



UNIVERSITÄT
BAYREUTH

Bayreuth Graduate School for Mathematical and
Natural Sciences (BayNAT)

Program in Ecology and Environmental
Research (PEER)

Instructions for Completion of a Doctoral Thesis

(Version 07/2023)

1. Format of the Doctoral Thesis

The regulations for doctoral studies allow only two formats. Hybrid forms are not acceptable. Upon submission the doctoral candidate has to declare, what format she/he has chosen. The formats are:

- a) **monograph**: an autonomously produced scientific achievement of the doctoral candidate that contributes with new insights to the solution of scientific questions. The information given below with respect to **Abstract** and **Zusammenfassung**, as well as the **second appendix** apply also to the monograph form of the thesis.
- b) **the cumulative thesis**: several scientific papers of a doctoral candidate are summarized. In this case the relation between the single papers as well as the doctoral **candidate's own contribution** to them have to be presented in a detailed synopsis (see below). The decision whether a cumulative thesis is appropriate, is made by the **executive board**. Single papers may be: reprints of original papers, accepted or not yet published manuscripts, submitted but not yet accepted manuscripts, or not yet submitted manuscripts which are in final form for specific journals. Reports (research reports, work reports) are not single papers in the sense of a cumulative thesis. Review articles contributing to a new overview in a particular research field are acceptable.

Included manuscripts must fulfill in every respect all standards that are required for referenced papers, i.e. they must include a title, all authors, their addresses etc., indication of the corresponding author, abstract, introduction, results/discussion, acknowledgements, references and the usual number of tables and figures. The state of the manuscript, whether submitted or already published, and in which journal, has to be indicated.

“Supporting information”, which are submitted with the manuscript but will not appear in the printed journal, should be placed directly after the respective manuscript.

In general, at least three papers are expected as part of a cumulative thesis, and in general, the doctoral candidate should be the first author of at least two of these. Papers in which the doctoral candidate is neither first nor second author may be additionally included if they thematically fit to the synopsis, otherwise they should be included in the appendix (see below). Papers with very low to low own contribution should not be

integrated into the main part of the thesis. Exceptions to the general rule of three papers as first or second author must be supported by an explanatory statement from the supervisor of the doctoral candidate.

The PEER executive board recommends that at the time of submitting the thesis a minimum of 2 manuscripts have been submitted to recognized scientific journals with a peer-review process. Out of those, one should have been already accepted. Exceptions from this recommendations can be granted upon written request with explanation by the supervisor.

- c) The thesis must include in addition to the publications/manuscripts the following parts:

Abstract in English and **Zusammenfassung** in German. This summary (maximum of 800 words each) should inform about the investigated problem and the results.

Synopsis: This chapter describes the state of the art in the respective research field and defines the questions and hypotheses that were examined. In this context, a general literature review should be included as needed to understand the overall problem addressed.

The chapter additionally summarizes the methods used, the results achieved and provides an integrative discussion and conclusion section. The contribution of the several manuscripts to the overall doctoral thesis should be demonstrated. The length of the synopsis should be on the order of 20 – 40 pages including figures and tables. References are listed after that.

Quantifying report about the doctoral candidate's own contribution and that of the other co-authors to the manuscripts. This can be done by a verbal description or with percentage numbers (see no. 4).

An **appendix** may be added which includes additional publications/manuscripts of work in which the doctoral candidate has participated in or prepared. Alternatively, a **listing of all own publications**, i.e. also those that were not included in the thesis, should be added to the thesis document.

A **second appendix** may be included to provide supplementary information and/or supporting data bases for the research as requested by the supervisor. Supporting data may be added in electronic form (CD).

2. Additional Notes on Format

Figures / Graphics format: The font size within figures has to be chosen in such a way that it is still well readable after reduction to DIN A 5. For microscopic pictures a measuring unit has to be shown. If different colours are chosen in figures, one has to realize that the colour code cannot be recognized in a black and white printing.

Numbering format: If the thesis is written in German, decimals are printed with a comma (e.g. 1,5). If the thesis is written in English, decimals are printed with a point (e.g. 1.5).

Citations: The cited literature has to be completely listed in a list of references, i.e. with all authors, title of the paper, year of publication, name of the journal, volume number, first and last page.

Acknowledgements: The style and length of the acknowledgements in the publications/manuscripts should be adapted to those common in scientific publications.

Printing: The print of the dissertation must be double sided.

3. Electronic copy. A pdf file of the thesis should be submitted along with the printed copies, as well as a separate pdf file containing the title of the thesis and the Abstract and Zusammenfassung.

4. Recommendation on how to declare the own contribution in a cumulative thesis

The aim of the statement about the **own contribution and that of contributing co- authors** is to clearly specify the relative input of the respective doctoral candidate to the submitted thesis. It should also indicate the contributions of all co-authors to the contained (published) manuscripts, as well as contributions of others that did not warrant co-authorship (e.g. field assistants, (commercial) laboratories).

We recommend that the **own contribution** of the doctoral candidate is presented as the percentage contributed to the individual substantial parts of the document, i.e., conception of research question, study design, data collection, data analyses, manuscript writing, preparation of figures etc.. The percentage should be given in increments of at least 5%.

Additionally the author contribution statement should describe the **specific contributions of each co-author to the published work** without indicating percentages. Contributions could include, for example, research design, research performance, contribution of new reagents or analytical tools, data analyses, paper writing, etc. One author may have contributed to multiple components, and multiple authors may have contributed to the same component of the study. The role of each co-author should be declared.

Own contribution needs to be specified also for a thesis submitted as monograph. If any data or results are contained in the thesis, which were not produced by the doctoral student her- or himself, or if others contributed to writing or composing figures, this should be made clear.

You can find recommendations on how to phrase the own contribution and other authors' contribution below:

Example of own and co-author contributions statement:

Authors: Liese Müller, Max Mustermann, Otto X. Normalverbraucher

Title: Effects of administrative work on publication activity of scientists

Status: Submitted to the Journal of Administrative Excitement

Own contribution: concept and study design 50%, data acquisition 25%, analyses of samples 75%, data analyses and figures 100%, discussion of results 75 %, manuscript writing 90%

The study was designed by LM and OXN. LM and MM performed the experiments with support from 5 Hiwis (see acknowledgements). Samples were analysed in the xxx BayCEER lab (see acknowledgements). LM and OXM analysed the data. LM, MM and OXN interpreted and discussed results. Figures and tables were created by LM and MM. LM wrote the first draft of the manuscript. Revision and rewriting of the manuscript was done by LM and OXN.

LM is the corresponding author.