

Assessment

The PhD program

Faculty of Veterinary Medicine

Norwegian University of Life Sciences (NMBU)

November 2024-January 2025

Mandate

The primary role of the external evaluation committee for periodic evaluation of the PhD program in Veterinary Science at NMBU, as described in the appointment letter, was to conduct a thorough and impartial review, including the curriculum and the coursework component, with a specific focus on the quality of research in the program, and the recruitment- and admission process. Based on observations and reflections from this review, the committee was asked to provide constructive feedback, which could aid in further improvement and development of the PhD program-.

The evaluation committee consisted of:

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The evaluation is based on the following documents as well as information gathered through a two-days site visit:

- Self-evaluation report PhD Programme Veterinary Science
- Annual PhD programme evaluations 2017-2023
- PhD Course Evaluations
- Career pathways PhD graduates NVH 2008- 2013
- Bibliometric statistics – NIFU
- Supplementary provisions to NMBU's ph.d.-regulations VET
- Guidelines for the PhD Programme Council
- Guidelines for VET Research Council
- Guide on the content and scope of the introductory chapter (kappe) of doctoral theses
- Accepted theses 2014-2023

Site Visit

The evaluation committee visited the Faculty of Veterinary Medicine (VET), Norwegian University of Life Sciences (NMBU), on November 25-26, 2024. The evaluation committee found the site-visit program well organized. On November 25, the committee was initially given a guided tour of the veterinary building and the Equine Hospital. The committee had separate meetings with the Dean, the PhD program council, the Research council, and the NMBU Department of Research and Innovation. The committee also interviewed four PhD candidates. On November 26, the committee had a guided tour through the Companion Animal Hospital and one of the laboratories, interviewed five selected PhD supervisors and visited a PhD candidate lunch meeting/seminar. An open meeting was arranged towards the end to ensure that all PhD candidates and supervisors had the opportunity to voice any concerns or thoughts about the PhD program.

1. General assessment

The annual uptake of PhD candidates during the last five years have been 15-21 (average 17.4) and the number of degrees issued during the same period varies between 12 and 28. The gender balance of the active PhD students is around 70 % female and 30 % men (66 female candidates vs 30 male candidates). All PhD these are based on published, peer reviewed research articles and/or manuscripts. VET also presents statistics regarding the PhD candidates' employment rate after graduating from their PhD program and find it comparable to the national numbers of 90 % employment, and numbers from Statistics Norway (SSB) in 2022 show that 50 % were working in academia in Norway and 32 % working national jobs outside academia.

The evaluation committee acknowledges the detailed “*2024 Self-evaluation report for periodic PhD programme evaluation*” of the PhD Program in Veterinary Science, and largely agrees with issues raised therein. Overall, the committee finds that the PhD program supports the NMBU VET Strategic Action Plan for 2023-2026, especially with emphasizing interdisciplinary and translational projects.

2. Organization of the PhD program

The PhD program at the Faculty of Veterinary Medicine, Norwegian University of Life Sciences (NMBU) is very well-functioning and well-managed and currently has 96 enrolled PhD-candidates. The 82 VET-Faculty members constitute 30 professors (28.8 full-time equivalents, FTE), and 52 associate professors (49.1 FTE), out of which 70 are active PhD supervisors. The PhD Program Council conducts annual evaluations and gathers feedback through candidate questionnaires. The committee appreciates the effort of the PhD coordinators to collect responses from all active PhD candidates, and the use of the feedback given in the annual evaluation forms to improve the PhD program. For instance, the introduction of PhD candidate lunch seminars, PhD supervisor meetings/seminars, and a yearly research meeting/seminar has been introduced. Effective communication channels are established, ensuring that PhD candidates are well-informed and supported throughout their studies. The administrative support is highly appreciated, providing a pleasant and efficient work environment.

Admission / Enrolment

The annual uptake during the last five years seems reasonably stable around 15-20 students. The span of number of examinations varies more, but in the same intervals, between 12 and 28. About 50 % of the PhD candidates are non-Norwegian, and the gender balance is 70 % female vs 30 % male candidates. The numbers are equivalent to figures within veterinary medicine in other parts of Europe and North America. At the national level, the gender balance at VET is similar to what is found at the most relevant PhD programs for comparison: Medical faculties at UiO; 62%, NTNU; 71%, UiB; 73%, and UiT; 67% (numbers are based on admission in 2023), and the department of Pharmacy, UiO; 71%. The gender balance at the PhD program at VET is also slightly better than at their professional education in veterinary medicine (86.4% female students), from which they recruit many of the doctoral candidates. The evaluation committee does not see a need to actively seek to recruit more male PhD candidates, as this may go against the ambition to recruit more veterinarians into the PhD program.

The introduction process for new PhD candidates appears comprehensive and inclusive. Candidates feel welcomed, although there is considerable paperwork initially. Improved relocation support for international students, including assistance with housing and English-language resources, would enhance the starting phase.

Hiring procedure

The hiring procedure appears well-organized, and the committee does not see a strong need for improvements or changes. While ensuring an impartial evaluation of the candidates is crucial, it is also essential to consider the close working relationship between the candidates and their team of

supervisors. Hence, the committee supports the current hiring system at VET where the future supervisor is part of the selection committee, as this allows for the personal chemistry between the main supervisor and the candidate to be considered when ranking the qualified candidates. There is also a value in separating the selection process from the hiring process, which the supervisor is not part of, to clarify that the supervisor is not the formal ‘boss’.

A general concern has been expressed about the growing difficulty in attracting veterinarians to PhD education, particularly for basic research. This possesses logistical challenges for clinical work, teaching, and research at VET. While the evaluation committee does not have a simple solution, we emphasize the importance of addressing this issue and fostering an interest in research among undergraduates. Teaching in professional education programs is primarily designed to prepare students for their professional careers and, therefore, naturally places less emphasis on research training compared to traditional science education programs. The committee compliments VET for the actions taken to improve this. For instance, the career day initiated in 2023, where veterinary students could talk to PhD candidates about the PhD program and their experiences as PhD candidates was reported as very successful. The committee supports continuing such active approaches for preparation and recruitment of veterinary students to pursue a PhD degree. An additional way to increase awareness of fundamental research among veterinary students could be to incorporate information about research findings and experiments that have contributed to current knowledge in the relevant lectures.

Furthermore, the veterinary student research program (*‘forskerlinjen’*) appears to represent a good opportunity for veterinary students with an interest in research. This program admits up to seven students annually, allowing them to work on a research project and complete most of the education component required for a PhD. By incorporating research training early in the academic timeline, the veterinary student research program provides a flying start for veterinarians who wish to pursue a PhD. So far 23 students have completed the veterinary student research program, and 10 of these have joined the PhD program. The committee finds that the veterinary student research program is important not only for the recruitment of veterinarians to the PhD program, but also in order to cultivate a scientific mindset and research understanding among veterinarians. An alternative way to kick-start a PhD in parallel with the veterinary professional education has been employed in Denmark, where it is possible to apply for a [flexible PhD program](#) combining a master program with a PhD program (3+5 or 4+4). This could be considered also at VET/NMBU, in order to attract and maintain highly talented students.

Collaboration, especially with other Scandinavian countries, is essential for diversifying and developing veterinary education and research. To inspire veterinarians to pursue a PhD degree, it is crucial to inform and educate students about research opportunities as well as possible career paths inside or outside of academia early and throughout their undergraduate and master's programs.

Career development

The timeframe for a PhD at VET adheres to the Norwegian norm and spans three years full-time, with one semester (30 ETC) dedicated to the educational component (coursework). Additionally, some PhD candidates have teaching obligations or clinical work tasks that account for 25% of their time, extending the total duration up to four years. Although the three-year PhD standard is imposed by higher authorities, it is essential to communicate to PhD candidates that this timeframe implies a competitive stretch compared to countries offering four years of full-time PhD education.

Several PhD candidates expressed a desire for an extended focus on career development for PhD candidates. The evaluation committee agrees that this effort could be beneficial for both internal recruitment and the external alumni network. A new requirement in the [Forskrift til universitets- og høyskoleloven](#) (UH-requirement) of June 28th 2024, §3-19, demands that an individual career development plan should be made for each PhD candidate. The career development plan should specify the competencies that the candidate is expected to acquire. The institution is responsible for ensuring that the career plan is adhered to, and that the PhD candidates have access to career guidance throughout their doctoral education.

Teaching experience can be highly beneficial for candidates aspiring to academic careers, as it is given significant consideration in the hiring process for academic positions. Similarly, co-supervision of master students or other engaging in research projects can be advantageous, as it not only promotes the candidate's career but also enhances the progression of their research projects. Different approaches are used at the host departments of the committee members, and VET may consider whether some of these could be suitable for them. At the Dept. Pharmacy, UiO, many of the KD candidates have four-years positions with 25% teaching included. Those who do not have teaching duties may be offered the opportunity to do a small amount of teaching to gain this experience. This is voluntary and uncompensated. The Higher Education regulations in Sweden stipulate that a PhD student may only have up to 20% other tasks than research education, for example teaching, clinical work and/or administration. This enables the PhD student to stretch the allocated four full years (100%) education over five years, giving for example an extra field season. PhD students in Sweden also get compensatory time for union missions and formal assignments. Teaching is in general encouraged, also because it offers academic work opportunities after the exam, in particular in teaching intensive enterprises such as veterinary medicine. At the University of Copenhagen's Graduate School of Health and Medical Sciences (SUND), PhD students are required to gain teaching experience and participate in knowledge dissemination related to their project ([see guidelines here](#)). The PhD study board provides a [list of teaching activities](#), and the teaching duties should be related to the individual PhD student's PhD project. Furthermore, a "dissemination plan" is required in the annual assessment report.

The committee suggests that VET explores whether incorporating teaching, supervision and/or clinical work as career-promoting activities and extending the PhD period accordingly would be suitable for a larger proportion of candidates when adapting to the new UH-regulation. Additionally, organizing thematic career seminars, either separately or as part of the obligatory courses at VET, could be a practical and effective approach. As an example of how this could be done, University of Oslo has introduced "[WEEK2](#)," a career week designed for early-career researchers seeking to develop their skill sets and explore new career opportunities. This event is a collaborative effort among several faculties. Throughout the week, participants have access to a variety of courses and seminars, as well as the opportunity for personalized career guidance by a member of the human resources (HR) team. Regarding the requirement for career guidance throughout the doctoral education, the committee recommends that VET engage in a thorough discussion to determine whether this guidance should be provided by the supervisor or by someone with more impartiality and distance from the candidates.

International PhD candidates and Internationalization

Improved relocation support for international students, including assistance with finding housing and providing English-language resources, would enhance their initial experience and integration.

A new requirement for language proficiency for PhD candidates has been introduced in the [Regulations to the University and College Act](#) (UH-regulations) of June 28th, 2024. According to §3-19 of this regulation, PhD candidates that cannot document proficiency in Norwegian, Swedish, or Danish at level A2 upon employment, the institution must offer Norwegian language training equivalent to at least 15 ETC which the PhD candidate must complete by the end of the PhD period. Adhering to this regulation is no trivial enterprise and will likely necessitate thorough discussion. The Norwegian course will likely be introduced at the NMBU level, but VET needs to consider how this requirement will impact the success rate of international PhD candidates admitted to their PhD program. Although internationalization is important, the ability to communicate in the national language is important for professional practitioners such as veterinarians, who sometimes need to be able to discuss sensitive and important matters with people having limited English proficiency. Language is also important for the opportunity for international students to integrate into and function in the Norwegian society. On the other hand, it is important that international PhD candidates in Norway are given the same prerequisites as national candidates, also in comparison to other Scandinavian counterparts. The committee emphasize the importance for VET to acknowledge this challenge but have no exhaustive solution.

Funding of PhD candidates

Several groups of staff brought to the evaluation committee's attention that external funding opportunities vary significantly between different fields. This variability is problematic for a faculty responsible for educating veterinary healthcare professionals, as the learning outcomes for such students must comply with the EAEVE guidelines. Therefore, VET cannot allow specific research areas to fall below a critical mass despite funding shortages. There is concern that specialized clinical work and hospital operations may struggle to be funded by educational resources in the future, particularly in fields such as companion animal research. The committee understands this concern and appreciates that a discussion has been initiated at VET on how to address this challenge. We recommend continuing to focus on these funding and structural challenges to ensure robust veterinary education and research.

The self-evaluation report describes that there are anecdotal stories indicating that the costs associated with research projects for PhD positions at VET is high, leading to positions being allocated to other institutions instead. The committee agrees that this is something that VET should remain aware of and address when moving forward. The bench fee system seems to be functioning well but naturally limits PhD students from groups without sufficient funding. A directed funding effort for bench fees specifically for PhD students at VET could help mitigate this issue.

3. Starting up a PhD

The PhD start-up process at the VET Faculty generally proceeds smoothly, supported by the faculty's awareness of its importance. The welcome email and the initial welcome meeting between the PhD candidate and main supervisor, initiated by the PhD Advisors, are highly appreciated by the committee. This approach efficiently familiarizes the candidate with the support system and provides essential information about the PhD education, timeline, and activities. The mutual expectations outlined through the questionnaire titled "*Establishing a Good Relationship from the Beginning*" and the subsequent discussion between candidates and supervisors, are very important.

The committee acknowledges the introductory seminar organized by the VET Faculty and appreciates the provision of a timeline for all mandatory events throughout the PhD period given to candidates upon admission. Interaction with other PhD candidates and student networks often serves as the most effective tool for exchanging information and experiences. The VET Faculty appears to have well-functioning networks of PhD candidates that facilitate practical experience exchange and foster interaction between experienced and new PhD candidates, as well as between international and Norwegian PhD candidates. The Canvas room for PhD candidates (PHDVET) and the "*Our PhD Journey*" group in Microsoft Teams enhance the connection and communication between PhD candidates and PhD Advisors, positively contributing to the onboarding process.

Despite all these well-regarded efforts, some PhD candidates, particularly those moving from abroad, face challenges in finding accommodation in Ås. Additionally, some introductory materials, such as mandatory videos, are only available in Norwegian, highlighting the need for improvements in welcoming international students.

4. Quality of the PhD theses

The committee finds that the number of articles produced by the PhD candidates is very high. All theses are based on peer-reviewed articles or submitted manuscripts. The expectation for three published papers and/or manuscripts accepted for publication, with at least two first authorships (§10-1 in the VET faculty's supplementary rules to the NMBU PhD regulations), is challenging to fulfill within the three years of a PhD program, especially in clinical and experimental sciences. NMBU has signed the Declaration on Research Assessment (DORA) already in 2018, which implies that the content and quality of the research will be the decisive factors in the assessment. While the committee acknowledges

that this is not an absolute requirement, the phrasing that doctoral theses “*must normally consist*” of such publications/manuscripts is perceived by the committee, as well as by interviewed PhD candidates and their supervisors, as a stringent requirement that must be met. The pressure to publish three papers within 2.5 years of full-time research also places a considerable burden on students. To address this challenging timeframe, supervisors have adopted various strategies. For instance, ethical approvals and data collection are often completed by supervisors or research groups before the candidate embarks on their PhD. The evaluation committee questions whether this approach is truly beneficial for the candidates' learning outcomes and transformation into independent researchers. Additionally, the committee wonders if requiring a pre-set number of publications indeed enhances the quality and competitiveness of PhD candidates and the research groups at VET overall. Sometimes, publishing one comprehensive study rather than two or three smaller studies can increase the quality and impact of the research. Some institutions allow the inclusion of experiments that did not fit into the publications and/or manuscripts to be presented in the introductory chapter (“*kappe*”). A common way of doing this, is to include the additional data to broaden the discussion or to underpin specific points in the discussion. Alternatively, if the additional data more distant from the topic of the papers, they may be added as a separate part after the summary of the papers. Implementing this at NMBU could enable PhD candidates to undertake high-risk projects with potentially higher scientific gains.

An alternative approach could be to introduce a requirement such as “*the doctoral thesis must represent in quantity and quality at least 2.5 years of full-time research*”. It is important to emphasize that any changes are not intended to lower scientific quality standards. If such an approach is introduced, the co-author declarations for manuscripts and articles included in the thesis will become even more important. It is the impression of the committee that the template for such declarations is adequate. The committee acknowledges that the VET makes a solid assessment of these declarations. Additionally, consideration should be given to whether allowing more unpublished work in the PhD thesis might lead to a lower overall publication rate for VET researchers, as the publication process may be prolonged for candidates after they complete their PhD positions. The committee also encourages a discussion at VET to explore more flexible approaches without lowering the scientific standards. Furthermore, if publication requirements in the thesis are to be changed, external assessors should be informed about this due to international standard expectations in the veterinary community.

The committee conclude that the PhD candidates educated at the VET are at an international competitive level. The theses, the publications, and the prior PhD project all hold high scientific quality.

5. Supervision

Supervising PhD candidates is a significant responsibility that has long-term implications for the career and personal development of both the supervisor and the candidate. Therefore, the formal qualifications and educational background of supervisors are critical considerations. The committee appreciates that VET has established criteria for PhD supervisors, which include permanent employment at NMBU VET or a position as an amanuensis-II/professor-II at NMBU VET, as well as holding a PhD degree.

The average PhD-to-supervisor ratio at VET appears reasonable, although there are notable variations. Specifically, the distribution of main supervisors is as follows: one candidate per supervisor (40 supervisors), two candidates (nine supervisors), three candidates (one supervisor), four candidates (three supervisors), and seven candidates (one supervisor). The committee values that the number of candidates supervised by each employee is discussed on an individual basis and monitored by department heads. However, to enhance the quality of PhD supervision, the committee suggests formalizing a cap on the maximum number of candidates for whom one person can act as the main supervisor. For instance, at the Faculty of Mathematics and Natural Sciences at the University of Oslo (UiO), a maximum of six candidates per main supervisor is the standard. Similar to VET, this faculty has highly experimental PhD projects that require more hands-on supervision compared to theoretical research. Establishing such a cap not only aims to enhance the quality of supervision but also encourages experienced researchers to offer supervisory opportunities to younger members of their research groups, thereby fostering the sustainability and growth of their research areas over time.

Currently, there are no mandatory courses that supervisors must attend. The course PPVE400 - Supervision of Master's and PhD Candidates (5 ECTS) is offered to all supervisors but is not required. This course covers key topics such as pedagogical supervision theories, relational and intercultural aspects, ethical considerations, handling difficult conversations, and the framework conditions for supervision at NMBU. While it is not definitively proven that additional coursework in supervision and leadership directly results in better supervisors, the evaluation committee recommends that VET require all supervisors to attend this course at least once, ideally before or within one year of being a PhD supervisor for the first time. In addition, the committee recommends that a short follow-up supervisor course (e.g., half-day, online) is offered regularly. This course could cover formal rules and requirements for a PhD, enabling the supervisors to be up to date with the expectations and responsibilities of their role. Whether or not this should be mandatory, and if so, for whom, should be discussed. Focus on the quality of the supervisor would also align the VET PhD program with the NMBUs strategic action plan for research education 2023-2026, in which enhanced supervisor competence is one of five key areas for improvement.

Most PhD educational processes at VET proceed smoothly; however, the evaluation committee has noted exceptions where PhD students have experienced irregular, infrequent, or almost nonexistent meetings with their supervisors or supervisory groups. It is crucial to acknowledge and rectify these inconsistencies. The information that out of 61 PhD candidate, 10 candidates (eight external; two internal) report that they are not part of a research group, is alarming. Externally employed PhD students, such as "*industrial PhD candidates*" should not be overlooked. These students often have their primary office space at a company or another campus but remain important ambassadors and integrated colleagues within the VET community. The committee also suggests that VET place greater emphasis on evaluating supervisor experience, including measures of success and appreciation.

Non-academic support

The VET faculty, or NMBU centrally, offers different forms of academic and non-academic support services. These are in general perceived as highly satisfactory by the PhD candidates. The PhD lunches appear appealing and provide the candidates with both a social setting and an opportunity for information and knowledge sharing. The committee finds that the writing service and statistical services offered to the PhD candidates are excellent examples of core resources offered by NMBU that can be very useful to the students and timesaving for the supervisors.

Ethical Aspects

The course "*VET400 Introduction to ethical and philosophical perspectives in biomedical research*" addresses formal ethical issues, including animal experimentation and ethics, scientific integrity and research ethics, and the Vancouver declaration. The course is mandatory for all PhD candidates. While some PhD candidates may feel that they have already taken similar courses during their former studies, the committee supports keeping VET400 mandatory for the PhD candidates to ensure all candidates have familiarized themselves with these topics. In order to further enhance the ethical reflection of the PhD candidates, the committee suggests that an assessment of ethical aspects related to the project could be included in the template for the PhD-project description that is delivered within four months after admission to the PhD program.

Artificial intelligence

Artificial intelligence (AI) is rapidly evolving, with new applications being developed continually. While AI can be a valuable resource for researchers, it also has the potential for misuse. Therefore, it is crucial for researchers at VET to have a conscious approach to which implications of AI are ethically acceptable or not in different steps of the research process. This is particularly important in educating the new generation of researchers for whom the use of AI may be more intuitive, and in the prolongation an unavoidable part of work and life. Hence, the committee recommends that ethical issues concerning

the use of AI are discussed regularly among the staff and among the PhD candidates and their supervisors.

The committee recommends that the use of generative AI in a PhD thesis should not be prohibited at VET. However, the use of such tools in PhD theses and articles must be carefully evaluated by the PhD candidates and their supervisors together. The committee further suggests incorporating a discussion on the use of AI as a separate paragraph in the project description, alongside the ethical assessment suggested above. The Faculty of Mathematics and Natural Sciences, UiO, has recently developed guidelines for the [use of generative artificial intelligence in the PhD thesis](#). Giving the audial, live conversation during the defense a higher emphasis for the pass or fail of the candidate, may be a future means to counterbalance the influence of AI on the academic environment and endeavors. The evaluation committee notes that this discussion has already been initiated at VET and encourages its continued development in a constructive and creative manner.

Mental health

Mental health issues have become a significant and growing problem among young people. Even before the COVID-19 pandemic, large international studies indicated that a high proportion of PhD candidates in Europe sought help for anxiety or depression related to their PhD studies, with these rates being higher than those in non-PhD peers of a similar age ([Levecque et al., 2017](#); [Editorial in Nature, 2019](#)). Reports suggest a high prevalence of mental health problems also among PhD candidates in Norway ([Forskning.no, 2020](#); [Forskersonen.no, 2020](#)). Factors likely contributing to this include high performance pressures, uncertain career prospects, and a lack of familiarity with university systems and available support, along with the challenge to functionally integrate a demanding work situation with a private life, marriage, children etc.

To address these challenges, systemic changes are necessary, including improved mental health support and a balanced approach to performance metrics. The NMBU website provides links to mental health resources such as [helsenorge.no](#) and [mentalhelse.no](#), which offer phone and chat services. However, these options are perceived as high-threshold and are not widely known among the candidates. The committee recommends that VET, possibly in collaboration with NMBU centrally, explore the establishment of a low-threshold, visible, support option for PhD candidates and students needing someone to talk to about mental health issues. Additionally, informal meeting arenas and social events, such as the PhD candidate lunch, could help prevent isolation and mental health problems. The committee therefore complements VET on having established such arenas. Regular, mandatory meetings between students and supervisors could also prevent frustration, isolation and/or a challenging a life puzzle.

6. Progress Management and Quality Assurance

The committee acknowledges that all PhD candidates at NMBU are required to hold three mandatory seminars during their PhD education to ensure they receive broader academic and practical feedback beyond their supervisory team. The start-up seminar encourages PhD candidates to deeply familiarize themselves with their project early on. Presenting the project plan and obtaining feedback on scope, design, methodology, and available resources, is regarded highly valuable before submitting the PhD contract for approval.

The midway assessment allows candidates to present their research in a wider scientific context and address research ethics. This evaluation is supplemented with an oral presentation and a meeting where the PhD candidate can have an informal discussion with the Head of Department to identify any supervision issues. The midterm evaluation is a crucial instrument to ensure satisfactory progress in the PhD study by visualizing necessary adjustments and identifying potential sources of conflict. This allows the PhD council to intervene early if needed. The committee note that the midterm report is perceived as something between an exam and a seminar and suggests that the examination focus be toned down. While keeping the seminars public and faculty-wide is beneficial for preparing candidates

for scientific presentation and the PhD defense, it is unclear whether such formal seminars foster open discussion about weaknesses and problems. The committee believes it is important to create a safe environment where candidates can freely discuss challenges and pitfalls rather than presenting a polished image of their project progression. The one-on-one meeting with the institute leader, held immediately after the midterm evaluation, provides the candidate with an opportunity to discuss their situation, including any issues related to supervision and social environment. In our experience, most PhD projects that do not succeed, fail primarily due to dysfunctional communication between the PhD candidate and the supervisor, while problems related to the actual project are less common. Therefore, the committee would like to emphasize the importance of this discussion.

The final seminar, which focuses on thesis writing, likely helps PhD candidates prepare for the trial lecture and public defense, while also reducing uncertainty and stress related to the last phase of their PhD work.

The committee also acknowledges the annual progress assessment reports and would like to highlight the importance of the efforts made by the PhD administration to ensure all active PhD candidates submit these reports annually.

7. Completion

The time taken to complete the study seems rather high to the evaluation committee, considering that the program is designed for three years. It appears that less than 10 % of the candidates complete their PhD within three years, but completion within six years has been consistently high over time, and above the national average. Only about 59 % of those who embarked on a PhD project in 2016 complete their PhD within six years. The long completion time may partly, but not entirely, be explained by the COVID-19 pandemic and the relocation of VET to the NMBU campus during this period. The evaluation committee further observe that the given time of completion include the one-year time for duty work (when relevant), and approved leave-of-absence. This fact may explain the apparent longer completion time for women than for men. The true completion-time is accordingly not as dramatic as the bare statistics may indicate. Reporting the time for completion excluding duty-work and approved leave-of-absence from the PhD studies would be highly relevant to evaluate the real completion time of the PhD candidates. The completion rate of VET-PhD candidates appears high in Norwegian context, and the final PhD degrees are consistently reported by the PhD evaluation committees (opponents) to be “very good” in an international standard. Less than 10 % of the PhD candidates are reported to have withdrawn from the PhD work. This fraction is quite low compared to other similar institutions. According to NMBU's PhD regulations §6-2, the maximum allowed study period for a PhD candidate is six years from the start date to the submission of the dissertation for evaluation, excluding legally mandated interruptions or approved leaves of absence. Even so, it appears that about 10 % of the candidates who started in 2015 are still registered as active. While the committee appreciates VET's flexibility in allowing candidates to complete their PhD beyond the six-year period, it remains unclear whether enforcing a strict deadline, communicated upfront to the candidates, would increase, or decrease the number of candidates who complete within six years. Keeping candidates on the program even beyond the six-years period, may affect the reported drop-out numbers. Nevertheless, the evaluation committee does not find it a prioritized area to spend resources on dissecting the reason for the few non-completed PhD candidates.

8. The educational component

PhD courses equivalent to 30 ECTS are required as part of the PhD program at VET. Among these, courses equivalent to 10 ECTS are mandatory: VET400 – Course in Research Ethics and Philosophy of Science (5 ECTS), VET420 – Writing the PhD Thesis (2 ECTS), and VET421 – Midway Assessment (3 ECTS). Additionally, up to 3 ECTS may be earned from shorter research stays abroad and up to 4 ECTS for presentations at conferences. Notably, the midway assessment, thesis writing, and shorter

stays abroad are not accredited toward the educational component at any of the universities known to the committee members, which suggests that VET allows PhD candidates to gain ECTS for activities not typically recognized by other institutions.

Furthermore, there do not appear to be any requirements stating that a minimum number of ECTS must be within the scientific discipline of the candidate. VET currently allows courses at master's level to be considered as part of the educational component. Bachelor level courses are only rarely allowed. The committee recommends that VET might consider accepting a limited number of BSc courses, which could be especially useful for PhD candidates transitioning between fields from their MSc to their PhD studies, or candidates with a veterinary or biological background who need to familiarize themselves with for instance bioinformatics or AI. A possibility is to arbitrarily offer half the credentials for undergrad courses taken by PhD students.

The PhD courses offered at VET are sufficient to enabling students to fulfill the course requirements without having to take external courses. The PhD candidates express generally satisfaction with the quality of offered VET courses but expressed a lack in the number of qualified courses. Specifically, there was an expressed need for greater diversity in PhD courses, with more specialized thematic orientations, particularly in topics not central to the VET faculty. It is the committee's impression that the number of courses offered by VET is reasonable considering the number of candidates admitted to the PhD program. The evaluation committee believes that much of the desired course diversity can be achieved through extended collaboration with other faculties at NMBU, neighboring universities in Norway, and international cooperation with Scandinavian and other European countries. International collaboration and exchange of course offerings are preferred methods to diversify the course supply while facilitating network building and research development. [Courses360](#) is a search function that enable PhD students to browse all PhD level courses available at Swedish universities. A similar initiative could be developed for Norway, Denmark, and Sweden altogether to broaden the selection, variety, and availability of PhD courses. To support this, we suggest the development of a more refined financial, logistical, and social support system for course exchange. The committee recommends that VET ensure that institutional, national and international courses are visible to PhD candidates, possibly by creating a dedicated webpage to present available courses and indicate whether they count as scientific PhD courses, MSc courses, or generic PhD courses.

Trial lecture:

The trial lecture is a mandatory part of the PhD program for Norwegian PhD candidates, testing both scientific and generic skills, the ability to critically gather information and prove independence. The committee encourage the PhD administration at VET to make it clearer to both the PhD candidates and the trial-lecture assessment committee that generic skills must be tested as part of the lecture.

The VET statistics gives no information on the number of PhD candidates who do not pass the trial lecture, but this is expected to be very low. Traditionally, the trial lecture is held earlier on the same day as the defense. It may be considered whether this is ideal, or whether the trial lecture should be moved to an earlier stage of the program, as for example within half a year ahead of the dissertation and with an internal evaluation committee.