3. explanatory and 4. predictive. A hypothesis must be:

1. **Specific and concrete** – defined in such a way that it solves the problem we are interested in and not another one.
2. **Testable** – the procedures required to test the hypothesis (or its consequences) must be feasible.
3. **Fruitful** – certain consequences or conclusions must follow from it.
4. **Consistent** with verified and accepted knowledge.
5. **Clear and simple** – it must be clearly specified, not ambiguous or overly general; a simpler hypothesis is better than a complex one, but more difficult to define. In simplicity lies perfection!

#### – Defining research objectives

Objectives define the specific knowledge we want to gain when researching a problem. It is good to formulate them in the form of questions (e.g. determine if/how they differ...).

We distinguish four levels of scientific objectives – depending on the set hypotheses:

1. Scientific description – description
2. Scientific classification – grouping
3. Scientific explanation – explanation
4. Scientific prediction – forecasting

Depending on the hypothesis and the level of scientific knowledge, the objectives are best defined using infinitive verbs:

1. Descriptive: **describe, give insight, identify, select**
2. Classifying: **classify, group, categorise, evaluate** (according to a characteristic or property)

3. **Explanatory: develop, design, improve** (e.g. a model, a method), **estimate, synthesize, measure**
4. **Predictive: predict, determine, establish, identify, explain** (e.g. direction, intensity of correlation, causal relationship)

It's essential to avoid defining too many objectives, especially those that do not allow the research to be carried out, that are not linked to the hypothesis and that are not consistent with the methods. It is best to define **one or two objectives** that can be achieved through research.

## 4. Language and writing style

A dissertation is written in a scientific style that is typically rigorous and dry and aimed at experts and specialists. It lacks intimacy, individuality, emotional tone, cynicism and irony. Technical terms are precisely expressed using scientific terminology.

Characteristics of the scientific style:

- **clarity and precision** – follow clarity of thought, distribute words correctly in sentences and avoid long and poorly structured sentences (tip: read the sentence out loud!).
- **simplicity, naturalness and moderation** – the language should not be pathetic, bombastic, ornate, ironic, sceptical, polemical, arrogant or pretentious.
- **conciseness** – avoid unnecessary use of words and explain concepts in as few words as possible.
- **coherence** – the relationship between the individual parts and words of a sentence must be logical and coherent.
- **paragraph formation** (new section) – a paragraph is characterised by unity and coherence (logical connection, cohesion).

The Master thesis should be written in standard English and must be grammatically, orthographically and stylistically correct.

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**The inability to express yourself clearly, logically and simply is  
a sign that you have not understood the problem! – A. Einstein**

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### Verbal tense

- past tense – when writing about our own results (summary, material and methods, results)
- present tense – when writing about the results of others (introduction, discussion).

### Person

Scientific and professional texts are usually written in an impersonal tone – in the passive voice:

It has been established that ...

...or in the third person singular or plural (e.g. in the literature review):

...the author has established ... or ... the authors have established...

### Abbreviations

Abbreviations may be used in the paper. When introducing an abbreviation into the text for the first time, it is necessary to write out its full name. The abbreviation can then be used throughout the text. If the paper contains a large number of abbreviations, these should be listed in the form of a table as an **appendix at the end of the thesis**.

## 5. Rules of citation and creation of reference list

### Rules and justifications for literature citations:

There are three basic rules for citing sources:

1. **relevance** – only relevant sources are cited, and all relevant sources must be cited
2. **consistency** – sources are cited in a uniform and consistent manner
3. **completeness** – all sources and bibliographic data (elements) used must be cited. It is important to cite sources correctly so that they can be unambiguously identified.

There are four main reasons why the correct citation of sources is important (Hebrang Grgić, 2016):

1. acknowledgments to the author of the used source
2. verifying the credibility of the source
3. finding additional information
4. avoiding plagiarism.

In a thesis, it is important to cite the data sources used correctly and accurately. The citation can be direct - through quotation marks - and indirect - through paraphrasing, summarising. Indirect citations are recommended.

### a) Citing sources in the text

#### Source citation – one author:

...according to Husnjak (2014), the morphogenetic structure of the soil...

or

...the morphogenetic structure of the soil (Husnjak 2014)...

#### Source citation – two authors:

...as Hengl and Husnjak (2001) state, geoinformatics technologies are now widely used for soil mapping...

or

Geoinformatics technologies are now widely used for soil mapping (Hengl and Husnjak 2001).

#### Source citation – multiple authors:

...according to Ortiz et al. (2001), there are correlations between estimates of yield stability...

or

There are correlations between the estimates of yield stability (Ortiz et al. 2001)...

#### Indirect source citation:

Glass et al. (1972, as cited in McDonald, 2014) have shown through simulation studies that ANOVA is not sensitive to moderate deviations from normality.

or

It has been shown through simulation studies that ANOVA is not sensitive to moderate deviations from normality (Glass et al. 1972, cited in McDonald, 2014).

Only the source that was used, i.e. the indirect source - McDonald, 2014, is cited in the literature list.

## b) Making of list literature

### Rules<sup>2</sup>:

- the literature is arranged alphabetically by author (first author) and chronologically (if the authors are the same)
- literary sources must be numbered (tip: first create a sorting from A to Z under Home → Paragraph ↓, then Numbering)
- all works cited in the thesis are listed
- works that are neither cited nor mentioned in the thesis are not listed
- author names must be spelt correctly - check and correct them carefully!
- publication years, journals, publishers and titles must be carefully checked and corrected!
- if an author (and co-author(s)) appears more than once, follow this order:
  - publications by the author - by year of publication
  - publications by the author with a co-author - by year of publication
  - publications by the author with several co-authors - by year of publication
  - publications by the author or several authors in the same year of publication - according to the rule, e.g. 2012.a, 2012.b, ...

### Examples for a list literature:

#### Books – one author:

Husnjak S. (2014). Sistematika tala Hrvatske. Hrvatska sveučilišna naklada. Zagreb Kempthorne

O. (1957). An introduction it genetic statistics. John Wiley and Sons. New York

#### Books – multiple authors:

Maletić E., Pejić I., Karoglan Kontić J. (2008). Vinova loza - Ampelografija, ekologija, oplemenjivanje. Školska knjiga. Zagreb

#### Chapter in book:

Kennedy B.W. (1990). Use of mixed model methodology in analysis of designed experiments. In: Advances in Statistical Methods for Genetic Improvement of Livestock (Eds. Gianola D., Hammond K.). Springer-Verlag. Berlin. 77-97.

White P.J., Wheatley R.E., Hammond J.P., Zhang K. (2007). Minerals, soils and roots. In: Potato Biology and Biotechnology, Advances and Perspectives (Ed. Vreugdenhil D.), Elsevier Ltd., Oxford, United Kingdom, str. 739-752.

#### Journal article:

Hengl T., Husnjak S. (2001). Possibilities of Geoinformation Technologies in Mapping and Management of Soils in Croatia. Agriculturae Conspectus Scientificus. 66(3): 169-179

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<sup>3</sup> Follow: Author Guidelines from magazine ACS: <https://acs.agr.hr/acs/index.php/acs/about/submissions#authorGuidelines>

Ortiz R., Wagoire W.W., Hill J., Chandra S., Madsen S., Stolen O. (2001). Heritability of and correlations among genotype by environment stability statistics for grain yield in bread wheat. *Theoretical and Applied Genetics*. 103: 469-474

#### **Article in Book of abstracts:**

Petek M., Herak Ćustić M., Majdek A., Pecina M., Lazarević B., Jurkić V., Karažija T. (2011). Optimalna gnojidba i dubina korijena utječu na kvalitetu travnog busena. *Book of Abstracts of 46th Croatian and 6th International Symposium on Agriculture, University of Zagreb Faculty of Agriculture, 14th – 18th February 2011, Opatija, Croatia*, p. 89-93.

#### **Article in online journal:**

Nestroy O. (2007). The World References Base for Soil Resources (WRB) as an instrument for the National and International Communication. *Agriculturae Conspectus Scientificus*. [online] 72(1), 9-12, <http://www.agr.hr/smotra/issues.htm> – accessed 30th May 2010.

Carović-Stanko K., Liber Z., A Vidak M., Barešić A. Grdiša M., Lazarević B., Šatović Z (2017). Genetic diversity of Croatian Common Bean landraces. *Frontiers in Plant Science* 8:604. doi: 10.3389/fpls.2017.00604 [online] <http://journal.frontiersin.org/article/10.3389/fpls.2017.00604/full> – accessed 21st April 2017.

#### **Software:**

Rohlf F.J. (2005). NTSYS-pc: numerical taxonomy and multivariate analysis system, Version 2.2. Exeter Software: Setauket, NY.

R Development Core Team. (2008). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0, URL <http://www.r-project.org>.

JMP®, Version 13.0.0. SAS Institute Inc., Cary, NC, 1989-2007.

## **c) Citation content with network (web) page**

#### **Downloading author's book or manual in PDF from the web:**

- **in the text:** regular citing, i.e. Bogunović et al. (2018) or (Bogunović et al. 2018)
- **in the reference list:** referencing should be done according to the model defined in ACS Journal's Author Guidelines, with an additional mention of the website source.

Bogunović I., Kisić I., Mesić M., Zgorelec Ž., Šestak I., Perčin A., Bilandžija D. (2018). Održive mjere gospodarenja tlom u ekološkoj poljoprivredi za klimatske uvjete mediteranske Hrvatske. Sveučilište u Zagrebu Agronomski fakultet, Zagreb. [http://www.agr.unizg.hr/multimedia/ebooks/vip\\_prirucnik\\_2018.pdf](http://www.agr.unizg.hr/multimedia/ebooks/vip_prirucnik_2018.pdf) – accessed 27th February 2019.

#### **Downloading the web manual with the Author:**

- **in the text:** regular citing, i.e McDonald (2014) or (McDonald 2014)
- **in the reference list:** referencing should be done according to the model defined in ACS Journal's Author Guidelines, with an additional mention of the website source:

McDonald J.H. 2014. *Handbook of Biological Statistics* (3rd ed.). Sparky House Publishing, Baltimore, Maryland. <http://www.biostathandbook.com> – accessed 27th February 2019.

Or in printed (pdf) form:

McDonald J.H. 2014. *Handbook of Biological Statistics* (3rd ed.). Sparky House Publishing, Baltimore, Maryland. <http://www.biostathandbook.com/HandbookBioStatThird.pdf> – accessed 27th February 2019.

#### Downloading parts of a webpage (web) to a PDF without an author:

- **in the text:**

Seeds are most often dispersed by wind, but dispersal by water and machines is also possible (DAISIE project – EC FP6, 2006).

- **in the reference list:** citing the source is necessary

DAISIE project: Delivering Alien Invasive Species Inventories for Europe – EC FP6, 2006. *Ailanthus altissima*. Author: Corina Başnou and Montserrat Vilà. Date Last Modified: December 1st, 2006. [http://www.europe-aliens.org/pdf/Ailanthus\\_altissima.pdf](http://www.europe-aliens.org/pdf/Ailanthus_altissima.pdf) – accessed 27th February 2019.

#### Downloading parts of the project from a website (web) without an author:

- **in the text:**

According to the DAISIE project (2003), pajasen is one of 18 terrestrial species, or seven woody plant species, that are listed among the 100 worst invasive species overall.

- **in the reference list:** citing the source is necessary

DAISIE – Delivering Alien Invasive Species in Europe (DAISIE) project funded by the sixth framework programme of the European Commission (Contract Number: SSPI-CT-2003-511202). <http://www.europe-aliens.org> – accessed 27th February 2019.

#### Downloading the content from international organizations' and associations' websites:

ISHS (2008). ISHS Working Groups. ISHS - International Society for Horticultural Science. <http://www.ishs.org> – accessed 27th May 2019.

FAO (2019). Food and Agriculture Organization of the United Nations. <http://www.fao.org/home/en/> – accessed 15th May 2019.

#### Downloading the chemical structures and etc. from a web page.:

- **in text:** Structural displays of aianthone is shown on images 11 and 12.



Image 11. Structure of aianthone – 2D



Image 12. Molecular conformation of aianthone – 3D

Source: National Center for Biotechnology Information. PubChem Compound database; CID=72965, <https://pubchem.ncbi.nlm.nih.gov/compound/72965> – accessed 27th February 2019.

- **in the reference list:** it is not necessary to cite the sources

#### Downloading an image or graph from the web without the author:

- **in the text:** under image or graph ... title



Graph 1. Number of invasive species by groups in one part of Europe.

Source: DAISIE project – EC FP6, European Summary.

<http://www.europe-aliens.org/europeSummary.do> – accessed 27th February 2019.

- **in the reference list:** it is not necessary to cite the sources.

**It is unnecessary to citing your own name alongside your own authorial photos, images, or drawings.**

## 6. Technical editing of the Master thesis

When writing a thesis, it is essential to pay special attention to technical editing. A well-structured and consistently edited thesis makes it easier to read and provides insight into the systematic processing of the topic.

The thesis should be written on a computer using one of the text processing programmes (e.g. MS Word), have an appropriate external appearance and adhere to the content structure (see [Template – Master thesis](#)).

### Guidelines for the technical editing of the thesis – according to [Template – Master thesis](#):

- the thesis should be written in a 12-point font and with a line spacing of 1.15
- recommended fonts are arial, times new roman and calibri
- the margins should be 2.5 cm
- chapter headings should be written in lower case, 16 point, bold (1st level), while subheadings should be written in lower case, 14 point, bold (2nd and 3rd level)
- chapters should start on a new page and there should be a blank line between the chapter title and the text
- a new paragraph should start either with an indented first line (*Tab*) or with an indent
- it is necessary to use justified text alignment (*Justify*)
- a single space should be inserted after each word
- punctuation marks such as periods, question marks, exclamation marks, commas, hyphens, parentheses, and quotation marks should be written together with the preceding word or number, without spaces
- a dash (–) and a hyphen (-) are different punctuation marks. A dash is longer than a hyphen and should be written with spaces on both sides (e.g. 3 – 5 keywords). A hyphen is shorter and should be written without spaces (e.g. Ličko-senjska County)
- abbreviations of measurement units should be written with a single space after the numerical value, i.e. with a space in between. Abbreviations of measurement units should be written according to the rules (see [Template – Master thesis](#)).
  - 100 kilograms of NPK per a hectare – 100 kg NPK ha<sup>-1</sup> or 100 kg NPK/ha
  - 25 Celsius degrees – 25 °C
  - precipitation – mm or in L/m<sup>2</sup>
- the chapters should be numbered in the content and in the text, with the numbering starting with the introduction chapter
- the pages should be numbered from the summary to the end of the text, with the numbering in the bottom right-hand corner
- each table, figure or image should be numbered, have a title and be placed in the centre of the page
- the title of the table should be written above the table
- the title of the image or graph should be below the image or graph
- if a table, image or graph is taken from another source, it is necessary to cite the source: ... (book, website) in 10-point font below it.

### Structure of the Master thesis (see [Template – Master thesis](#))

The Master thesis template has shaded areas on the first four pages where data should be entered and the "shading" removed. The pages contain the following information:

- outer title page (hardcover printed copy): Student's first and last name, title of thesis and notation "Master thesis".
- inner title page: study programme, student's name and surname, title of the thesis, notation "Master

thesis", and mentor's name and surname

- page: student statement on the academic integrity
- page: report on the evaluation and defence of the Master thesis
- page: Personal acknowledgements (optional).
- summary with keywords (in Croatian and English).
- table of Contents - forms on the page after the summaries using the option *Home* → *References* → *Table of Contents (TOC)*
- introduction.
- central part of the thesis - chapters and subheadings are defined using the *Home* → *Heading (1, 2 and 3)* options, but it is not recommended to have more than three levels of subheadings.

Chapters are:

- for expert-project and review Master thesis: development of the topic according to chapters in consultation with the mentor.
- for research Master thesis:
  - research objective (and hypotheses),
  - materials and methods,
  - results,
  - discussion,
  - conclusion or final considerations,
  - reference list,
  - appendices (optional, as required) - if certain appendices (e.g. questionnaires, forms, etc.) have been used in the preparation of the thesis, they should be added at the end of the thesis, labelled as APPENDIX A, APPENDIX B, ... or APPENDIX 1, APPENDIX 2, etc.

#### Recommendation:

Save the *docx* file, convert it to a *pdf* format and copy it to a safe location (USB stick, Dropbox, your email, etc.).

## 7. Master thesis presentation

At your thesis defence, you should present your work orally, accompanied by a visual presentation (according to the [Template – Master thesis](#)) summarising the content of your thesis in **15-20 minutes**. It is important that you do not exceed the time limit and do not rush through the presentation. Focus on the most important points, follow the structure of your work and present your results coherently and systematically. It is important that you plan and rehearse your defence in advance.

**Rule:**                      1. **what am I going to say?** → 2. **say it** → 3. **repeat it!**

#### Useful tips for the oral presentation:

- stand up straight when presenting
- avoid reading from the slides



- speak clearly and loudly enough
- make eye contact with the committee
- pay attention to your body language, gestures and tone of voice
- avoid filler words
- rehearse your entire presentation (*ppt* and oral presentation), including the time control, at least once!
- make sure that everything is functioning properly (computer, projector, etc.)

#### Useful tips for creating a good visual presentation of the thesis:

- limit your presentation to 10-15 slides
- include all essential information on the first slide (thesis title, student's name, mentor's name, date of defence, etc.) according to the [Template – Master thesis presentation](#)
- use the provided design templates in *ppt* to ensure consistent text positioning, colour, contrast and style
- present results in tables and graphs copied from *Word* and carefully paste them into *ppt* to maintain relationships and equal spacing
- always position figure captions (tables, images, etc.) above the image and avoid labelling and numbering (do not write: Table 4.2.1., Figure 2.1...)
- follow the "golden rule" of six points per slide and six words per point
- use short phrases, nouns and verbs – short notes, not complete sentences
- avoid writing text in CAPITAL LETTERS – this is difficult to read
- choose a clear, large and legible font – Arial, Calibri - and vary the font size from 18 to 40 points (headings) to convey the importance of the information (larger for more important, smaller for less important information)
- ensure a consistent style, appearance and colour scheme – headings, bullets and sub-bullets
- ensure that the text has a clear contrast to the background
- choose images carefully – sufficient resolution, and adjust the size in *ppt* diagonally
- limit the use of punctuation
- proofread – text, spelling...
- presentation should contain most 10 – 15 slides

#### Recommendation:

Save your *pptx* file and convert it to a *pdf* format, then copy it to a safe location (USB stick, Dropbox, email, etc.).

## 8. Useful links and additional literature on thesis writing

#### Literature searching and citation rules:

Stojanovski J. (2005). [ONLINE BAZE PODATAKA - priručnik za pretraživanje](https://fulir.irb.hr/4516/1/147929.1_prirucnik_online-baze.pdf). Hrvatska akademska i istraživačka mreža CARNet, Zagreb. [https://fulir.irb.hr/4516/1/147929.1\\_prirucnik\\_online-baze.pdf](https://fulir.irb.hr/4516/1/147929.1_prirucnik_online-baze.pdf) - accessed 12th June 2024.

Miller C.W., Chabot M.D., Messina T.C. (2009). A student's guide to searching the literature using online databases. *American Journal of Physics*. 77(12): 1112-1117. <http://labs.cas.usf.edu/miller/Pub/pub17.pdf> - accessed 12th June 2024.

Hebrang Grgić I., Ivanjko T., Melinščak Zlodi I. Mučnjak D. (2018). Citiranje u digitalnom okruženju: priručnik. Carnet, Zagreb. [https://pilot.e-skole.hr/wp-content/uploads/2018/03/Prirucnik\\_Citiranje-u-digitalnom-okruzenju-1.pdf](https://pilot.e-skole.hr/wp-content/uploads/2018/03/Prirucnik_Citiranje-u-digitalnom-okruzenju-1.pdf) – accessed 12th June 2024.

Platonova R.I., Khuziakmetov, A.N., Prokopyev A.I., Rastorgueva N.E., Rushina M.A., Chistyakov, A.A. (2022). Knowledge in digital environments: A systematic review of literature. Frontiers in Education. 7: 1060455. Frontiers. <https://www.frontiersin.org/articles/10.3389/feduc.2022.1060455/full> – accessed 12th June 2024.

FOI: Preporuke citiranja i referenciranja primjenom stila referenciranja APA (2017, studeni). Sveučilište Zagrebu, Fakultet organizacije i informatike, Varaždin. [https://radovi.foi.hr/build/files/Preporuke\\_citiranja\\_i\\_referenciranja\\_primjenom\\_stila\\_referenciranja\\_APA.pdf](https://radovi.foi.hr/build/files/Preporuke_citiranja_i_referenciranja_primjenom_stila_referenciranja_APA.pdf) – accessed 12th June 2024.

#### Literature search through databases - some well-known databases:

- <https://baze.nsk.hr/><sup>3</sup> National and university library (NSK)
- <https://baze.nsk.hr/baze-po-podrucjima/biotehnicke-znanosti/> (NSK)
- <https://hrcak.srce.hr/> Portal of Croatian scientific and professional journals
- <https://www.cabidigitallibrary.org/> CABI Direct
- <https://dabar.srce.hr/repozitoriji> DABAR – Digital Repository of Bachelor and Master Theses

#### Plagiarism and Ethics in the Scientific Community:

- Bilić-Zulle, L. 2007. Scientific integrity - the basis of existence and development of science. Biochemia Medica 17 (2):143-50. <https://hrcak.srce.hr/file/28225> – accessed 12th June 2024.
- Baždarić K. Pupovac V. Bilić-Zulle, L. Petrovečki M. in 2009 Plagiarism as violation scientific and academic honesty. Medicine, 45 (2): 108-117. <https://hrcak.srce.hr/file/60788> – accessed 12th June 2024.

#### Presentation:

- Tips he Giving Orally Presentations: <https://www.youtube.com/watch?v=QKOO99UjsSE>
- Presentation Good/Bad Examples: <https://www.youtube.com/watch?v=S5c1susCPAE&nohtml5=False>

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<sup>3</sup> Access is possible – through any computer connected to the Faculty network or via a CARNET user account at <https://www.carnet.hr/studenti> using an AAI identity.

## Important notes for end:

1. **Docx file for preparing Master Thesis [Template – Mater thesis](#)** is an integral part of these Instructions.
  - Students are advised to write their diploma thesis text using the provided Template.
  - In the Template, replace the text in the shaded fields on the first four pages with your own text and remove the shading.
  - From the fifth page onwards, delete the provided text (which serves as guidance and a reminder) and write your own text.
  - The Table of Contents page will automatically format itself (by applying *Update entire table*) if you follow the text styles in the Template.
2. **Pptx file for visual presentation [Template – Mater thesis presentation](#)** is also an integral part of these instructions.
  - Students are advised to design their diploma thesis presentation according to the provided Template.