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# Programme description for the PhD programme at the Faculty of Mathematics and Natural Sciences

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# Programme description for the PhD programme at the Faculty of Mathematics and Natural Sciences

## Part I. Programme name, qualification, learning outcomes and organization

### Name of the programme

The PhD programme at the Faculty of Mathematics and Natural Sciences, University of Bergen.

### Qualification

The PhD programme at the Faculty of Mathematics and Natural Sciences leads to the Philosophiae Doctor (PhD) degree.

### Learning outcomes

#### Knowledge

The candidate

- is in the forefront of knowledge within their field of research and masters the field's philosophy of science and methods
- can evaluate the expediency and application of various methods and processes in research and academic development projects
- can contribute to the development of new knowledge, new theories, methods, interpretations and forms of documentation within their field of study

#### Skills

The candidate

- can formulate problems, plan and carry out research and scholarly development work
- can carry out research and scholarly development work of a high international standard
- can handle complex academic issues and challenge established knowledge and practice in the field of study
- masters advanced methodological tools within the field of study
- can critically assess the ethical aspects of a research project

#### General competence

The candidate

- can identify new relevant ethical issues and carry out research with academic integrity and responsibility
- can plan and execute complex tasks and projects
- can communicate research and development work through recognised national and international channels and fora
- can communicate their own field to the public

## Organisation of the programme

### [For section 3. Responsibility for the PhD education](#)

#### Responsibilities of the faculty

The faculty itself makes decisions regarding admission to the PhD programme, appointment of supervisors, compulsory termination, appointment of an assessment committee, whether a submitted thesis is worthy of public defence for the PhD degree, correction of formal errors in the thesis and whether the trial lecture and defence can be approved.

#### Responsibilities of the department

The department head, PhD education committee at the department and supervisory committee are responsible for the daily follow-up of the PhD candidates. The aim is to ensure academic quality, feasibility, follow-up through the study programme, and the most similar framework conditions possible irrespective of the supervisory committee and research groups with which the PhD candidate is affiliated. The departments make decisions on the approval of the training component, recommend admission to the programme, approval of the trial lecture and proposals for the assessment committee.

## Part II. Admission

An application for admission to a PhD programme must normally be submitted within two (2) months after the start of the research project that will lead to the PhD degree. If there is less than one (1) year's full-time work left on the research project at the time of application, the applicant should be rejected, cf. [Section 5-2](#) of the *Regulations for the Philosophiae Doctor (PhD) degree at the University of Bergen*.

### Admission requirements

#### [For section 5-1. Admission requirements](#)

#### Education requirements

For admission to the PhD programme at the Faculty of Mathematics and Natural Sciences, the applicant is required to hold a five-year master's degree or equivalent, in accordance with descriptions in the second cycle of the Qualifications Framework. The faculty may, following a separate assessment, approve another equivalent education as the basis for admission.

The faculty may, after a comprehensive assessment, exceptionally approve admission of candidates with master's degrees from accredited institutions that have a scope of less than 5 years, but at least 4 years. This applies, for example, to foreign master's degree programmes which, after validation, are equivalent to a 4-year standard higher education Norwegian degree.

The degree must:

- 1) be a higher degree (2nd cycle of the National Qualifications Framework),
- 2) include an independent work that has a scope of at least 30 credits, and
- 3) additionally, the applicant must document relevant scientific activities (eg. scientific papers), or grades above the minimum requirements in the master's degree.

In case of doubt, the PhD programme board will assess the matter.

## Grade requirements

The average grades for the bachelor's degree specialisation, the courses in the master's degree and the master's thesis, respectively, must normally be C or better in the Norwegian grading scale. The grade limit for admission is normally calculated as 3.0 (A = 5, B = 4, C = 3, D = 2, E = 1) for the specialisation in the bachelor's degree, the courses in the master's degree and the master's thesis.

Other assessments of grade requirements can be made for applicants to special schemes such as Industrial PhD Scheme and Public Sector PhD Scheme.

## Funding requirements

Applicants to the PhD programme should normally be employed in a PhD position at UiB or collaborating institutions. Funding for the research project and cost of living must be clarified at the time of application, and applicants must have established contact with a supervisor employed at UiB.

When admitting candidates with external funding that are not employed in a PhD position at the University of Bergen or other collaborating institutions, the responsible department must assess whether the funding ensures the same good and equal framework conditions for implementation of the PhD project that other candidates have. Upon admission, a candidate will be given a number of rights, and the department must make the same commitments to those accorded to other candidates who have been admitted to the doctoral programme. If a candidate is employed by a company and is to carry out the PhD programme with a salary from the company, the latter must confirm that the applicant can spend a minimum of 50 % of the working time on the PhD project.

## Language requirements

When applying for admission, applicants with foreign degrees must document good proficiency in English according to the current requirements at the faculty.

## Application requirements for admission to the PhD programme

### Application content requirements

Applications shall be submitted on the specified application form and must contain the following:

- Funding plan
- Project description
- Plan for training component, including training that will provide general competence in accordance with the qualifications framework, academic dissemination and ethics.
- Main supervisor and co-supervisor(s)
- Documentation of special needs for academic and material resources.
- Any plans for stays at another research institution or enterprise, including institutions abroad.
- Information about any intellectual property restrictions to protect the rights of others.
- Description of any legal and ethical issues that the project raises, and how these can be clarified. The application should state whether the project is dependent on permission from research ethics committees or other authorities, or from private persons (such as informants, patients and parents). Such permissions should, if possible, be obtained and attached to the application.

## Requirements for documentation and attachments to application

Diplomas or other approved documentation of completed degrees must be enclosed when applying for admission.

An application for admission to the PhD programme shall include the following attachments:

- diplomas w/transcripts
- CV
- summary of the master's thesis, overview of the master's degree syllabus, if applicable
- PhD project description
- copy of the appointment letter/work contract/confirmation of funding

For applicants with foreign degrees, the following requirements also apply:

- diplomas, transcripts, and Diploma Supplement for all higher education which is part of the admission criteria.
- diplomas and transcripts in the original language, as well as in English or a Scandinavian language in line with applicable guidelines for these

All candidates with foreign degrees must be assessed by the faculty as to whether the scope and level of the degree and the grades attained meet the requirements for admission to the PhD programme. The assessment must be carried out before appointment to a PhD position or prior to applying for admission to the PhD programme.

For candidates with external funding who have not been appointed to a PhD position at UiB or a collaborating institution, there are additional requirements for documentation of funding, as well as a supporting letter from the department, concerning the financial obligation.

## Project description requirements

A project description must be enclosed with the application for admission. Anyone applying for admission to the PhD programme must have established contact with a supervisor employed at UiB. The project description shall be written by the candidate in cooperation with the proposed supervisory committee and will form the framework for the PhD project.

The project description should be brief and concise, normally 4-10 pages, including a reference list. The project description can have a limited number of figures.

The project description shall contain the following:

- Academic background ("state-of-the-art"). This includes the candidate's knowledge status, as well as how the planned project will add new knowledge to the specified field of research.
- Academic issue, methodology and project goals. Division into sub-tasks with associated timetable. Statement of what is expected to be achieved. Preferably testable hypotheses.
- Data basis, methods, and statistics.
- Responsibility and role shall be specified for each of the members of the supervisory committee.
- Overview of partners, stays abroad, co-participation, etc.
- Key references
- Progress plan for work on verifiable milestones. The progress plan must include a publishing plan. It must be able to be used in connection with the midway evaluation and progress reporting

Upon application for admission, the candidate must present the project description to a committee of academic staff at the department. It is recommended that the PhD Education Committee in the department

is represented in this committee. The purpose is to assess whether the project description meets the requirements in the checklist and whether the progress plan is realistic.

## Decision on admission

### [For Section 5-2. Admission decision](#)

The faculty itself makes the decision on admission to the PhD programme. The initial application assessment is carried out by the department, which processes the application in the department's PhD education committee in accordance with the applicable regulations and submits the admission for approval by the faculty. For admission of candidates with external funding who have not been appointed to a PhD position at UiB or a collaborating institution, a statement from the department and confirmation of funding shall be enclosed when the admission is submitted to the faculty.

The decision on admission is made on the recommendation from the department and is based on an overall assessment of the project description, the applicant's formal qualifications, sufficient resources for carrying out the project, and the submitted plan for PhD training.

One main supervisor and at least one co-supervisor must be appointed in connection with admission. As a main rule, all necessary agreements shall be in place at the time the decision on admission for the candidate is made, or immediately afterwards, cf. [Section 5-4](#) of the *Regulations for the Philosophiae Doctor (PhD) degree at the University of Bergen*.

If the applicant's project indicates that an affiliation with several academic environments may be necessary, a statement shall be obtained from these academic environments and their respective departments prior to admission. A tentative percentage of the input from the academic environments and any external partner should be drawn up. This shall be incorporated in the PhD agreement when it is signed.

## Agreement period

### [For Section 5-3. Agreement period](#)

## Maximum length of planned course of study, with funding

The candidate shall normally apply for admission to a PhD programme within two (2) months after starting the PhD position or after starting the research project that will lead to the PhD degree.

The scope of the PhD programme is standardized for three (3) years of full-time study. In case of statutory leaves, the agreement period is extended accordingly. It is not possible to plan completion of the PhD programme with a progression that results in a longer course of study than six (6) years, cf. [Section 5-3](#) of the *Regulations for the Philosophiae Doctor (PhD) degree at the University of Bergen*.

Admission for a shorter period than three years is granted if the candidate has already completed parts of a PhD programme, or when the admission builds upon prior employment in an educational position (research fellow, research assistant, and the like), so that the total time for the project will be three years.

Admission to the PhD programme will be terminated at the end of the funding period unless an extension is applied for.

See [Section 5-5](#) for regulations on voluntary and enforced termination before the agreed end date.

## Terms for extension of the PhD period after the end of the funding period

Cf. [Section 5-3](#) of the *Regulations for the Philosophiae Doctor (PhD) degree at the University of Bergen*, the candidate can apply to the department for the extension of the PhD period on a basis other than statutory leave of absence. The deadline for application is two (2) months after the expiry of the funding period.

The application must include a statement of what has been completed and published and what remains of the work towards the PhD degree. Confirmation from the supervisor about academic supervision during the period of extension must be enclosed with the application. The application will be processed by the department's PhD education committee. The application can be granted when the department, after an overall assessment, finds that it will be possible to complete the project during the extension period and that the department can provide necessary supervisory resources and infrastructure.

If an extension is granted, the candidate must apply for approval of the training component before the expiry of the first extension period if this has not already been done.

## PhD agreement

[For Section 5-4 PhD agreement](#)

No later than 3 weeks after receiving the admission letter, the candidate shall submit the PhD agreement to the department with necessary signatures from supervisors, department head and any external party. The PhD agreement with necessary signatures will be sent from the department to the faculty for approval by the faculty.

For candidates with external funding or employment, this shall be regulated in the PhD agreement between the University of Bergen and the collaborating party in connection with the research project concerned, cf. Section 5-4 of the *Regulations for the Philosophiae Doctor (PhD) degree at the University of Bergen*.

Significant changes in the agreement that affect the completion of the research project or the training component will result in a revision of the PhD agreement. Applications and revisions are processed by the PhD education committee at the department level. The department sends the answer to the candidate with a copy to the faculty. Major changes shall be approved by the faculty.

When work on a PhD thesis involves several academic environments, faculties or departments, or when various academic environments are the workplace for the work on a thesis, academic credit and any financial reward for the individual academic environment shall be incorporated in a separate agreement.

### Infrastructure

The department must ensure that the necessary infrastructure and equipment for implementation of the research project is available throughout the PhD period. This must also be considered in the event of an extension of admission to the PhD programme.

## Part III. Implementation - Structure and content of the programme

### Supervision (§ 6)

[For Section 6-1 Supervision and research environment](#)

The PhD programme is a supervised programme. This means that the candidate should be present on campus a significant part of the effective study time unless special conditions indicate otherwise.



## Appointment of supervisors

### [For Section 6-2. Appointment of supervisors](#)

A supervisory committee consisting of at least two members shall be appointed upon admission to the PhD programme. The committee is jointly responsible for providing academic supervision and shall consist of a main supervisor with academic responsibility and at least one co-supervisor. At least one of the members must be employed at the department with which the candidate is affiliated.

All appointed supervisors must have completed the E-course in PhD supervision in the past three years.

## Content of supervision and the duties of the supervisors

### [For Section 6-3 Content of the supervision](#)

The supervisors are obliged to stay informed of the progress of the PhD candidate's work and assess this in relation to the progress plan. The supervisors shall also be regularly available for verbal/written dialogue with the PhD candidate. Where external supervisors are involved, the internal supervisor has a particular responsibility to quality assure the project and connect the PhD candidate with relevant academic environments at the faculty.

The supervisors are to give advice on formulating and delimiting the research topic and research questions, discuss and assess hypotheses and methods, discuss results and their interpretation, discuss the structure and completion of the presentation (including outline, linguistic form, documentation), and provide guidance on the academic literature and data, including in relation to libraries and archives. Supervisors must give the candidate guidance in matters of research ethics related to the thesis.

The supervisors shall also actively participate in the planning of relevant courses and activities in the training component. Candidates and supervisors have a joint responsibility to consider the viability of publishing when selecting a research project.

Disagreements between the supervisor and candidate related to access to or having disposal of collected data, a dispute about the size of contributions to joint article projects, and disputes between copyrights etc., shall be brought in for consideration and ruling at the faculty itself. The decision of the faculty can be appealed to the Central Appeals Committee.

## Main supervisor

The main supervisor is the main person the candidate will deal with during their PhD programme. The main supervisor is the candidate's primary contact person and is responsible for ensuring that the candidate is integrated into research groups and communities. The supervisor must be updated about the candidate's project and progress.

Duties of the main supervisor:

- responsibility for following up the candidate's academic development
- primary academic and administrative responsibility for the PhD candidate
- is the PhD candidate's primary daily contact
- keep abreast of the progress of the PhD candidate's work and follow up on academic matters affecting it.
- report annually to the faculty on the progress of the candidate's PhD education and contribute to the candidate's midway evaluation.

## Co-supervisor(s)

Co-supervisors are any other experts who provide academic supervision and who share responsibility for the PhD candidate's academic progress with the main supervisor.

In cases where with a co-supervisor is employed by UiB, and the main supervisor is externally employed, the co-supervisor is responsible for integrating the candidate into relevant academic environments at UiB and being updated on regulations and procedures related to the PhD programme.

## The candidate's duties in the supervisor relationship

The PhD candidate must be in active dialogue with all the supervisors about their progression, as well as submit draft written works for discussion with the supervisors.

The candidate's duties:

- plan the PhD programme in cooperation with the supervisors and complete the agreed activities so that the agreement period can be complied with.
- inform the main supervisor about anything that could possibly affect the relationship with the supervisor and keep in regular contact about the PhD programme.
- submit written work and presentations by agreement or at the request of the supervisors.
- make the supervisors aware of and discuss any matters related to research ethics.
- report annually on progress.
- carry out midway evaluation.
- obtain documentation on completed activities in the training component, and keep supervisors informed about this.

## Termination of academic supervision

By agreement, the PhD candidate and supervisor may request the faculty to appoint a new supervisor for the PhD candidate.

A request to be released from the supervision relationship must be addressed to the faculty but sent via the department. The supervisor may not withdraw until a new supervisor has been appointed.

If a PhD candidate or supervisor finds that the other party is not complying with its obligations as specified in the *Regulations for the Philosophiae Doctor (PhD) degree at the University of Bergen* or supplementary rules and in accompanying agreements, the party that claims that a breach has occurred is obliged to take this up with the other party. The PhD candidate and supervisor shall jointly seek to find a solution to the situation that has arisen. If, following discussion, the parties have not reached agreement on resolving the situation, the PhD candidate or supervisor may request to be released from the supervision agreement. A request to be released from the supervision agreement must be sent to the faculty, which may decide to release the PhD candidate and supervisor from the agreement.

In connection with the replacement of the supervisor, the department must ensure that the candidate signs a supervision agreement with a new supervisor.

The supervisors, faculty and department must, to the greatest extent possible, ensure that conflicts over rights and any other issues that may lead to conflict are addressed early on, to avoid any risk of a delay in the PhD candidate's project.

Disputes concerning the supervisor's and PhD candidate's academic rights and obligations may be submitted by the parties for consideration and resolution by the faculty concerned. The decision of the faculty can be appealed to the Central Appeals Committee.

## Training component (§ 7)

### Training component requirements

#### *For Section 7-2 Scope of the training component*

A minimum of 20 credits in the training component shall be completed after admission to the PhD programme. Elements that are older than 5 years at the time of admission should not be included in the training component.

The content of the training component must be such that, together with the work on the thesis and previous education, it provides the necessary academic breadth and specialisation embodied in the objective of the doctoral programme. The elements of the training component shall be relevant to the PhD candidate's research project.

The training component shall comprise 30 credits and consists of the following elements:

- Courses, research courses, special syllabi, 20-22 credits
- Philosophy of science and ethics, 5 credits
- Dissemination, 3-5 credits, including presentation at international conference.

### Content of training component

#### *For Section 7-3 Content of the training component*

#### **Courses, research courses, special syllabi, 20-22 credits**

Courses that may be included:

- PhD courses
- Courses at master's level, 300- or 200- courses at master's level, max. 10 credits
  - Master's level courses at 200- or 300- level (beyond 10 credits) must be offered as a «lifted course». The course should contain syllabus or compulsory work that gives a learning outcome at PhD level.
- Research courses at PhD level
- Special syllabus at PhD level

Documentation of the scope and content of national and international research courses must be obtained by the candidate and course organiser. No reporting/examination is required beyond what may be included in the course.

The descriptions of the special syllabus shall be such that it is possible to assess their content, level, and scope. The form of assessment must also be specified. The department stipulates the form of assessment for the special syllabus included in the training component. Letter grades must be used when assessing the special syllabus.

The examiner for courses, research courses, and special syllabus must have a doctorate or equivalent competence.

### **Theory of science and ethics, 5 credits**

Candidates who have completed subjects in theory of science and ethics at PhD level at other institutions can have this recognised after academic assessment. The external subject must cover elements included in the subject in theory of science and ethics which is offered by the faculty. The academic assessment of the external subject is done by the faculty itself.

### **Dissemination, 3-5 credits**

All elements of the dissemination component shall normally be carried out after the application for admission to the PhD programme is submitted, or after the appointment to the PhD position has been made.

Activities to be included:

- Participation at international conferences with the presentation of results from own research (posters or lectures). International conferences do not include national meetings to which foreign speakers are invited. Two credits are awarded per conference. A maximum of one conference.

Other activities that can be included:

- Dissemination of knowledge courses
- Popular science contributions in own field. Up to 2 credits per contribution are given. A maximum of 2 credits.
- Seminar/lecture on individually selected subject. 1 credit. Duration: 1 lecture hour. Maximum of 1 credit.

The seminar/lecture must be open to all and announced 2 weeks in advance. The topic is proposed by the student and supervisor and approved by the department. The department appoints a committee of two members who assess the seminar/lecture. The committee sends the result of the assessment to the department. The criteria for seminars/lectures on self-selected subjects are the same as for a trial lecture on a given topic. The purpose of the lecture is to give the PhD candidate an opportunity to document their ability to disseminate research-based knowledge. The lecture should normally be structured so that it can be followed an audience with previous knowledge one could expect to find among master's students in the field of study. Both academic content and the ability to disseminate are emphasised in the assessment of the trial lecture.

Scientific articles included in the thesis do not give credits in the training component.

### **Calculation of credits**

Courses are credited with full credits according to ECTS standardization, one (1) credit per 25-30 hours of work (including self-study and exam). Courses that give less than one credit (<25 hours) are not approved, and several smaller courses cannot be combined. Half credits will not be awarded.

### **Level and grade requirements**

When making assessments in courses and/or special syllabi, the performance shall correspond to a grade of C or better. For elements with a pass/fail grade scale the pass grade must be equivalent to C or better. Letter grades must be used if a course does not have a pass/fail grade scale. Letter grades must be used for examinations in the special syllabus.

The training component can contain courses taught at other faculties or institutions. If there is doubt whether the level of a course is adequate, the course must be evaluated by a relevant academic environment at the faculty.

If previously taken exams are used in the training component, it shall be documented that they have been taken with a satisfactory result.

Recognition and assessment of elements to be included in the training component is done by the PhD education committee at the department.

If courses at a lower level are considered necessary as prerequisite knowledge for other courses or the research project, these must be taken outside the framework of 30 credits.

### **Other matters**

Applicants who have commenced a PhD programme (or equivalent) at a different institution may apply for approval of the completed part of organised research training at admission. Completed programmes must be documented in writing and the scope shall be assessed by the faculty based on the recommendation of the department where the candidate seeks admission. Activities approved under the dissemination component shall be completed after the doctoral programme at the other institution was commenced.

### **Application for approval of the training component**

At least 6 months before the agreement period at the PhD programme expires, the PhD candidate shall apply to the department's PhD education committee for approval of the training component.

The application must be approved by the supervisor and must contain all necessary documentation of the completed activities in the training component. If all elements have been previously approved by the department's PhD education committee, confirmation by the supervisor and documentation are not required.

If not all the activities have been completed, the PhD candidate attaches a plan for completing the training component that has been approved by the supervisor. Documentation of elements that have not yet been completed must be submitted once all elements in the training component have been approved.

The department's PhD education committee processes applications for final approval.

If the candidate has been granted an extended agreement period on a basis other than statutory leave of absence, and the training component has not been approved earlier, the application for final approval shall be submitted during the first period of the extension.

The training component must be completed and approved when the candidate applies to submit the thesis.

### **Approval of the training component**

The PhD education committee at the department is responsible for the content and final approval of the training component.

### **Requirements for set-up and documentation for the training component**

When applying for approval of the training component, the number of credits, year and semester must be stated for all activities. If the documentation was previously submitted and approved by the department, it is not necessary to resubmit the documentation. For activities where grades are awarded, only activities with a grade of C or better can be approved in the training component.

- **Courses**  
Course code and title. Documented by grade transcript.
- **Special syllabus**  
Title. Documentation of courses or special syllabi taken at UiB is provided by the administration to prepare the case for the department's PhD education committee. Special syllabus taken at other institutions must be documented with grade transcripts.
- **Research courses**  
Title, duration and location, programme, link to website, if applicable. Documentation/confirmation of participation in courses, copies of posters or abstracts may be required for the approval of credits.
- **International conference**  
The title, location and date of the conference, and form of presentation must be specified. The programme for the conference, list of participants (only the page containing the PhD candidate's name) and copy of the candidate's presentation or poster from the conference, approved by the supervisory committee, are required for documentation.
- **Seminar on self-selected subject**  
The title, location and date must be given. It must be documented that the seminar has been approved in line with the faculty's rules.
- **Popular science articles/popular science work**  
Reference to the articles must be given. Documentation confirming the scope, time and place of other popular science activities is enclosed.
- **Course in knowledge dissemination**  
Title, duration and place, programme or content, possibly link to website. Documentation or confirmation of participation.

## Progress reporting

### [For Section 8. Reporting](#)

The department is responsible for reviewing and following up on the annual progress reports for its candidates. This applies to both the research project and training component. The reports must be processed by the department's PhD education committee. A summary report from the department shall be submitted to the faculty and processed by the PhD programme board. The PhD programme board reviews the department's summary reports and assesses the need for systematic measures.

The progress reports are to be used to keep track of the candidates' schedule for completion. If the report from the supervisor and candidate describes problems with the progression of the candidate, the relationship between the supervisor and the candidate, or a difference of opinion about when the candidate is to submit, this must be followed up by the department.

Missing or unsatisfactory progress reporting can result in the compulsory termination of the PhD programme before the end of the agreement period. Supervisors who fail to follow up on the duty to report may be deprived of their supervisory responsibility.

## Midway evaluation

### [For Section 9. Midway evaluation](#)

Midway evaluation is compulsory and must be held no later than the end of the second year of the candidate's course of study. The department is responsible for conducting the midway evaluation.

Midway evaluations are conducted in the form of a presentation by the candidate. Ahead of the midway evaluation, the candidate must submit a written report to a committee appointed by the department. This

report should provide an account of the status of the candidate's work on the thesis and the training component. In addition, the report must provide an explicit account of any methodological and/or ethical challenges in the work.

The committee must have a minimum of 2 members. One member should preferably be the head of, or member of the department's negotiation committee. The supervisor must not be a member of the committee.

Both the supervisor and the candidate must be present at the midway evaluation, but the candidate should also speak to the committee alone after the presentation.

As a main rule, the midway evaluation will include academic input from researchers within the PhD candidate's field and/or related fields.

The midway evaluation must ensure that the candidate has a realistic time schedule for completion of the doctoral programme. A written report or feedback from the committee shall be prepared. Should the evaluation indicate that the candidate is not making satisfactory progress, a more detailed follow-up plan should be drawn up that includes a follow-up meeting with the supervisor, candidate, and representative of the department's management to be held within three (3) months. At the follow-up meeting, the midway evaluation committee must assess whether the follow-up plan is being followed. If the committee concludes that it is highly unlikely that the project will be completed, the department contacts the faculty through the chair of the PhD programme board. Information that emerges in the dialogue can be included in an assessment on terminating the course of study.

## The PhD thesis

*[For Section 10. The PhD thesis](#)*

The thesis can be written as monograph or be article-based.

The main results of the thesis must be publishable. During the work on the thesis, as a rule, parts of the work must be published internationally.

### Guidelines on an article-based thesis

The PhD thesis consists of scientific articles and an overall presentation of the scientific results with an in-depth and up-to-date summarized discussion.

Articles in the thesis must be of an academic standard required for publication in recognised peer-reviewed professional journals.

### Number of articles

Requirements for the scope of the thesis and the number of articles must not be higher than that it is possible to submit the thesis and complete the training component with a research effort equivalent to three full-time equivalents.

### Compilation requirements

An article-based dissertation must, in addition to scientific articles, contain an overall presentation of the scientific results with an in-depth and up-to-date summarized discussion. This summarizing and compilation must be a scientific document in which the candidate can elaborate, criticize, and possibly correct aspects of

the articles. It must show scientific overview and maturity, as well as the candidate's ability to penetrate specialized scientific issues.

The candidate must be the sole author of the compilation.

### Co-authorship and co-author declaration

#### [For Section 10-2. Co-authorship](#)

In the case of co-authorship, the candidate's independent efforts are identified and documented through a co-author declaration. The co-author declaration clarifies the extent of co-authorship in the individual articles. The candidate must be the sole author of the thesis' compilation.

The main supervisor is responsible for obtaining and summarising statements from co-authors into a co-author declaration, also in cases where the main supervisor has not published together with the candidate. The co-authorship declaration must be enclosed when the thesis is submitted for assessment.

### Guidelines for monographs

A monograph should aim to have a distinct focus and be clearly delimited. It should provide a clear description of the research question, theory use, methods, and procedures for data collection and analysis. It must be evident how the thesis relates to and contributes to other research in the field of study. It must be stated if parts of the monograph have already been published as part of another work.

If a dissertation in the form of a monograph is based on underlying publications with several co-authors, the dissertation shall be submitted with co-author declarations for all relevant publications.

### Language of the thesis

#### [For Section 10-4. Language](#)

The thesis must be written in English or Norwegian. The thesis must contain a summary in English and one in Norwegian.

## Part IV. Completion

### Application for assessment

#### [For Section 11-1. Submission of application for assessment](#)

The candidate applies to the department to have the thesis assessed no later than 12 weeks before the scheduled public defence. If the thesis is handed in between 20 June and 15 August, four weeks extra are added due to holiday period. If the thesis is handed in between 10 December and 4 January, two weeks extra are added due to holiday period.

The candidate shall submit the following as attachments to the application:

- *For an article-based thesis:* A **co-author declaration** on the candidate's efforts in joint works. The co-author declaration shall show an overview of the candidate's independent contribution to joint work and articles. The declaration must be in English and must be drawn up and signed by the main supervisor. See also the headline [Section 10-2 Co-authorship](#).



- *For a monograph: Supervisor's statement* where the main supervisor signs that she/he has been informed that the candidate will submit their thesis.
- A digital version of the thesis.

The training component must be finally approved before the candidate can apply for assessment of the thesis.

The thesis shall be assessed as submitted. [Cf. Section 11-1](#) of the regulations, a submitted work cannot be withdrawn until it has been finally decided whether it is worthy of a public defence for a PhD degree. A thesis is not considered submitted until the candidate has submitted the application for assessment together with the thesis and the co-author declaration to the department.

## Appointment of assessment committee

[For Section 11-2. Appointment of assessment committee](#)

### Proposal for assessment committee

The department submits proposals for an assessment committee to the faculty no later than 10 weeks before the scheduled public defence.

The supervisory committee, possibly in consultation with the head of the research group, submits a written proposals for an assessment committee to the department.

The faculty itself approves the application to have the thesis assessed and appoints the assessment committee no later than 9 weeks before the scheduled defence.

*Cf. Section 11-2 of the Regulations for the Philosophiae Doctor (PhD) at the University of Bergen, the candidate shall be notified of the proposal for the composition of the committee, and may submit written comments no later than five (5) working days after the department has sent the proposal to the faculty. The faculty informs the candidate when the thesis is submitted to the assessment committee.*

### Composition of assessment committee

The assessment committee consists of at least three members: an internal committee chair and two external equally ranked opponents. The internal committee chair must normally be an employee at the department. The committee must normally have at least one member from an international institution, and both genders must normally be represented, also among the opponents. See [Section 11-2](#) and [Section 15-3](#) of the *Regulations for the Philosophiae Doctor (PhD) degree at the University of Bergen* for further composition requirements.

All members must have a doctoral degree or an equivalent academic qualification. This must be documented if it is not evident from the person's title. For members of the committee who do not have research as their main occupation, it is a requirement that ongoing scientific activities be documented.

If the criteria for the composition of the committee are deviated from, the department must justify this separately. The justification must be approved by the faculty.

### Impartiality

Opponents cannot normally have commenced publication collaboration, co-authored publications over the last three (3) years, or other collaboration with the candidate or supervisory committee to be considered

impartial. The committee chair cannot normally have commenced publication collaboration, co-authored publications over the last three years, or other collaboration with the candidate to be considered impartial. This means that the actual collaboration must have ended before the last three (3) years. Reference is made to the legal provisions on impartiality in *Sections 6-10* of the Public Administration Act. The department collects the declaration of impartiality from the proposed committee members.

### Committee chair

The head of the committee administers the committee's work but must also participate actively in the assessment of the thesis. The committee chair is responsible for quickly establishing contact with the external members and informing them about what the work entails, and about the Norwegian scheme for the assessing PhD theses. The chair must ensure that deadlines are met, that the assessment meets the requirements for academic quality and that the external committee members are made aware of the entire assessment process.

Furthermore, the chair is responsible for ensuring that the recommendation is signed by all three members. The recommendation with original signatures from all committee members must be available at the latest in connection with the public defence.

### Guidelines for use of time

Within five (5) weeks after appointment, and no later than four (4) weeks before the public defence, the committee normally issues a substantiated recommendation to the faculty on whether the thesis is worthy of being defended for the PhD degree. The PhD candidate is given a deadline of 10 working days to present written comments to the assessment committee's recommendation.

### Guidelines for the committee's recommendation

[For Section 11-3. The committee's recommendation and the candidate's remarks](#)

The recommendation shall determine whether the qualitative and quantitative scientific requirements of a three-year Ph.D. degree are met, and whether the thesis is worthy of a public defence.

The assessment committee submits a joint written recommendation. The conclusion on whether the thesis is approved or not approved for public defence must be clear. The assessment committee cannot approve a thesis under the condition that changes will be made to the thesis.

The joint coordinated recommendation must contain the following elements:

- Subject area of the thesis and the scientific field to which the thesis is a contribution
- Compilation of the thesis
- Outstanding and important theoretical and/or experimental details
- Technical qualities (structure, written presentation and general impression) of the thesis should be briefly commented on
- Discussion of the scientific significance of the thesis and key aspects related to theoretical framework, hypotheses, data, methodology and findings.

Any individual comments from each member may be enclosed with the recommendation.

## Minor reworking

### [\*For Section 11-4. Minor reworking and rejection of the submitted thesis\*](#)

The assessment committee can, based on the submitted thesis and any additional material, recommend that the faculty itself gives permission for minor reworking before a final recommendation is made. The candidate's deadline for revision is three (3) months. A final recommendation from the committee must be available four (4) weeks after the new submission.

## The faculty's procedures relating to the assessment committee's recommendation

### [\*For Section 12. The faculty's procedures relating to the assessment committee's recommendation\*](#)

Based on the evaluation committee's recommendation, the faculty itself decides whether a PhD thesis is worthy of being defended. The dean can approve a committee recommendation when it unanimously concludes that the PhD candidate is granted permission to defend the thesis.

## Thesis ([Section 14](#))

### [\*For Section 14-1. The format of the thesis\*](#)

Once the thesis has been found worthy of public defence, the candidate shall print or make the thesis available according to further regulations from the faculty.

## Abstract

The PhD candidate must prepare an abstract in English and in Norwegian (1-3 pages), with the aim of making the thesis and its results known to national and international researchers (see also [section 10-4](#)). The abstract must accompany the thesis when it is submitted for assessment.

## Guidelines for errata

### [\*For Section 14-2. Correction of formal errors in the thesis\*](#)

A PhD thesis must be assessed exactly as submitted. The candidate can apply once to correct formal errors that do not affect the academic content, before the final version of the thesis is printed and/or published in BORA.

Formal errors include correcting typos and pure language errors, missing punctuation, correcting references, page layout, text format, etc. Correcting formal errors means that the text can be made more meaningful or linguistically correct, the meaning of the text cannot be specified or changed. Changes to tables are not accepted as errata.

The regulation that no substantive changes can be made also applies if the candidate is notified before the defence that a submitted article has been approved or published by a publisher, but in revised form. It is the submitted article script that is to be used as a basis for the defence, but the candidate can refer to the final journal article in the preface to the thesis that is printed for the defence.

An approved errata list must always accompany the thesis when changes are made. Neither the corrected version of the thesis nor the errata list must be sent to the assessment committee.

The deadline for applications to correct formal errors is no later than one week after the candidate has received the recommendation. The application must include an errata list showing the corrections the

candidate wishes to make in the thesis. The errata list is sent to the department, the department considers whether the requested changes can be approved as formal errors and sends the errata list to the faculty for approval and signature. The errata list is added as an insert to the thesis, which is available during the defence.

## Publication

### [For Section 14-3 Publication](#)

The thesis must be publicly available no later than two weeks before the public defence. The only exception is an agreed postponement of the publication, see in this case [Section 14-3](#) of the *Regulations for the Philosophiae Doctor (PhD) degree at the University of Bergen*.

## Press Release

### [For Section 14-4. Press release](#)

No later than 3 weeks before the defence, the candidate, in consultation with the supervisor, must write and deliver a press release in Norwegian. The press release must be written in accordance with the current template and the content must be quality assured at the department before it is sent to the faculty. The faculty is responsible for publishing the press release no later than two weeks before the public defence.

Upon request, the candidate can also deliver a press release in English.

## Trial lecture and public defence ([Section 15-1](#))

### Trial lecture

#### [For Section 15-2 Trial lecture](#)

The trial lecture shall be held after submission of the thesis and shall normally be held no later than 3 weeks before the public defence.

The trial lecture is organized by the department. The head of department or the person he/she authorizes appoints a separate committee to assess the trial lecture. The committee for the trial lecture must consist of at least three members and normally both genders must be represented. The committee may have the same chair as the dissertation's assessment committee. All committee members can be employed at UiB. All members must hold a doctorate or equivalent qualifications.

### Subject of trial lecture

The subject of the trial lecture is decided by the department. To ensure similar practices, the PhD education committee at the department must be involved in determining the topic of the trial lecture. The topic of the given subject must not be obtained from the key issues in the PhD thesis.

The PhD candidate is informed of the subject of the trial lecture ten (10) working days before the lecture.

## Contents

The trial lecture must last 45 minutes. The purpose of the trial lecture is for the PhD candidate to document the ability to communicate research-based knowledge. The lecture should normally be structured so that it can be profitably followed by an audience with prior knowledge one would expect to find among master's

students in the field of study. In the assessment of the trial lecture, emphasis is placed on both academic content and ability to communicate.

### **Language**

Trial lectures can be held in Norwegian or in English. The language of the trial lecture is decided by the department.

### **Not approved trial lecture**

If the committee does not approve the trial lecture, the candidate is given the opportunity to try again. A date of the new trial lecture and any new date for the public defence must be agreed as soon as possible and must take place within six (6) months. A new trial lecture must normally be held on a new topic and as far as possible, with the same committee. In cases where the committee does not approve the trial lecture, the committee's report must give the candidate clear instructions on which matters must be corrected.

An approved trial lecture must be passed before the public defence may take place.

### **Public defence**

[For Section 15-3. Public defence](#)

#### **Place and date**

The public defence will be held at the University of Bergen. PhD candidates who have their place of work at UNIS can hold their public defence at UNIS after applying to the department.

The faculty announces the time and place of the public defence at least ten working days before the defence takes place. No disputations are held in the month of July.

#### **Opponents**

The two external members of the assessment committee act as opponents during the public defence. The opponents hold equal rank during the public defence.

#### **Chair of public defence**

The head of department chairs the public defence on behalf of the dean, according to a template for the implementation. If she/he is prevented, the defence can be led by a deputy chairperson or a professor/associate professor at the department. The PhD candidate's supervisors or the administrator of the assessment committee cannot lead the public defence.

#### **The public defence**

The public defence is held in English but can be held in Norwegian upon application.

The department's member of the committee (the committee chair) instructs the other members about the framework for a defence at UiB. It is expected that the opponents provide both an overall academic quality assessment of the thesis, and a more in-depth treatment of the thesis or key parts of it. During the defence, the opponents are equal and agree between themselves on who starts and who concludes the opposition.

If an opponent has assessed the thesis and written a recommendation but still does not have the opportunity to attend the defence due to unforeseen events, a substitute opponent must be appointed for

the defence. The substitute opponent can be an employee of the faculty. The substitute opponent must be impartial in relation to the candidate.

Provided they have the opportunity, the original opponent writes their questions down for the public defence and sends them to the committee chair. The substitute opponent conveys these questions during the defence. If the original opponent does not have any opportunity to write down questions, the substitute opponent must become familiar with the thesis, and participate as an opponent during the defence. A substitute member must also be appointed if an internal member of the committee cannot participate.

## Procedures for the public defence

**The chair of the public defence** opens the public defence.

### **The PhD candidate**

The PhD candidate presents their scientific work, both objectives and findings/results before the scientific discussion starts. The presentation should last approximately 30-40 minutes.

### **The opponents**

Two members of the assessment committee act as opponents. The distribution of the tasks between the opponents is agreed in advance and communicated to the chair of the public defence.

The opponent who speaks first gives a short summary (5-15 minutes), addressed to the audience, in which the PhD candidate's scientific work is placed in an international context. The opponent then proceeds to examine the PhD candidate.

Afterwards, the other opponent examines the PhD candidate.

The chair of the public defence then takes questions from the auditorium. Other persons present who wish to comment ex auditorio must notify the defence chair within the time frame determined by the chair.

After the defence has ended, the assessment committee holds a short meeting. The defence chair then informs about the committee's assessment of the defence.

The thesis must be available to the audience during the public defence.

### **Result of the public defence**

Upon conclusion of the defence, the assessment committee signs a report on a special form (Final report). Finally, the chair of the defence signs the final report as an approval of the defence. The final report must be submitted to the department.

If the public defence is not approved, reasons must be given.

## Quality assurance ([Section 4](#))

### Evaluation system for the PhD programme

UiB has developed a [quality assurance system](#) to help ensure that PhD candidates complete theses of high academic quality and ensure that the education is carried out within the prescribed time limit as far as is possible. The quality assurance system shall also help ensure that PhD theses from the University of Bergen adhere to accepted standards of good research practice and applicable regulations.

### **Composition of the PhD programme board**

The programme board consists of the chair (Vice-Dean), one representative from each of the departments (chair of the negotiation committee at the department) and two PhD candidates. The faculty administration provides the secretarial function for the programme board.

### **Evaluation system for the PhD programme**

The faculty is responsible for the elements in the quality assurance system that are delegated to the programme level. The PhD programme board follows up this responsibility in collaboration with the faculty management.

### **PhD programme report**

The PhD education committee at the department annually prepares a PhD programme report that includes key figures and provides a status update from the previous year. Any issues at the department are followed up with dialogue meetings between the faculty and the department.

The faculty's PhD programme report is prepared annually by the faculty based on the departments' reports and constitutes a basis for assessing whether measures should be introduced in the PhD programme.

### **Progress reporting**

The annual progress report from the individual candidate and the main supervisor is reviewed by the departments, which adopts follow-up and introduction of measures in the individual PhD course. The PhD programme board reviews the department's summary reports and assesses the need for systematic measures.

### **Midway evaluation**

The midway evaluation provides an overview of the progress of an individual PhD course and will reveal any delays with regard to the planned progress. The department that the candidate is affiliated with is responsible for following up candidates where a worrying level of progression is revealed in the midway evaluation.

### **Employee appraisal interviews and follow-up conversations**

All PhD candidates employed by UiB should have an annual appraisal interview in line with UiB's Employee Handbook. All PhD candidates who are not employed by UiB should be offered an annual follow-up conversation. The follow-up conversation should be an arena to discuss the candidate's scientific work situation in the coming period.

Responsibility for carrying out the follow-up conversation lies with the academic leader at the department.

### **Candidate survey**

All PhD candidates that have completed the programme are given the opportunity to evaluate the PhD programme in connection with the doctoral degree awards ceremony. The faculty analyses the results of the candidate survey with a view to taking possible steps.

### **Programme evaluation**

Every six years, an external committee, appointed by the faculty, will examine the PhD programme in its entirety: information to potential applicants, admission, measures underway and the quality of the completed research.

The purpose of the evaluation is to provide advice on the potential for improvement, in terms of throughput and quality.

### **Course evaluation**

All courses at PhD level at the Faculty of Mathematics and Natural Sciences will be evaluated every three years. The unit (the faculty or department) that is responsible for implementation of the individual course is responsible for carrying out the evaluation, and for reporting to the PhD programme board within the set deadline.

### **Evaluating the framework of the training component and course portfolio**

When necessary, the PhD programme board annually assesses the framework for the training component and the scope of the course portfolio, and the need to change the framework, create or discontinue courses.