

Guidelines for writing bachelor's theses at FAFNR

2021



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INTRODUCTION

The aim of these guidelines is to make it easier for the students of the Faculty of Agrobiolgy, Food and Natural Resources (FAFNR) of CZU in Prague to write their bachelor's theses. Bachelor's studies at the faculty are completed by the final state examination (hereinafter referred to as the FSE). The bachelor's thesis is, according to Act No. 111/98 Coll., on Higher Education, part of the final state examination, during which it is defended.

In this document you will read not only about the basic recommendations for writing scientific texts, which a bachelor's thesis should be, but also about common mistakes that students make and which are better to avoid. This manual has been prepared in accordance with the Rector's Directive No. 5/2017 Rules for assigning, processing, submitting, archiving and publishing bachelor's and master's theses at the CFA. However, the Directive contains other important rules for writing bachelor's theses (language of the thesis, supervisors from other faculties, checking for plagiarism, etc.) and we recommend reading it.

ASSIGNMENT AND SUPERVISION OF THE BACHELOR'S THESIS

The defence of the bachelor's thesis is an integral part of the FSE. Bachelor's thesis topics are announced by the FAFNR departments via the University Information System (UIS) (<https://is.czu.cz>). *The student is obliged to choose a thesis topic that corresponds to the studied programme/field.* In case of ambiguity, the student should contact the supervisor of the programme.

By processing and defending the bachelor's thesis, the student demonstrates skills of the first level of university studies, the ability to process information, formulate problems and propose solutions by applying knowledge of the disciplines studied.

The topics of the bachelor's thesis are based on the programmes/fields of study at FAFNR and are of the following nature:

- **compilation work** (literature review) based on an independent comprehensive elaboration of the chosen topic using mainly scientific literature (scientific articles and books),
- **scientific work** scientific work based on experimental work of the student on a small scale,
- **project** - elaboration of a specific project proposal (building, landscape, garden), technology, workflow, etc.

Students choose the topic of their bachelor's thesis during the winter semester of the 2nd year. By the end of the semester, the student has to clarify the assignment with the supervisor, for which he/she receives credit. The student chooses a topic that corresponds to his/her field of study (programme) from the topics listed by the individual departments via the UIS. He/she applies for an audition or directly approaches the relevant teacher, or submits his/her own proposal to the supervisor/department, which may not be accepted.

The assignment must be processed in UIS by the end of June at the latest. The cooperation of the supervisor and the student leads to the proper completion of the "Thesis assignment", the "Bibliography" field must contain at least two citations of scientific foreign literature, usually English. The student can be awarded credit for the bachelor's thesis in the 2nd year only if the "Thesis assignment" contains all the requirements (how to complete the thesis assignment - see Appendix I).



The "Thesis assignment" is approved by the thesis supervisor, the head of the department and the dean of FAFNR. The programme guarantor or relevant vice-deans may comment on the thesis assignment. Without a duly approved assignment, it is not possible to apply for the FSE. The thesis supervisor continuously monitors and consults the progress of the thesis and checks the progress of the student's work. *The "Thesis assignment" is part of the Final State Examination Record and is therefore not part of the bachelor's thesis itself (it is not bound or inserted into the thesis).*

Submission of the bachelor's thesis by the deadline according to the FAFNR study schedule is a condition for graduating from the FSE.

HOW TO WRITE A BACHELOR'S THESIS

A thorough reading of the literature is essential for writing a bachelor's thesis. Prepare yourself for the fact that it will take a lot of time and effort to search for appropriate literature sources and write a good bachelor's thesis. Especially the beginning stages of writing are very challenging. Do not expect to write your thesis in the last few months before it is due. Students have to learn a whole new skill, writing a professional text, which has its own specifics and rules. The success of the thesis will ultimately be determined by its quality, not quantity. Therefore, the number of pages is not an important measure; crucial is the content of the thesis.

To write a good thesis, it is important to regularly work with a supervisor who consults the content of the thesis, the suitability of literary sources and the style of writing. With your supervisor, create a plan for the thesis, which you will then follow. Sometimes a professional consultant is invited to work with you, especially if the topic of the thesis is outside the supervisor's area of expertise.

Always give your supervisor plenty of time to read and assess your work. *But always read the work thoroughly yourself before sending it to your supervisor.* The text must be written in a way that is understandable even to readers who are not experts in the field. Avoid overly long sentences, where the reader does not know at the end of the sentence what was said at the beginning of it. Watch out for editing, typos and grammatical errors. A friend or family member can also help you revise the text.

The generally applicable principles of botanical and zoological nomenclature (see Appendix III) must be followed in the preparation and editing of the thesis.

Basic rules for writing professional texts

The thesis as a whole and the individual paragraphs should have a clear structure and layout. The first sentence of the paragraph introduces the reader to the issue and the following sentences develop the idea further. The bachelor's thesis must be written in written English (in the first person or in the imperative) and in professional language.

Thesis format

- The recommended font type is Times New Roman or Calibri, size 12 points.
- Line spacing is recommended at 1.15.
- Page margins: top 2.5 cm, bottom 2.5 cm, left 3.5 cm and right 1.5 cm.



- It is recommended to print the work on both sides.
- The binding of the thesis is firm (cover - bookbinding, thermal binding).
- Sample of the cover of the thesis (see Appendix II).

The formatted template for the bachelor's thesis containing the basic chapters is available for download in *.docx format (MS Word) in the Study Documents of FAFNR (<https://www.af.czu.cz/en/r-9372-study/r-9482-study-documents>). **We strongly recommend using this template.**

Use of citations

FAFNR has uniform and binding rules for citations and references. The student may choose, by agreement with the supervisor, from two templates based on the rules of ISO 690 and the style of the scientific journal Conservation Biology. These rules must be followed, including the correct use of all dots, commas and brackets, etc. The rules for creating citations and lists of references used for FAFNR are available in the Faculty's Study Documents (<https://www.af.czu.cz/en/r-9372-study/r-9482-study-documents>).

It is important to check that all references listed in the reference list are used in the text and, conversely, that the cited references are not missing from the reference list. If the supervisor or the referee finds inconsistencies in the reference list, this is considered a serious error.



Structure of the bachelor's thesis

Bachelor's theses have a structure described below:

- Title page
- Declaration
- Acknowledgements
- Abstract
- Contents
- **Text part of the thesis (see below)**
- List of tables and list of figures (and graphs) - optional
- List of abbreviations and symbols used in the thesis – optional
- Separate appendices

Text part of a bachelor's thesis, which is a **compilation (review) work**, has the following chapters:

- 1) Introduction
- 2) Aim of the thesis
- 3) Literature review
- 4) Summary
- 5) List of references

Text part of a bachelor's thesis, which is a **scientific work (includes own research)**, has the following chapters:

- 1) Introduction
- 2) Aim of the thesis
- 3) Literature review
- 4) Materials and methods
- 5) Results
- 6) Discussion
- 7) Summary
- 8) List of references

Text part of a bachelor's thesis, which is a **project**, has the following chapters:

- 1) Introduction
- 2) Aim of the thesis
- 3) Literature review
- 4) Evaluation of supporting data
- 5) Own project
- 6) Discussion
- 7) Summary
- 8) List of references



INDIVIDUAL PARTS (CHAPTERS) OF THE THESIS

The structure of the bachelor's (final) thesis depends on the type of thesis (compilation - review, scientific, project). The description of individual parts of the thesis is designed in general for all theses.

Title page

On the title page, your full name, the full name of your supervisor, including titles and, if applicable, your advisor's, the title of the thesis, the year of submission and the location (i.e., university and faculty). We advise you to include all names including titles. We recommend using the formatted template in the FAFNR Study Documents (<https://www.af.czu.cz/en/r-9372-study/r-9482-study-documents>).

Declaration

Students must sign a statement that they have written the thesis independently and that all sources are properly cited. For the binding format, see the Template for Bachelor Thesis on FAFNR website:

<https://www.af.czu.cz/en/r-9372-study/r-9482-study-documents>

Acknowledge

Here you can thank everyone who helped you with your work. Don't forget your supervisor and consultant. Here you should also mention the sources of funding for the work (grants). Although it may not seem like it, quite a few people read the acknowledgements, so don't forget anyone. However, there is no need to go into lengthy detail; text of up to ten lines is usually adequate

Abstract

Each thesis must contain an abstract in English. The title of the thesis and keywords must also be included. The abstract is one of the most important parts. It represents the whole thesis; it should be clear to the reader what the thesis deals with and what its outcomes are.

The abstract summarizes the whole work, including the objectives, methodology, most important results and conclusions. It is also important to mention the contribution of the thesis to science. For this reason, abstracts are written at the very end, before submission.

Approximately 5 keywords or phrases are provided for the abstract (e.g., precision agriculture, *Gladiolus imbricatus*). The keywords should better define the focus of the thesis and therefore it is not appropriate for them to be identical to the words that appear in the title of the thesis.

An abstract must be one page in length. The recommended length is 200-350 words. Abstracts should be written in the past tense.



Contents

Individual chapters of the thesis arranged in a decimal sorting system that gives an idea of the hierarchy of items (1, 1.1, 1.2, 1.3, 2, 2.1, etc.). We recommend using the bachelor's thesis template in the FAFNR Study Documents (<https://www.af.czu.cz/en/r-9372-study/r-9482-study-documents>), which generates the content automatically.

Introduction

The introduction should give the less informed reader a basic introduction to the subject. It usually states why it is important to address the issue. This chapter already contains information from literature sources and citations are used. The usual length of the introduction is one page.

Aim of the thesis

List the objective(s) of the thesis in order from more general to more specific. The objectives must indicate what new things your work will bring and what it is intended to achieve. Remember that objectives are written in the past tense.

The objectives must be realistic. It cannot be assumed that you will be able to summarise all the knowledge on a given topic when writing a bachelor's thesis, so avoid formulations such as "The aim of the thesis was to summarise all the information on animal reproduction". Such goals can never be met.

Literature review

Summarize current knowledge on the topic in a literature review. This does not mean that the work must cover all the knowledge of the world. A bachelor's thesis is not a competition for the largest number of pages. Again, less is sometimes more, and quality (not quantity) will determine the outcome of the evaluation of the thesis.

The aim of the review is to list the most important information from scientific and professional literature (*especially primary sources - Web of Science - WOS or Scopus databases* - see professional databases <https://lib.czu.cz/en/r-11105-academic-databases/r-11289-reference-managers>; usually not scripts or bachelor's or master's theses) and to compare them with each other, critically evaluate them and combine them into a coherent text. It is a good idea not to focus only on knowledge about a given species, taxon, mechanism, region, etc., but to put this information in context with information about other species, taxa, mechanisms, regions, etc. It is also important to clearly point out gaps in knowledge in a particular area. It must be clear from the text whether you are writing about facts (scientifically verified results) or whether this is speculation or the authors' opinions (e.g., from the discussion of articles).

It is always good to give some specific information. It is therefore not appropriate to write general sentences such as "*Wild bees have been studied by Reading et al. (2000)*", because such a sentence does not communicate anything specific to the reader. Much better is a formulation such as "*Reading et al. (2000) observed wild bees in the Šumava National Park and found that the average swarm size was about eleven thousand individuals.*"



The whole text must have a rational layout (outline) and the individual chapters, paragraphs and sentences must be logically connected. You are writing a scientific paper as a "story". The focus of the paper is therefore the formulation of the objectives and the actual results of the work, whether it is the result of a literature review or the verification of scientific hypotheses from your own research or project. The literature search should gradually work towards the achievement of the stated objectives, in particular by identifying a lack of knowledge on a particular topic that you intend to highlight with your work or even fill with your own research (project).

You can also include some comprehensive summary of the findings in the form of a table. However, larger tables are better placed as a separate appendix.

Compilation (review) work: in a literature review it is also good to discuss the same or different conclusions of different publications. Any differences should be commented on using additional findings from the literature.

Scientific or project work: the literature review is the basis for discussing the results of the thesis in the Discussion chapter. Commenting on the same or different conclusions from different publications.

Literary review can be written in the present or past tense.

Materials and methods

When using **your own research (experiment)**, you must describe all the methods used and the conditions under which the thesis was created. The information should allow the experiment to be repeated. The chapter includes the characteristics of the object, the natural conditions, a description of the experimental material, the methodology of the experiment and the methodology of processing the results. This chapter is written in the past tense.

Evaluation of supporting data

This chapter is only relevant for project works. It is a critical assessment and evaluation of the baseline site condition and project circumstances. It describes the location where the project will be implemented, any relevant circumstances, context that may affect the success of the project. This chapter is written in the past tense.

Results

Carefully consider which part of your results should be included in the Results section. In principle, the results that provide answers to your initial research questions (objectives) should be presented. Basic data (e.g., tables of measured variables or genotypes of individuals) are better included in the Appendices of the thesis or on the accompanying CD (DVD). The results do not include comparisons of your own results with those of other authors or your own opinions, thoughts, explanations.

Keep in mind that charts (figures) tend to express trends (ideas), while tables display data (numbers). Do not mention obvious data from tables again in the text. Also be careful of duplication of data contained in tables and graphs. However, each table and chart must be referenced in the text



(simply: a table shows data that must be referenced in the text). Charts are usually referred to as figures.

Example: *As is significant in Fig. 1, the wild bee population has declined by a tenth in the last fifty years.* **or** *The population has declined by one-tenth in the last fifty years (see Fig. 1).*

Tables and figures should be numbered and arranged in numerical order (meaning that Table 1 appears earlier in the text than Table 2).

Pay attention to the legends of the figures and tables. They must be self-explanatory and the text descriptions of axes and legends should be accurate. Tables should be as simple as possible. The use of invisible vertical lines is recommended, and the number of horizontal lines should be kept to a minimum.

Of course, you can use coloured charts or tables. However, simplicity is recommended. It is sufficient if you use only black and white (of course, this may not apply to all charts or photos). If you use colour charts, they should also be distinguishable in black and white (if possible).

You should write your results in the past tense. You can write in the plural (*we found that ...*) or in the passive tense (*it was found that ...*).

Remember that this section is also a text, not a summary of tables and figures or a short summary of statistical tests. You must describe the results in full text and in complete sentences.

Own project

This chapter is only relevant for project works. It may take the form of: a) methodology, b) structural design, c) architectural design, d) technological design, e) design of business entity's activities, f) computer program.

The specific project contains a proposal for a solution that follows from the previous pages of the bachelor's thesis. Methodological theses contain a clear and precise methodology, structural and architectural theses include elaborate structural design assemblies or complete drawings, business proposals include an economic balance sheet (business plan), technological proposals describe specific production or breeding procedures, computer programs include functional versions with instructions - manuals.

A substantiated economic evaluation is an essential part of any project.

Discussion

Don't underestimate the Discussion section. It is the most important part of the thesis, and therefore the most difficult. Writing of a good discussion requires a great deal of time. The discussion must be written in the context of the whole thesis and must be related to the introduction and structure of the literature review and other chapters of the thesis.

It is good to start with an explanation of the results. This does not mean repeating the results but interpreting them. Explain WHY you found the results; you can refer to parts of the text from previous chapters or previous tables or figures (graphs).

The discussion must also show how your results reflect current knowledge of the subject. Discuss the agreement of the results with previously published results and also the differences between them.



Explain the originality of your results. If there is any discrepancy between the results and those of other authors, you must explain why this is possible.

Example: *Zhirnov and Ilyinsky (1996) report a smaller average group size of wild bees than this study. However, their research was conducted in a different season.*

Remember that you defined your hypotheses and objectives at the beginning of your research. These need to be answered. You can also recommend a direction for further research based on the results. Use the findings presented in the Literature Review chapter for your discussion. A separate part of the discussion for theses with direct economic significance must be an economic evaluation of the proposed recommendations for practice, or an assessment of the environmental aspects. The Discussion chapter is always separate from, and not linked to, the Results chapter. This chapter is written in the present or past tense.

Summary

In this chapter, you will summarize the most important facts that you have found in your literature review or in your own experiment or project. Do not forget your defined objectives. This is the space to summarize whether they were met. Also briefly mention what new insights your work has brought and what conclusions it has led to. This is also the place for your recommendations for practice and further research. Do not repeat facts from the methodology, results or other chapters. Conclusions are written in the past tense.

List of references

References are listed alphabetically (A to Z) according to the surname of the first author. A bachelor's thesis must have a minimum of 40 relevant entries (hobby websites or popular books and journals not citing the sources of their claims are not considered relevant entries). It is important to use primary sources from professional databases (**Web of Science - WOS or Scopus** - see professional databases <https://lib.czu.cz/en/r-11105-academic-databases/r-11289-reference-managers>), which can be accessed from anywhere. For further binding information see **Use of citations** (page 5).

Individual appendices

Larger tables and additional figures (graphs) are better presented as appendices. Appendices should be paged separately and in a different style from the body of the thesis. Roman numerals are usually used for page numbering. For figures (photographs) taken, the source should be indicated, and the full citation should be given in the reference list. If the image (photograph) is downloaded from the Internet, the address should be given below the image (however, this address should not be included in the reference list). The title "Appendices" should not be written in the table of contents.

TABLES AND FIGURES

Tables and figures (including graphs) can be placed directly in the text part of the thesis, but there must always be a reason for this. It is therefore essential that some text refers directly to the figure or



table (e.g., "The distribution of wild bees is shown in Figure 1" or "The reproductive period of bees varies depending on the area of occurrence (see Table 1)"). All tables and figures must be numbered in order of occurrence (tables separately and figures separately). Graphs may be labelled as Figures or may be referred to as Charts with their own number series.

All tables and figures must be captioned. **The table caption is placed above the table, the figure caption is placed after (below) the figure.** You can use full words (Table, Figure, Chart) or abbreviated forms (Tab., Fig.) for the title, but the style must be consistent throughout the thesis. When using coloured figures, bear in mind that if they are printed in shades of grey only, their legibility may be impaired.

The language and style of tables and figures must be the same as the language and style of the document. The source of all tables and figures should be acknowledged (e.g., by citation, by stating the author or by stating 'adapted from...', etc.).

THESIS SUBMISSION

Before printing the thesis, check the pagination one last time and update the table of contents. The thesis should be submitted in **two** hardbound copies. Print the work double-sided.

Be sure to sign the statement as well. You must also upload the thesis to UIS within the deadline. In order to submit the thesis to UIS, you must complete all necessary information via the "Insert additional information" page, upload the thesis in the "Insert thesis and attachments" section and confirm the submission of the thesis in the "Submit the thesis" section. The printed thesis and the UIS version must be identical.

All deadlines for the submission of work specified in the current study schedule are binding and **late submission cannot be tolerated.**

The bachelor's thesis binding may be of any colour. A sample of the cover is given in Appendix II.



BT GUIDELINES - APPENDIX I – HOW TO COMPLETE A THESIS ASSIGNMENT

The assignment is created in the *UIS application (is.czu.cz)* and the approved assignment is part of the *Final State Examination Record*. The assignment can be edited by the supervisor or the student. It depends on the agreement between the supervisor and the student who will create the assignment. However, the assignment should always be consulted with the supervisor and his/her recommendations should be followed.

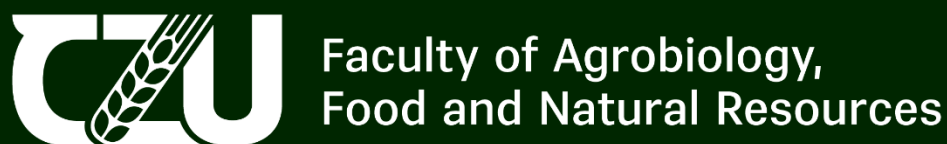
In addition to the title of the thesis in English, the following information is required:

- **Language of the thesis:**
It is stated in the assignment and is binding for students. The language of the thesis is determined by the accreditation of the study programme, unless otherwise permitted.
- **Objectives of the thesis:**
The formulation of the objectives of the work is very important. It starts with a more general (main) objective and then the individual, sub-objectives of the thesis are formulated. Here it is also useful to state what new things the thesis will bring. The recommended length of this section is 300 to 400 symbols including spaces.
- **Methodology:**
Here we describe the methods used to achieve the stated objectives of the thesis. The number of samples, description of the experiment, type of data to be collected, period and location of data collection, special tools and other information will also be briefly mentioned. The planned statistical methods to be used to evaluate the results of the thesis and the timetable for writing the thesis and collecting data should also be included. The recommended length of this section is 500 to 700 characters including spaces.
- **Recommended scope of work:**
The standard length of a bachelor's thesis is 30-50 pages. This length or a minimum number of pages may be specified.
- **Keywords:**
Five to six key words or phrases are given (e.g., precision agriculture, *Gladiolus imbricatus*). Key words define the topic of the thesis more precisely, so it is not appropriate to repeat words that already appear in the title of the thesis.
- **Recommended literature sources:**
Usually, 5-10 literature sources that are central to the topic of the bachelor's thesis are included.
- **Preliminary date of defence:**
Since bachelor's theses are usually assigned in the second year, the tentative date for the defence is May/June of the following year.



BT GUIDELINES - APPENDIX II – COVER OF THESIS TEMPLATE

Czech university of life sciences in Prague
Faculty of agrobiolology, food and natural resources



BACHELOR'S THESIS

2021

Jan NOVÁK

The printed logo of the University on the cover is not compulsory. In 2021, both the old and the new logo of CZU can be used. The logo can also be separate without the text on the right



BT GUIDELINES - APPENDIX III

International rules of zoological nomenclature

- 1) The international rules of zoological nomenclature apply to all taxa from subspecies to superfamily. Names of taxa of a family group (superfamily, family, subfamily) are written in normal, capitalised (not italicised), initial letter and mandatory endings (in order: -oidea, -idae, -inae, example: Empidoidea, Empididae, Empidinae).
- 2) Names of the genus are written in italics with a capital letter (*Empis*). The species name is italicised, the genus name is capitalised, and the species name is lower case (*Empis tesselata*). The name of the genus must always be given unabbreviated at least the first time, and in subsequent uses it may be abbreviated with one or two initial letters so as not to cause confusion between different genera beginning with the same letter (*E. tesselata*).
- 3) When the scientific name is used for the first time, the author of the species description must also be given, which is given without brackets if it is given in the original combination (*E. tesselata* Fabricius, 1794) and in brackets if it is given in combination with a genus name other than that given by the author when describing the species (*Rhamphomyia sulcata* (Meigen, 1804)).
- 4) If we mention a species in the text without specification, we write the genus name with the abbreviation sp. (*Rana* sp.), sp. = species; if we mention several species of the genus without specification, we write spp. (*Rana* spp.) after the genus name.

International rules of botanical nomenclature

In general, the rules of botanical nomenclature follow the International Code of Botanical Nomenclature and the International Code of Nomenclature of Cultivated Plants. Botanical nomenclature is independent of zoological nomenclature. Basic rules for the correct spelling of scientific names of taxa:

- 1) Scientific names of genera are always capitalized, even within a sentence (*Rosa*, *Pinus*). Generic adjectives (epithets) are written with a lower-case initial letter and are never written alone, but only in conjunction with the genus name (*Rosa canina*, *Pinus sylvestris*).
- 2) It is customary to write the names of taxa (species, genera, families, orders) in italics, but not the names of authors or their abbreviations (*Rosa canina* L., *Rosaceae* Juss.).
- 3) The designation of the taxonomic hierarchical level (sect., sp., subsp., var., f.) is not italicized (*Juniperus communis* L. subsp. *communis*), nor is the designation of hybrids (×).
- 4) Cultivar names are attributed in single quotation marks at the top and are not italicized (*Pinus sylvestris* 'Fastigiata').
- 5) If the submitted bachelor's thesis is not taxonomic the names of plants need to be with the abbreviations of authors for taxa.
- 6) If we mention a species in the text without specification, we write the genus name with the abbreviation sp. (*Rosa* sp.), sp. = species; if we mention several species of the respective genus without specification, we write spp. (*Rosa* spp.) after the genus name.

English taxon names are not italicized, but in normal font (dog rose, rose family).

