



UMEÅ UNIVERSITET

Information material

Faculty-wide doctoral programme at the Faculty of Medicine

Overview of the doctoral programme

The faculty-wide doctoral programme comprises 25 credits and is offered in two study variants: 25 credits spread over 8 terms (a total of 4 years) or over 12 terms (a total of 6 years), starting each autumn and spring semester.

The doctoral student is admitted to the programme either over 4 or 6 years. Under normal circumstances s/he should start the programme the following semester after admission to doctoral studies, and then follow his/her class and base group for the duration of the programme. If required, exceptions to this can be granted to meet the needs of the individual student. For example, a doctoral student can, if necessary, switch from the 4-year programme to the 6-year programme, or vice versa. A doctoral student admitted to the 6-year programme can also be granted to start the programme one year after admission to doctoral studies and finish the doctoral studies one year later after the programme ends, for doctoral studies extended over 8 years. In those cases, the time enrolled doctoral education before and after the programme is devoted to individual doctoral studies, for example starting up studies in the beginning and writing the cover story in the end.

The portion of the doctoral studies that is not dedicated to programme activities is used for individual doctoral education, with flexibility when it comes to total activity over the semesters and years, depending on the varying needs and prerequisites of the doctoral student. Note that doctoral students employed in the form of a PhD student position ("Doktorandtjänst") still need to have a minimum activity of 50%.

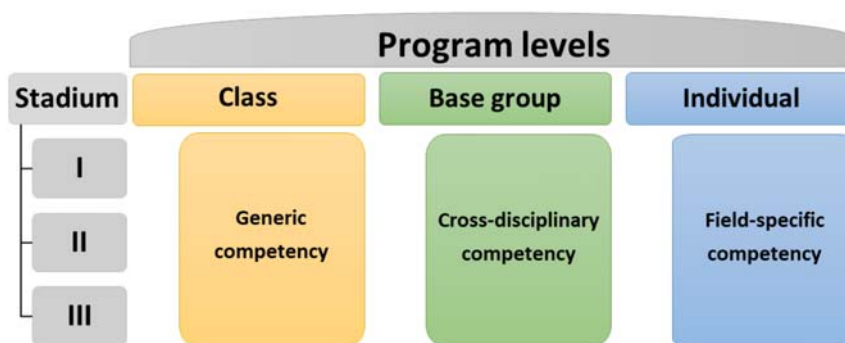
The programme activities are adapted to meet the different needs and conditions of doctoral students, for example doctoral students engaged in clinical work, who are stationed in the region, or international doctoral students. With some exceptions, e.g. the first programme course semester 1, the programme courses are given digitally and can thus be completed on distance. Programme courses on consecutive semesters are given with a non-overlapping schedule, so that each course can be taken at a later date if participation according to the original schedule is not feasible. The work in the base groups (below) will comprise individual preparation and group meetings with considerable flexibility when it comes to the timing and form of the meeting. Specifically, the exact meeting time is decided within the group, and the meeting can be conducted through physical meeting, digital meeting, or a mix.

Structure of doctoral programme

The aim of the programme is to support individual progression towards the outcomes for the Degree of Doctor, offer opportunities for exchange across subject- and departmental boundaries, and offer doctoral education on equal terms. The overall structure of the programme is illustrated in **Figure 1**.

The programme levels consist of three levels of *class*, *base group* and *individual*. Stages I, II and III illustrate the thematic content of the programme over time and is described in greater detail below.

Figure 1. Overview of the structure of doctoral programme in medical science.



The *class level* corresponds to the group of all doctoral students admitted to the programme during the same semester and who will follow each other throughout the programme. Activities on class level are chiefly mandatory courses according to the programmes schedule (described below). The purpose of the class level is to support the individual progression by providing a knowledge base regarding generic knowledge and skills and common perspectives for all doctoral students.

The *base group* level consists of groups of approx. 8 students within the same class who will follow the group during the program. The base group level is intended to offer a concrete platform for an interdisciplinary exchange. The aim is to support the individual progression through application and deepening of knowledge and skills introduced in the programme courses and offer a space where dialogue about the doctoral students' scientific products and challenges can take place in interaction with other doctoral students.

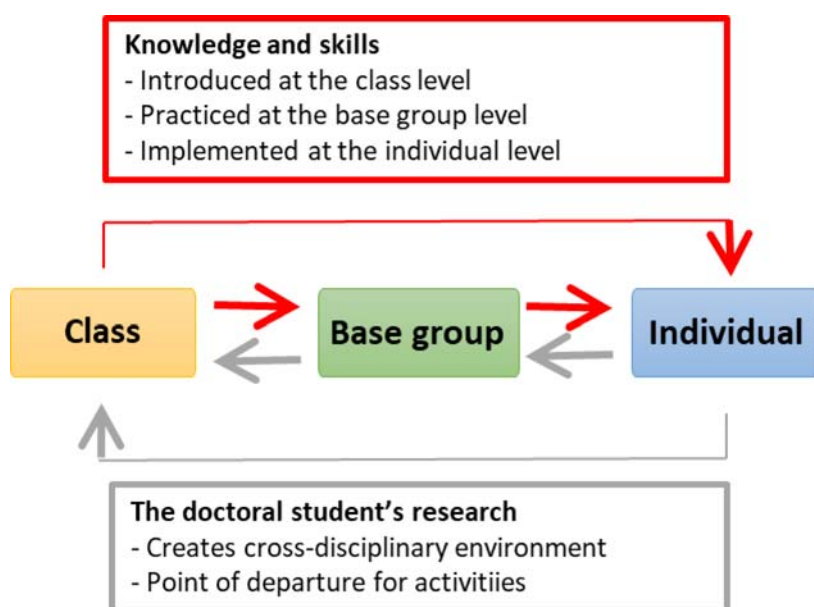
The base groups meet outside course time 2-4 times per semester according to a flexible schedule. The base group meetings take place in seminar form with a predetermined content and with the starting point in the scientific work produced by the doctoral students. The groups are led by base group supervisors who are recruited from the faculty's teaching and researching staff. The main role of the base group supervisor is to moderate base group meetings.

The *individual level* corresponds to each doctoral student's individual postgraduate education taking place at her/his department. The education at the individual level is, except for the pre-doc exchange, not part of the doctoral programme as such, but is an important point of departure for activities at the class and base group level. The general purpose of the individual level is chiefly to provide specific subject and methodological knowledge in the doctoral student's field of research.

The principles for mutual interplay between the programme levels are illustrated in **Figure 2**. Knowledge and skills acquired by participation in programme courses (class group level) can be directly applied in the doctoral student's research (individual level). Furthermore, content introduced at courses (class level) will be practiced in the base groups (base group level) to promote application in their own research (individual level).

The diversity of the individual doctoral students' scientific perspectives (individual level) also contributes to and ultimately creates the interdisciplinary environment at the programme (base group and class levels), and the doctoral students' scientific products and challenges (individual level) will be the starting point for many of the activities in the base groups (base group level) and courses (class level).

Figure 2. Principles for interplay between programme levels



Content of doctoral studies - general

The doctoral education consists of:

1. Doctoral programme activities, corresponding to 25 credits, and
2. Individual part (215 hp), which includes
 - a. Writing a doctoral thesis, corresponding to at least 180 credits, and
 - b. Additional credit-bearing activities of at least 5 credits

Compulsory training

In addition to the doctoral programme, the following educational elements are compulsory:

- Presentation at at least one national/international conference (1.5 credits), applies to all doctoral students
- Course in experimental animal knowledge, *if* research with laboratory animals is included in the thesis project:
- Course in Good Clinical Practice (GCP), *if* clinical human research is included in the thesis project:
- Course in statistics, *if* statistical analysis is included in the thesis project
- Course in qualitative methods, *if* qualitative analysis is included in the thesis project

In order to achieve the learning outcomes, additional subject-specific educational elements may be required, such as elective third-cycle courses, active participation in the department's seminars and journal clubs, further presentation at national/international conference, extended research stay at another university and/or participation in higher education pedagogical education. Decisions on subject-specific educational elements are made in consultation between doctoral students, supervisors and examiners in connection with defining the individual learning outcomes, which will promote fulfilment of the local/national learning outcomes.

Content of the faculty-wide doctoral programme

Overview of the content of the programme

The content of the doctoral programme is based on national and local learning outcomes. The content can be summarized as a triad of intertwined pedagogical themes: sustainable development, cross-disciplinary competence, and knowledge translation.

Sustainable development - Within the framework of the programme, sustainable development is a platform for defining and reflecting on authentic complex challenges where medical research plays an important role. One of the basic tenets of a sustainability perspective is that no single discipline is sufficient to solve global challenges, and that ability to cooperate across disciplinary boundaries is a central competence. Work for sustainable development therefore requires cross-disciplinary competence.

Interdisciplinary competence means an ability to participate in and contribute to a constructive cross-disciplinary dialogue. It includes an understanding and reflective approach to one's own disciplinary home and preunderstanding, as well as knowledge about and a respective attitude towards the point of departures of other disciplines. A good cross-disciplinary competence distinguishes a researcher with a subject depth within his own discipline, but who also is able to engage in constructive dialogue with researchers from other disciplines. Cross-disciplinary competence creates preconditions for knowledge translation.

Knowledge translation includes the turnover of scientific knowledge into, or in the direction of, practical application. Knowledge translation is a prerequisite for utilization of scientific knowledge more generally and is ultimately necessary to contribute to solutions to challenges for sustainable development. It may include translational research or collaboration with actors outside academia, such as communication of research results, collaborative projects and other activities that promote the application of research.

Credit-bearing elements within the programme

Stage I. Doctoral students are introduced to the programme's three pedagogical themes as well as philosophy of science. During subsequent base group meetings, doctoral students deepen and solve assignments that are given and examined within the framework of the introductory course, with the aim of establishing the base group work and common starting points.

Stage I also includes a course in research ethics. Base group meetings focus on presentation and discussion of all base group members' PhD projects, including ethical aspects. This is the first focused activity for the doctoral students to get to know each other's different disciplines and scientific approaches and therefore is a foundation for the continued base group work.

Stage II focuses on different forms of scientific communication and interaction, which are introduced in courses in research writing and oral presentation techniques. In these courses, the skills in giving and taking feedback will also be processed.

Base group work in the second stage is carried out based on the content of the courses and scientific products emerging from the doctoral students. At the base group meetings, doctoral students will present article manuscripts for presentation and discussion. Before the mid-term seminar, base group activities will consist of training presentations, where the doctoral students present the background to the mid-term seminars, and act as reviewers on another base group member's oral presentation and draft.

These activities will support development in cross-disciplinary competence and also give doctoral students the opportunity to give and receive feedback on articles, thesis drafts and presentation for the mid-term seminar. The feedback may to varying degrees focus on the specific scientific content of the texts and generic feedback on the academic text and presentation. For the latter, the base groups will be able to use the analytical tools they have acquired in the courses of research writing and oral presentation.

During the second stage, the doctoral students also conduct a so-called pre-doc exchange in a different scientific environment than their home institution. The pre-doc exchange can be carried out in two ways: either individually arranged exchange at another university within or outside Sweden, or exchange with the institution of another base group member corresponding, to a total of at least 1 week at full time. It is also possible to extend the pre-doc up to 4 weeks fulltime. The pre-doc exchange at another higher education institution promotes internationalization, while local exchange provides the opportunity to practice cross-disciplinary skills. The timing of the pre-doc exchange is flexible and individually arranged. Exchange at another university within or outside Sweden is encouraged.

Stage III. The stage focuses on activities that are relevant for the completion of the thesis, the public defence, and the time after the public defence.

Stage III contains courses in grant application writing and in knowledge translation. The course in grant application writing is placed approximately one year ahead of finish the doctoral studies and designed to encourage doctoral students to start preparing early for a continued academic or research career. The following course in knowledge translation involves a return to the common starting points introduced during stage I and gives the doctoral students skills in communicating their research to a wider audience, as well as the opportunity to reflect on the application of their research and future research.

During the base group work, ideas and early drafts for grant applications will be presented and discussed. As in Stage II, this activity has dual purposes; to promote interdisciplinary competence, and to give possibilities for mutual ideas and drafts to applications, and the discussion may to varying degrees be about the scientific content or presentation of the ideas.

The final base group work focuses on preparations for the completion of the thesis, with a focus on structure and general content of the cover story to the thesis. The thesis shall include a section where the completed research is highlighted from a sustainability, interdisciplinary and translational perspective. The content of this paragraph will be discussed within the base groups.

Overview of activities and credits within the programme

Stage I: Joint point of departures

Activity	Credits	Semester (4yr)	Semester (6yr)
Course: Joint point of departures for science and research	4	1	1
Course: Research ethics	2	2	2
Base group: Project presentations	1,5	2	2-3

Stage II: Joint tools

Activity	Credits	Semester (4yr)	Semester (6yr)
Course: Research writing	5	3	4
Base group: Manuscript seminars	2	3-5	4-7
Course: Oral presentation	1,5	4	5
Base group: Mid-term seminar	1,5	4	5-6
Individual: Pre-doc exchange	1,5*	5**	7**
*Can be extended to a longer exchange of maximum 6,5 credits ** Suggested semester, but flexible and planned individually			

Stage III: Joint action

Activity	Credits	Semester (4yr)	Semester (6yr)
Course: Grant application writing	2,5	6	8
Base group: Application seminars	1	6	8-9
Course: Knowledge translation	1,5	7	10
Base group: Cover story	1	7	10

Examination of national and local learning outcomes for the Degree of Doctor

National outcomes	Programme level	Activity*	Examination
Knowledge and understanding			
1. demonstrate broad knowledge and systematic understanding of the research field	<i>Class level</i>	- Joint point of departures	Course director
	<i>Base group level</i>	- Common perspectives - Project presentation - Manuscript seminars - Mid-term seminar - Application seminar	Course director
	<i>Individual level</i>	- Field-specific activities - Pre-doc exchange	Examination committee Individual examiner
2. demonstrate advanced and up-to-date specialised knowledge in a limited area of this field,	<i>Individual level</i>	- Field-specific activities - Pre-doc exchange	Examination committee Individual examiner
3. demonstrate familiarity with the research methodology in	<i>Class level</i>	- Joint point of departures	Course director
	<i>Base group level</i>	- Common perspectives	Course director

general		- Project presentations - Manuscript seminars - Mid-term seminar - Application seminars - Cover story seminars	
	<i>Individual level</i>	- Field-specific activities - Pre-doc exchange	Examination committee Individual examiner
4.demonstrate familiarity with the methods of the specific field of research in particular.	<i>Individual level</i>	- Field-specific activities - Pre-doc exchange	Examination committee Individual examiner
Competence and skills			
5. demonstrate the capacity for scholarly analysis and synthesis as well to review and assess new and complex phenomena, issues and situations autonomously and critically	<i>Class level</i>	- Joint point of departures	Course director
	<i>Base group level</i>	- Project presentations - Manuscript seminars - Mid-term seminar - Application seminars	Course director
	<i>Individual level</i>	- Field-specific activities - Pre-doc exchange	Examination committee Individual examiner
6. demonstrate the ability to identify and formulate issues with scholarly precision critically, autonomously and creatively, and to plan and use appropriate methods to undertake research and other qualified tasks within predetermined time frames and to review and evaluate such work	<i>Class level</i>	- Grant writing	Course director
	<i>Base group level</i>	- Manuscript seminars - Mid-term seminar - Application seminars	Course director
	<i>Individual level</i>	- Field-specific activities	Examination committee Individual examiner
7. demonstrate through a dissertation the ability to make a significant contribution to the formation of knowledge through his or her own research	<i>Individual level</i>	- Field-specific activities	Examination committee
8.demonstrate the ability in both national and international contexts to present and discuss research and research findings authoritatively in speech and writing and in dialogue with the academic community and society in general	<i>Class level</i>	- Academic writing - Oral presentation - Knowledge translation	Course director
	<i>Base group level</i>	- Project presentations - Manuscript seminars - Mid-term seminar - Application seminars - Cover story seminars	Course director
	<i>Individual level</i>	- Field-specific activities	Examination committee Individual examiner
9.demonstrate the ability to identify the need for further knowledge and	<i>Class level</i>	- Grant writing - Knowledge translation	Course director
	<i>Base group level</i>	- Application seminars - Cover story seminars	Course director
	<i>Individual level</i>	- Field-specific activities	Examination committee Individual examiner
10. demonstrate the capacity to contribute to social development and support the learning of others both through research and education and in some other	<i>Class level</i>	- Joint point of departures - Knowledge translation	Course director
	<i>Base group level</i>	- Common perspectives - Project presentations - Manuscript seminars	Course director

qualified professional capacity.		- Mid-term seminar - Application seminars - Cover story seminars	
	<i>Individual level</i>	- Field-specific activities	Examination committee Individual examiner
Judgement and approach			
11. demonstrate intellectual autonomy and disciplinary rectitude as well as the ability to make assessments of research ethics, and	<i>Class level</i>	- Research ethics	Course director
	<i>Base group level</i>	- Project presentations - Mid-term seminar - Application seminars - Cover story seminars	Course director
	<i>Individual level</i>	- Field-specific activities	Examination committee Individual examiner
12. demonstrate specialised insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used.	<i>Class level</i>	- Joint point of departures - Research ethics - Knowledge translation	Course director
	<i>Base group level</i>	- Application seminars - Cover story seminars	Course director
	<i>Individual level</i>	- Field-specific activities	Examination committee Individual examiner
Local outcomes			
13. demonstrate broad knowledge in the field of general scientific theory and in the field of medical science in particular	<i>Class level</i>	- Joint point of departures - Knowledge translation	Course director
	<i>Base group level</i>	- Common perspectives - Cover story seminars	Course director
	<i>Individual level</i>	- Field-specific activities	Examination committee Individual examiner
14. demonstrate a good ability to relate the student's own research to other current medical research and by extension to clinical application	<i>Class level</i>	- Joint point of departures - Knowledge translation	Course director
	<i>Base group level</i>	- Common perspectives - Project presentations - Manuscript seminars - Mid-term seminar - Application seminars - Cover story seminars	Course director
	<i>Individual level</i>	- Field-specific activities	Examination committee Individual examiner
15. Demonstrate a good ability to relate to the complexity of medical research, its ethical aspects and its impact on individuals and society and other social benefit	<i>Class level</i>	- Joint point of departures - Research ethics - Knowledge translation	Course director
	<i>Base group level</i>	- Common perspectives - Project presentations - Manuscript seminars - Mid-term seminar - Application seminars - Cover story seminars	Course director
	<i>Individual level</i>	- Field-specific activities	Examination committee Individual examiner