

PhD thesis at Faculty of Science and Technology (REALTEK), Norwegian University of Life Sciences (NMBU) (revised April 2024)

This guidelines aims to facilitate a common understanding of expectations to the PhD thesis at REALTEK.

PhD thesis requirements

The NMBU PhD Regulation §10-1 states general requirements for the PhD thesis.

Section 10-1 Thesis requirements

- (1) The thesis must be an independent research work or research and development work that meets international standards with respect to academic level, ethical requirements, and methods within the field.
- (2) The thesis must contribute to the development of new scholarly knowledge and be of sufficiently high academic quality to merit publication as part of the literature in the field, or in an appropriate format as part of the research-based knowledge development in the field.
- (3) The thesis may consist of a monograph or a compilation of several pieces of work in the form of scholarly manuscripts and/or articles. If the thesis consists of several part-works, the thesis must contain an introductory chapter (*'kappe'*) which from an overall perspective, summarises and collates the research questions and conclusions presented in them. The PhD candidate must be the sole author of this introductory chapter.
- (4) The main component of the doctoral thesis may consist of a new product or a systematised collection of material, or it can be presented in a different way (for example, sound, images, video, electronic forms of presentation) where its theoretical and methodological basis is not apparent from the product itself. In such cases, in addition to presenting the product itself, the thesis must have an additional part. The additional part must consist of a written account of the research question, the choice of theory and methods, and an assessment of the result in relation to international standards and the academic level within the field.
- (5) If the thesis consists of several scholarly works that have been produced in cooperation with other co-authors, the PhD candidate should normally be the first author of at least half the manuscripts/articles. The Vancouver Convention's standards for co-authorship must be complied with. Upon submission of the thesis, each scholarly work with several co-authors must be accompanied by a declaration describing the PhD candidates' contribution and the contributions of each co-author. The declaration must be signed by both the PhD candidate and the co-authors. The PhD candidate is responsible for obtaining such declarations of co-authorship.
- (6) The thesis must be written in either English or Norwegian. In both cases, the thesis must contain a brief abstract in English and a brief abstract in Norwegian.

REALTEK recommends minimum 3 publications, with minimum one of them published/accepted for publication. The evaluation committee is to decide if the work is sufficient for a PhD degree within the given research field (also paying attention to the co-authorship declarations, following the PhD thesis).

REALTEK recommends the following components to be included in the "Introductory chapter"/"kappe" summarizing the contribution in several articles:

- Abstract in English and Norwegian
- Introduction, background and state of knowledge providing the scientific context
- Theoretical framework
- Methodology
- Coherence/integration of shorter papers, discussing their objectives/results in relation to each other, and if relevant, how conclusions merge into an overall conclusion
- Overall results and discussion of the contributions to the research area
- Conclusions – with recommendations for future work and/or practical implications

Note that these are recommendations. Research areas may have deviating traditions.