

Guidance for the PhD thesis

PhD programme in Responsible Innovation and regional development (RESINNREG)

Approved by the Programme Committee on 22.06.2020

General requirements for the PhD thesis

According to the PhD regulations at HVL, A PhD thesis must be an independent, scientific work that meets international standards in terms of academic level, method and ethical requirements. Moreover, a PhD thesis must contribute to develop new academic knowledge.

Scope

A PhD, including the coursework, is expected to be completed within three years (full-time).

An article-based thesis or a monograph?

An article-based thesis

Article-based thesis normally consists of three standard-sized articles¹, in addition to an introductory section - in Norwegian called the “kappe”. When writing an article-based thesis, the candidate must normally be the first author, or the sole author of at least half of the articles (cf. the Regulations Section 10-1). The articles should be publishable in Norwegian or international peer-reviewed publication channels, primarily in scientific journals or anthologies.

It would be considered an advantage if one or several of the articles were published or accepted for publication when the thesis is submitted for evaluation. However, it should be noted that this is not a requirement. However, all the articles should be *submitted* for review to the selected publication channels.

The Introduction section (the “kappe”) of an article-based thesis normally does not exceed 40- 80 pages, 1.5 line spacing. It includes an introduction chapter including a review of relevant and current research literature, a theory and a methodology chapter, as well as a chapter summarising the findings from the three publishable manuscripts, clarifying how the thesis as a whole answers the overall research question, and how the findings contribute to the existing research literature. The introductory section, in other words, provides a space for elaboration and clarification of content beyond what is stated in the articles.

The candidate must be the sole author of the introductory section. However, the work must be written under supervision.

¹ Please note that published articles should normally not be older than five (5) years when the thesis is submitted. The central PhD committee may grant exemption from this requirement if indicated by extraordinary circumstances (cf. Regulations Section 10-2)

A monograph:

A monograph is usually not more than 250-300 pages (1.5 line spacing), *excluding* references and appendixes.

A monograph typically consists of an introductory chapter, a theory chapter, a methodology chapter, sometimes a context chapter, and then normally three or more chapters presenting and analyzing findings, and a concluding chapter summarizing the main findings, showing how the thesis as a whole answers the overall research question, and clarifying how the thesis contributes to the existing research literature.

The candidate must be the sole author of the monograph. However, the work must be written under supervision.

It is possible to develop the analysis chapters to articles and publish these either during the PhD period, or after the thesis has been submitted and defended. In the monograph, no published articles should be added as 'chapters'.

Detailed clarifications (common for both the monograph and the article-based thesis):

- In the introduction the relevance of the topic should be highlighted by being placed in a research context. The purpose of the study must be clearly stated.
- The overall research question, as well as the research questions explored or tested in each of the analysis chapters or articles must be precisely worded.
- In the methodology chapter, the candidate should discuss issues such as ethical challenges, data collection methods and data analysis perspectives. Also, the candidate should discuss one's own researcher role, the validity or relevance of methods and findings, as well as limitations to the work that has been conducted.
- In an article-based thesis, the introductory section ('kappen') should normally not introduce empirical findings that have not been presented in one of the included articles.

Choice of language

A PhD thesis is normally written in English or in a Scandinavian language (or a mixture, e.g. one article in a Scandinavian language and the rest in English).

Availability of PhD thesis

The PhD thesis, whether it is a monograph or an article-based thesis, shall be publicly available at the latest two weeks before the public defence. The thesis will be made available in the form in which it was submitted for evaluation, possibly with a list of errors in writing (errata). HVL will pay for the printing of 50 copies.

Declaration of co-authorship

A PhD candidate and their co-authors must follow the norms for co-authorship that are generally accepted in the research community. According to the Vancouver recommendations for Social Sciences and Humanities² (NESH) "only those who have actually

contributed to the documentation or data collection, analysis and writing of a scientific work may be credited as co-authors". Whereas according to the Vancouver recommendations for research in Math, Science and Technology³, "authorship should be limited to those who have made a significant contribution to the concept, design, execution or interpretation of the research study". The Vancouver guidelines in Medical and Health Research⁴ on the other hand, has specified that authorship shall be based on the following four criteria:

- a) Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
- b) Drafting the work or revising it critically for important intellectual content; AND
- c) Final approval of the version to be published; AND
- d) Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

RESINNREG is a pluridisciplinary programme. It is up to the candidate in collaboration with the supervisors to decide whether or not co-authorship is desired for each publication, and if so, whom should be invited to be the co-authors. Importantly, and following the Vancouver recommendations for all scientific disciplines, having the role as a supervisor for a PhD student is not enough in itself to qualify as a co-author.

Signed templates for co-authorship must be submitted together with the thesis

In connection with the completion of each article in an article-based thesis, the candidate shall send a template for co-authorship to all co-authors where each co-author their roles and contributions to the article in question. The candidate must also complete this template. The candidate is personally responsible for collecting all necessary signatures. The completed templates with confirmations and signatures shall be submitted together with the PhD thesis and application for evaluation of the thesis.

Crediting and acknowledgements

Upon publication of the PhD thesis, the main rule is that HVL shall be listed as the affiliation in the PhD thesis, and in articles being part of a PhD being written and defended at HVL. The candidate must acknowledge the project and/or the institution that has funded the PhD-position. Also, communities and/or persons who have provided ideas for the analysis, comments on the writing, or technical assistance of various kinds should be acknowledged.

Other clarifications

Publications or parts of publications that have been previously been approved as a basis for an exam or a degree (taken by oneself or by one of the co-authors), can normally not be approved for evaluation. Unpublished data from previous degrees (e.g. from one's master's degree), on the other hand, may be used as a basis for work on the PhD project (cf. the Regulations Section 10-2).

³ <https://www.etikkom.no/en/library/topics/authorship-and-co-authorship/co-authorship-in-mathematics-science-and-technology/>

⁴ <https://www.etikkom.no/en/library/topics/authorship-and-co-authorship/authorship-and-co-authorship-in-medical-and-health-research/>

Generally, it is not possible to make changes to published articles that are included in an article-based PhD thesis. If the candidate feels a need to discuss aspects of the published articles, this may be done in the preface, or in the introductory section (“kappen”).