

	UNIVERSITÄT BAYREUTH	Interdisciplinary Microplastic Sciences (InterMicro)
Bayreuth Graduate School for Mathematics and Natural Sciences (BayNAT)		Date: 10.01.2022

Guidelines for the preparation of a dissertation

1. Format of the dissertation

The formal guidelines for monographs and cumulative dissertations are based on the instructions of the doctoral committees of the Faculty of Biology, Chemistry and Earth Sciences for the preparation of individual dissertations dated 15/09/2017 (currently in revision).

In addition to these instructions, the design of the cover page, the second and the third page of the dissertation thesis is prescribed, as listed in the appendix to these recommendations.

Furthermore, the signed (affidavit) assurances and declarations must be included at the end of the dissertation.

The doctoral regulations permit only two formats. Mixed formats are not permitted. The doctoral candidate should declare this information in the dissertation writing upon submission (see sample pages in the appendix). The formats are:

- a) **Monograph:** an independent scientific achievement by the doctoral candidate that contributes to the solution of scientific questions by providing new knowledge (§ 12, para. 1, sentences 1 and 2 of the doctoral regulations). The following information on **summary/abstract in German and English** and on **the second appendix** also apply to dissertations written in monograph form. If content of the dissertation has already been published, a statement with details of the publication must be included in the front of the dissertation. A publication list can be included additionally.
- b) **Cumulative dissertation:** several individual manuscripts/publications of a doctoral student are combined. The decision on whether or not a submitted manuscript meets the requirements for a cumulative dissertation is made by the Executive Board of Interdisciplinary Microplastic Sciences according to §12 para. 4 of the PhD Regulations.

Cumulative dissertations must meet the following requirements:

- Abstract in German and English: The summary should briefly inform about the research question and the results. The abstracts are to be understood in addition to the detailed summary for a cumulative dissertation. A German and English abstract is required, not to exceed 800 words each. Figures should be included only if they add informative value; the number should be kept to the minimum necessary.
- Introduction: This usually describes the state of the research and the problem/questions in the dissertation. The introduction may also include a subchapter describing any related, particular experimental or theoretical methods beyond what is noted in the experimental section of the individual publications.
- Synopsis: This is a detailed summary that puts the individual publications/manuscripts into context and shows a clear "common thread" that runs

through the individual publications/manuscripts. The chapter also summarizes the methods and results obtained and presents an integrative discussion and conclusion section. Here, the contribution of the individual publications/manuscripts to the overall dissertation should also be made clear. In addition, the doctoral candidate's contribution must be presented. The recommended length for introduction (b) and synopsis is (at least) 20 pages together.

- Doctoral student's contribution: Detailed description of the doctoral candidate's contribution and that of the other co-authors of the manuscripts. This should be written as a verbal description and may include percentages (see appendix for explanations)
- The scientific manuscripts: On the part of the Executive Board Interdisciplinary Microplastic Sciences, it is recommended that at least 3 completed manuscripts be submitted at the time of submission, at least 2 manuscripts should have been submitted to recognized scientific journals that maintain a review process, and at least 1 of these manuscripts should also have been accepted. The doctoral student must be the first author for at least one of these papers. This is a minimum number required for admission to the cumulative dissertation; evaluation of the content's quality is the reviewers' responsibility. Reports (research reports, working reports) are not individual papers for a cumulative dissertation. Manuscripts must meet in every respect all the requirements that are usual for peer-reviewed papers. The manuscript's status, whether submitted, accepted, or published, and in which journal must be identified. Submitted manuscripts should indicate the manuscript number assigned by the journal. Papers may be presented as a manuscript or copy of the printed image, but "copyright" must be respected. For inserted journal versions, the dissertation's own continuous page numbers must be inserted in addition to the page numbers of the original publication. In addition, care should be taken to ensure good readability by using a high resolution. For manuscripts, figures and tables should appear at the appropriate place in the text and not be collected at the end of the manuscript. "Supporting Information" submitted with the manuscript but not appearing in the printed version should be placed directly after the respective manuscripts.
- A list of all publications, i.e., those not included in the dissertation, should follow the manuscript section. In addition, publications that were not included in the dissertation should be marked.
- Any appendices (e.g., experimental details or results not intended for publication).

2. Illustrations/graphical representations

The font size of figures and tables must be chosen to be easily read. A size scale must be given for microscope images.

3. Citations/modes of citation

The cited literature must be listed entirely and consistently in a bibliography in the usual citation style, i.e. with all authors, the title of the paper, year of publication, name of the journal, year, beginning and possibly end pages, DOI.

4. Printing requirements

The dissertation should be printed double-sided and in DIN A4.

5. Review and examination

The doctoral candidate may propose reviewers and examiners. One of the reviewers can also be an external university lecturer. Ultimately, the executive board decides on the selection of the reviewers and examiners. It does not have to follow the doctoral candidate's proposal.

The recommendations of the Interdisciplinary Microplastic Sciences Executive Board are:

Selection of both reviewers

- The first reviewer should be the thesis supervisor to ensure the most possible competence.
- The second reviewer, who is not a supervisor, should not be significantly involved in completing the thesis. However, co-authorship does not exclude a reviewer.
- The second reviewer should be requested in advance, if possible.
- The second reviewer may be from the same discipline but should not normally be from the same department.
- Members of the Mentor Council may also be reviewers.
- In the case of external reviewers, it must be clarified in advance whether they are willing to travel to Bayreuth for the colloquium if necessary and who will cover the travel costs.

Selection of the two or three examiners

- When selecting examiners, care should be taken to ensure that they do not come only from the narrow subject area of the dissertation so that the breadth of the entire field is represented.
- At least one examiner should not have published with the candidate.

Procedure for dissertations with "distinction"

- *If both reviewers rate a dissertation as "Excellent", an external 3rd reviewer will be selected by the executive board. The doctoral supervisor can make 3 suggestions for external reviewers to the executive board.*

Please feel free to contact the Dean's Office personally for additional questions and for individual advice on the formal requirements for submitting your dissertation.

10.01.2022, Executive Board Interdisciplinary Microplastic Sciences

6. Attachments

6.1. Sample template cover sheet

Dissertation title

DISSERTATION

for the attainment of the academic degree of Doctor of
Doctor of Natural Sciences (Dr. rer. nat.)
in the Bayreuth Graduate School for Mathematics and Natural Sciences (BayNAT)
of the University of Bayreuth

submitted by

firstname, lastname

from birthplace

Bayreuth, 2022

6.2. Sample template second page for the final version of the dissertation

This thesis was written in the period from (month/year) to (month/year) in Bayreuth at the chair of (chair) under the supervision of Professor Dr. (first name last name).

Complete reprint of the dissertation approved by the Bayreuth Graduate School of Mathematics and Natural Sciences (BayNAT) of the University of Bayreuth for the award of the academic degree of Doctor of Natural Sciences (Dr. rer. nat.).

Form of the dissertation: Cumulative dissertation/monograph

Dissertation submitted on: Day.Month.Year

Approval by the Executive Board: Interdisciplinary Microplastic Sciences

Scientific Colloquium:

Acting Director: Prof. Dr.

Examination Committee:

Prof. Dr. (Reviewer)

Prof. Dr. (Reviewer)

Prof. Dr. (Chair)

Prof. Dr.

(Prof. Dr.)

(Further reviewer: Prof. Dr.)

6.3. Sample template third page (only needed for monograph)

This thesis is written as a monograph.

Parts of the work have already appeared in the following publications:

Quantification of photooxidative defects in weathered microplastics using ¹³C multiCP NMR spectroscopy

Mauel, A. *, Pötzschner, B. *, **Meides, N.**, Siegel, R., Strohriegl, P., Senker, J. (2022)

(* contributed equally to this work)

RSC Advances 12 (18)

<https://doi.org/10.1039/D2RA00470D>

Quantifying the fragmentation of polypropylene upon exposure to accelerated weathering

Meides, N.*, Mauel, A. *, Menzel, T., Altstädt, V., Ruckdäschel, H., Senker, J., Strohriegl, P. (2022)

(* contributed equally to this work)

Microplastics and Nanoplastics 2 (1)

<https://doi.org/10.1186/s43591-022-00042-2>

Reconstructing the environmental degradation of polystyrene by accelerated weathering

Meides, N.*, Menzel, T. *, Poetzschner, B. *, Löder, M. G. J., Mansfeld, U., Strohriegl, P., Altstaedt, V., Senker, J. (2021)

(* contributed equally to this work)

Environmental Science & Technology 55 (12)

<https://doi.org/10.1021/acs.est.0c07718>

Degradation of low-density polyethylene to nanoplastic particles by accelerated weathering

Menzel, T. *, **Meides, N.***, Mauel, A. *, Mansfeld, U., Kretschmer, W., Kuhn, M., Herzig, E. M., Altstädt, V., Strohriegl, P., Senker, J., Ruckdäschel, H. (2022)

(* contributed equally to this work)

Science of the Total Environment. <https://doi.org/10.1016/j.scitotenv.2022.154035>

Pristine and artificially-aged polystyrene microplastic particles differ in regard to cellular response

Völkl, M., Jérôme, V., Weig, A., Jasinski, J., **Meides, N.**, Strohriegl, P., Scheibel, T., Freitag, R. (2022)
Journal of Hazardous Materials 435

<https://doi.org/10.1016/j.jhazmat.2022.128955>

6.4. Sample template third page (Cumulative Thesis)

This thesis is written as a cumulative dissertation.

Parts of the work have already appeared in the following publications:

Quantification of photooxidative defects in weathered microplastics using ¹³C multiCP NMR spectroscopy

Mauel, A. *, Pötzschner, B. *, **Meides, N.**, Siegel, R., Strohriegl, P., Senker, J. (2022)

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Journal of Hazardous Materials 435

<https://doi.org/10.1016/j.jhazmat.2022.128955>

6.5. Sample template (affidavit) assurances and declarations

The (affidavits) assurances and declarations must be obligatorily included as the last page in the print version of the dissertation and, for legal reasons, may explicitly not be modified.

No other wording, no English translation.

Reformatting (font type, size, layout, etc. are possible).

(Eidesstattliche) Versicherungen und Erklärungen

(§ 9 Satz 2 Nr. 3 PromO BayNAT)

Hiermit versichere ich eidesstattlich, dass ich die Arbeit selbstständig verfasst und keine anderen als die von mir angegebenen Quellen und Hilfsmittel benutzt habe (vgl. Art. 64 Abs. 1 Satz 6 BayHSchG).

(§ 9 Satz 2 Nr. 3 PromO BayNAT)

Hiermit erkläre ich, dass ich die Dissertation nicht bereits zur Erlangung eines akademischen Grades eingereicht habe und dass ich nicht bereits diese oder eine gleichartige Doktorprüfung endgültig nicht bestanden habe.

(§ 9 Satz 2 Nr. 4 PromO BayNAT)

Hiermit erkläre ich, dass ich Hilfe von gewerblichen Promotionsberatern bzw. -vermittlern oder ähnlichen Dienstleistern weder bisher in Anspruch genommen habe noch künftig in Anspruch nehmen werde.

(§ 9 Satz 2 Nr. 7 PromO BayNAT)

Hiermit erkläre ich mein Einverständnis, dass die elektronische Fassung meiner Dissertation unter Wahrung meiner Urheberrechte und des Datenschutzes einer gesonderten Überprüfung unterzogen werden kann.

(§ 9 Satz 2 Nr. 8 PromO BayNAT)

Hiermit erkläre ich mein Einverständnis, dass bei Verdacht wissenschaftlichen Fehlverhaltens Ermittlungen durch universitätsinterne Organe der wissenschaftlichen Selbstkontrolle stattfinden können.

.....

place, date, signature

6.6. Recommendation to declare one's own contribution in a cumulative work

The aim of the statement of **own contribution and co-authors' contribution** is to clearly specify the relative input of the respective PhD student to the submitted work. It should also include the contributions of all co-authors to the included (published) manuscripts as well as contributions that did not warrant co-authorship (e.g., field assistants, (commercial) laboratories). Furthermore, the author contributions statement should describe **each co-author's specific contributions** to the published work.

Contributions could include, for example, research design, research performance, contribution of new reagents or analytical tools, data analysis, text writing, etc. One author may have contributed to multiple components, and multiple authors may have contributed to the same element in the study. The role of each co-author must be indicated. If the thesis contains data or results that were not produced by the doctoral student him/herself, or if others contributed to writing or creating figures, this should be made clear.

In addition, the doctoral student's contribution can be presented as a percentage of the contributions to each significant part of the document, i.e., the conception of the research question, study design, data collection, data analyses, manuscript preparation, preparation of figures, etc. Percentages should be presented in increments of at least 5%.

Below you will find an example of how to formulate your own contribution and the contribution of other authors:

Author(s): Liese Müller (LM), Max Mustermann (MM), Otto X. Normalverbraucher (ON)

Titel: Effects of administrative work on publication activity of scientists

Status: Submitted to the Journal of Administrative Excitement.

The study was designed by LM and ON. LM and MM performed the experiments with the assistance of 5 Hiwis (see Acknowledgments). Samples were analyzed at xxx BayCEERLaboratory (see Acknowledgments). LM and OXM analyzed the data. LM, MM, and ON interpreted and discussed the results. LM and MM prepared the figures and tables. LM wrote the first draft of the manuscript. Revisions and rewriting of the manuscript were done by LM and ON. LM is the corresponding author(s).