

Research Studies Board

## **GENERAL STUDY PLAN FOR DOCTORAL STUDIES IN MEDICAL SCIENCE**

Scope: 120 credits

Qualification: Degree of Licentiate

Details of approval: Approved by the Research Studies Board on 10 December 2018

Applies from: 1 January 2019

*This is a translation of the Swedish version. In the event of any discrepancy, the Swedish version has preferential interpretation.*

## 1. OBJECTIVES

The principal aim of doctoral programme in medical science is to train researchers who can drive development within medicine and health forwards, through their own discoveries and through the critical review and introduction of new experiences methods within the healthcare system.

## 2. THE SUBJECT

### 2.1 Research studies subject

The subject of medical science in this context is a collective term for research that aims in different ways to promote people's health and prevent ill-health as well as mitigate and cure diseases. The subject encompasses everything from studies of cells to society such as

- medically relevant models in vitro and in vivo with perspectives from molecular genetics, chemistry, cellbiology, physiology and pharmacology
- explanations of common and uncommon diseases and conditions, and the development of new diagnosis and treatment methods and as well as new types of healthcare
- the significance of lifestyle, environment, society structure, working life and the healthcare system for health at individual, group and population levels
- health-promoting interventions and knowledge about how they can be implemented
- professional and organisational developments of relevance to medical science and health science.

### 2.2 Focus area

For each admission of a doctoral student, a focus area is to be defined within which research is to be conducted (the list of areas of focus areas is in appendix 1). If the proposed project does not fit in with any of the set focus areas, another focus area can be chosen, with a justification of why no other focus area can be selected.) The individual study plan is to state how the doctoral student is to obtain broad knowledge and a systematic understanding of the focus area in question as well as the methods of the focus area.

### 2.3 Project

The research project is described in the individual study plan. The project is unique to each doctoral student and the individual study plan is to clearly present how the doctoral student is to acquire the knowledge and methods required to conduct the project.

## 3. LEARNING OUTCOMES

The doctoral programme shall be based fundamentally on the knowledge acquired by students in first and second-cycle courses and study programmes, or its equivalent.

In addition to the requirements for first and second-cycle courses and study programmes, the doctoral programme shall develop the knowledge and skills required to be able to undertake autonomous research (The Swedish Higher Education Act, Chapter 1, Section 9a).

**For a Degree of Licentiate the doctoral student shall*****Knowledge and understanding***

- demonstrate knowledge and understanding in the field of research including current specialist knowledge in a limited area of this field as well as specialised knowledge of research methodology in general and the methods of the specific field of research in particular.

***Competence and skills***

- demonstrate the ability to identify and formulate issues with scholarly precision critically, autonomously and creatively, and to plan and use appropriate methods to undertake a limited piece of research and other qualified tasks within predetermined time frames in order to contribute to the formation of knowledge as well as to evaluate this work
- demonstrate the ability in both national and international contexts to present and discuss research and research findings in speech and writing and in dialogue with the academic community and society in general, and
- demonstrate the skills required to participate autonomously in research and development work and to work autonomously in some other qualified capacity.

***Judgement and approach***

- demonstrate the ability to make assessments of ethical aspects of his or her own research
- demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning.

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- demonstrate knowledge of sustainable development of relevance to the subject
- demonstrate the ability to apply an international perspective in the subject
- demonstrate the ability to apply gender equality and equal opportunities perspectives in the subject

## 4. SCOPE OF THE PROGRAMME

The scope of the doctoral programme aiming towards a licentiate degree is 120 credits – i.e. two years of full-time study or a maximum of four years of part-time study and concludes with a *Degree of Licentiate of Medical Science*. For the licentiate degree the allocation of credits for courses and literature study on the one hand and the thesis project on the other is a maximum of 60 credits for courses and literature study and a minimum of 60 credits for the licentiate thesis.

## 5. ADMISSION REQUIREMENTS

The requirements for admission to doctoral programme are that the applicant meets the general and specific admission requirements and is considered in other respects to have the ability required to benefit from the course or study programme.

### 5.1 General admission requirements

A person meets the general entry requirements for the doctoral programme if he or she:

- has been awarded a second-cycle qualification, or
- has met the requirements for courses comprising at least 240 credits of which at least 60 credits were awarded in the second cycle, or
- has acquired substantially equivalent knowledge in some other way in Sweden or abroad.

The Research Studies Board may permit an exemption from the general admission requirements for an individual applicant, if there are special grounds.

### 5.2 Specific admission requirements

Specific admission requirements relate to knowledge from first and second-cycle study programmes or equivalent but may also relate to specific professional experience. In addition there is a requirement for sufficient knowledge within the subject area for the doctoral programme.

The specific admission requirement is met by a person who has

- at least 60 credits within the subject area of medical science

Students with a first-cycle qualification obtained outside Scandinavia are to have knowledge equivalent to 3 years of studying English in upper secondary school (a pass in the exam) if they have a first language other than English.

## 6. SELECTION

In accordance with the Higher Education Ordinance's regulations the selection between applicants is to be primarily based on an assessment of the candidates' ability to benefit from the programme. Regarding admission it is mainly the applicant's qualifications from first and second-cycle studies that can normally be assessed. In this context, breadth, depth and relevance as well as components demonstrating autonomous work are to be taken into consideration. The fact that an

applicant is considered able to transfer credits from prior courses and study programmes or for professional or vocational experience may not alone give the applicant priority over other applicants.

## 7. PROGRAMME STRUCTURE AND CONTENT

### 7.1 Individual study plan

An individual study plan is to be drawn up for each doctoral student in conjunction with admission to doctoral studies. The study plan is to be drawn up in consultation between the doctoral student and the supervisor and thereafter be approved by the assistant head of department responsible for doctoral studies. The study plan content includes:

- a specification of the focus area within the broad subject of medical science in which the doctoral student will be involved
- a plan for the doctoral student's research assignment, the research project
- a timetable for the programme
- the obligations of the doctoral student and supervisor
- the scope and content of supervision
- information on the courses (beside compulsory courses) and the literature on which the doctoral student will be assessed
- what is otherwise needed for the programme to be conducted efficiently.

The studies are to be planned so that they can be completed on a full-time basis in two years or a maximum of four years on a part-time basis. The study plan is to be updated annually.

### 7.2 Courses and literature

For doctoral students in the subject of medical science a total course requirement of 19 credits (a-b) applies. Besides the general course package of 13 credits a completed Portfolio in the course Generic Knowledge and Skills comprising 6 credits is also included.

#### a) *General course package*

- Introductory course, 1 credit
- Research ethics, 1.5 credits
- Academic communication, 1.5 credits
- Oral communication, 1.5 credits
- Applied statistics I, 1.5 credits
- Applied statistics II, 3 credits
- Applied qualitative methodology I – general orientation, 1.5 credits
- Research in collaboration – how research creates values in society, 1.5 credits

#### b) *Generic Knowledge and Skills, 6 credits*

#### c) *Course in laboratory animal science (3 credits)*

The course is compulsory for all doctoral students who use laboratory animals in their thesis project and is to be carried out at the start of doctoral studies.

d) *Teaching and learning in higher education course*

For doctoral students who are going to teach, training in teaching and learning in higher education equivalent to at least 3 credits (2 full-time weeks) is compulsory.

e) *Seminars*

It is compulsory for both full-time and part-time doctoral students during 1.5 years of their doctoral studies to take part in at least six seminars per year in the focus area in question within the subject of medical science. This includes thesis defences, half-time reviews or equivalent. Details of included elements are to be specified in the individual study plan, and participation is reported in the course Generic Knowledge and Skills.

### 7.3 Degree of Licentiate

The licentiate thesis is to be the equivalent of two years of full-time study (120 credits) including time spent on courses. The licentiate thesis is to contain a number of articles or manuscripts (papers), as well as an introductory summary and is to demonstrate that the doctoral student, together with the courses, has competence corresponding to the learning outcomes of a licentiate degree.

#### 7.3.1 Papers

For a Degree of Licentiate in Medical Science the norm is that the student has written at least one research manuscript as well as a short introductory summary. The doctoral student is to be the sole first author of the manuscript. The manuscript(s) are to carry academic weight and be structured in the form of a research article, in publishable condition and contain an indication of the journal in which the manuscript can potentially be published.

#### 7.3.2 Introductory summary

The introductory summary is to provide an up-to-date description of the focus area and the subject of the licentiate thesis and how the licentiate project fits into this. The introductory summary is to be written autonomously by the doctoral student and is to demonstrate that the doctoral student has obtained specific subject knowledge. A critical description and discussion of the methods is to be included in which alternative methods are also discussed. The results are to be summarised and critically reviewed in a discussion. The text should integrate obtained results in the current field of research. It is to present what the licentiate thesis has contributed to the focus area. The summary is also to include how the results of the thesis can be utilised as well as a proposal for continued research.

#### 7.3.3 Assessment

For a Degree of Licentiate the doctoral student is to have been awarded a grade of Pass in the courses included in the programme and have been awarded a grade of Pass for the licentiate thesis. The licentiate thesis is to be defended orally at a public seminar.

The doctoral student is to have carried out their research assignment in accordance with the individual study plan, which entails that he or she has

- completed and been awarded a grade of Pass in the set compulsory courses and any further courses for the doctoral programme or focus area stated in the individual study plan

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- been assessed and awarded a grade of Pass on the literature stated in the individual study plan
- been assessed and awarded a grade of Pass for the course Generic Knowledge and Skills
- conducted a licentiate seminar and been awarded a grade of Pass

## APPENDIX 1, Focus areas

The following focus areas are a statistical standard for classification of research subjects compiled by Statistics Sweden. It is used, for example, in the official statistics for reporting on doctoral students, staff in higher education institutions and revenue for research and development according to research subject.

For each admission of a doctoral student, one of the focus areas is to be chosen. If the proposed project does not fit in with any of the set focus areas, another area can be chosen, with a justification as to why no other focus area can be selected.

## Medicin och hälsvetenskap

<b>3</b>	<b>Medicin och hälsvetenskap</b>	<b>Medical and Health Sciences</b>
301	Medicinska och farmaceutiska grundvetenskaper	Basic Medicine
30101	Farmaceutiska vetenskaper	Pharmaceutical Sciences
30102	Farmakologi och toxikologi	Pharmacology and Toxicology
30103	Läkemedelskemi	Medicinal Chemistry
30104	Samhällsfarmaci och klinisk farmaci	Social and Clinical Pharmacy
30105	Neurovetenskaper	Neurosciences
30106	Fysiologi	Physiology
30107	Medicinsk genetik	Medical Genetics
30108	Cell- och molekylärbiologi	Cell and Molecular Biology
30109	Mikrobiologi inom det medicinska området	Microbiology in the medical area
30110	Immunologi inom det medicinska området	Immunology in the medical area
30199	Andra medicinska och farmaceutiska grundvetenskaper	Other Basic Medicine
302	Klinisk medicin	Clinical Medicine
30201	Anestesi och intensivvård	Anesthesiology and Intensive Care
30202	Hematologi	Hematology
30203	Cancer och onkologi	Cancer and Oncology
30204	Dermatologi och venereologi	Dermatology and Venereal Diseases
30205	Endokrinologi och diabetes	Endocrinology and Diabetes
30206	Kardiologi	Cardiac and Cardiovascular Systems
30207	Neurologi	Neurology
30208	Radiologi och bildbehandling	Radiology, Nuclear Medicine and Medical Imaging
30209	Infektionsmedicin	Infectious Medicine
30210	Reumatologi och inflammation	Rheumatology and Autoimmunity
30211	Ortopedi	Orthopaedics
30212	Kirurgi	Surgery
30213	Gastroenterologi	Gastroenterology and Hepatology
30214	Urologi och njurmedicin	Urology and Nephrology
30215	Psykatri	Psychiatry
30216	Odontologi	Dentistry
30217	Oftalmologi	Ophthalmology
30218	Oto-rhino-laryngologi	Otorhinolaryngology
30219	Lungmedicin och allergi	Respiratory Medicine and Allergy
30220	Reproduktionsmedicin och gynekologi	Obstetrics, Gynaecology and Reproductive Medicine
30221	Pediatrik	Pediatrics
30222	Geriatrisk	Geriatrics
30223	Klinisk laboratoriemedicin	Clinical Laboratory Medicine
30224	Allmänmedicin	General Practice
30299	Annan klinisk medicin	Other Clinical Medicine
303	Hälsvetenskap	Health Sciences
30301	Hälso- och sjukvårdsorganisation, hälsopolitik och hälsoekonomi	Health Care Service and Management, Health Policy and Services and Health Economy
30302	Folkhälsvetenskap, global hälsa, socialmedicin och epidemiologi	Public Health, Global Health, Social Medicine and Epidemiology
30303	Arbetsmedicin och miljömedicin	Occupational Health and Environmental Health
30304	Näringslära	Nutrition and Dietetics
30305	Omvårdnad	Nursing
30306	Arbetssterapi	Occupational Therapy
30307	Sjukgymnastik	Physiotherapy

30308	Idrottsvetenskap	Sport and Fitness Sciences
30309	Beroendelära	Substance Abuse
30310	Medicinsk etik	Medical Ethics
30399	Annan hälsovetenskap	Other Health Sciences
304	Medicinsk bioteknologi	Medical Biotechnology
30401	Medicinsk bioteknologi (inriktn. mot cellbiologi (inkl. stamcellsbiologi), molekylärbiologi, mikrobiologi, biokemi eller biofarmaci)	Medical Biotechnology (focus on Cell Biology (incl. Stem Cell Biology), Molecular Biology, Microbiology, Biochemistry or Biopharmacy)
30402	Biomedicinsk laboratorievetenskap /teknologi	Biomedical Laboratory Science /Technology
30403	Biomaterialvetenskap	Biomaterials Science
30499	Annan medicinsk bioteknologi	Other Medical Biotechnology
305	Annan medicin och hälsovetenskap	Other Medical and Health Sciences
30501	Rättsmedicin	Forensic Science
30502	Gerontologi, medicinsk/hälsovetenskaplig inriktning (Samhällsvetenskaplig inriktn. under 50999)	Gerontology, specialising in Medical and Health Sciences (specialising in Social Sciences to be 50999)
30599	Övrig annan medicin och hälsovetenskap	Other Medical and Health Sciences not elsewhere specified