

Direct Doctorate
Computer Science
Study Guide

Doctor of Science ETH

Direct Doctorate in Computer Science Study Guide

Programme Regulations 2020

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1	Introduction and General Information	
1.1	Target Audience and Advantages	6
1.2	About this Study Guide	6
1.2.1	Study Guide of the Master's Programme	6
1.2.2	Guidelines for Doctoral Studies	7
1.3	Contacts	7
2	Direct Doctorate Programme	
2.1	Programme Overview	8
2.1.1	Tutor and Supervisors	8
2.1.2	Programme Requirements	9
2.2	First Year	10
2.2.1	First Year: Minimum Requirements	10
2.3	Second Year	11
2.3.1	Practical Work and Research in Computer Science	11
2.3.2	Second Year: Minimum Requirements	12
2.3.3	Master's Thesis	13
2.4	Doctoral Studies	13
2.4.1	Doctoral Plan	13
2.4.2	Doctoral Thesis	14
2.4.3	Doctoral Degree: Minimum Requirements	14
3	Administrative Matters	
3.1	Enrolment and Degrees	15
3.1.1	Master's Degree	15
3.1.2	Doctoral Degree	15
3.2	Finances	16

1 Introduction and General Information

1.1 Target Audience and Advantages

The direct doctorate programme in computer science is intended for excellent students with a Bachelor's degree in computer science or a related field, who are aiming at a career in research. It enables them to explore a broad range of areas in computer science and to become acquainted with the different research groups in the department before commencing their doctoral thesis.

Furthermore, admitted direct doctorate students benefit from a broad network at the department and are well-positioned to be offered a doctoral position in the Department of Computer Science and financial support throughout their studies, provided that they meet all the requirements of the first two years of the direct doctorate programme.

1.2 About this Study Guide

This study guide contains important information for successful completion of the programme. Every student should read it carefully, since it is the student's responsibility to fulfil the requirements of the programme at all times.

1.2.1 Study Guide of the Master's Programme

The study guide of the Master's programme in computer science, regulations 2020, is an essential part of this study guide, as direct doctorate students will also obtain a Master's degree in Computer Science. Therefore, all requirements for Master's students also apply to direct doctorate students. The study guide for the Master's programme in computer science can be found [here](#).

1.2.2 Guidelines for Doctoral Studies

The guidelines (D-INFK detailed stipulations) for doctoral studies are also an essential part of this study guide, since direct doctorate students eventually gain a doctoral degree. Consequently, all requirements for doctoral students also apply to direct doctorate students. The D-INFK detailed stipulations can be found [here](#).

1.3 Contacts

Do not hesitate to approach one of the contacts below for further advice. All contact details can be found online.

- The Director of Studies is responsible for the degree programmes, examination regulations and the validation of examination results. All requests addressed to the Director of Studies must be submitted to the Studies Administration Office in written form.
- For questions on study planning or other content-related concerns, students may contact the Study Coordinator.
- The Studies Administration Office can help students with most issues, in particular with administrative affairs. In any case, it will be able to refer them to the right person.

2 Direct Doctorate Programme

2.1 Programme Overview

The programme is designed to be completed within six years – a maximum of two years for the Master’s studies, followed by four years to conduct research and write the doctoral thesis in one of the research areas of the department.

The direct doctorate in computer science is a full-time programme. Students obtain 120 ECTS for their Master’s studies and an additional 12 ECTS for their doctoral studies.

2.1.1 Tutor and Supervisors

In addition to the contacts mentioned in [chapter 1.3](#), the following people support students in successfully completing the direct doctorate programme. Note that detailed descriptions of the topics mentioned are provided below in the respective chapters.

Role	Characteristics	Programme	Document	Deadline for appointment	Remark
Tutor	D-INFK faculty	MSc			assigned to students automatically
Master’s thesis supervisor	D-INFK faculty	MSc	Master’s thesis	start of fourth semester	talk to the professor (and optionally their research group)
Doctoral supervisor	D-INFK faculty	Doctorate	Doctoral thesis	start of fifth semester	talk to the professor (and optionally their research group)

We strongly advise students to identify potential doctoral supervisors as early as possible and to engage with their research groups in order to evaluate whether there is a mutual interest in working together. The Master’s thesis and doctoral supervisor are often the same person, but not necessarily.

2.1.2 Programme Requirements

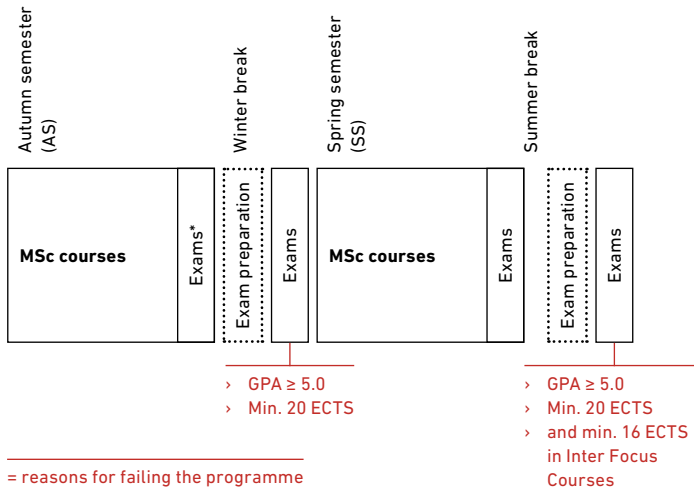
The direct doctorate programme has special requirements, which are explained in the following chapters (see First Year: Minimum Requirements and Second Year: Minimum Requirements). Students who fail any of these minimum requirements consequently fail the direct doctorate programme. If a student fails the direct doctorate programme due only to the direct doctorate minimum requirements, but not due to Master's programme requirements, they lose their scholarship but may complete their Master's studies. In addition, a student is eligible to reapply for admission to the doctoral programme after having completed the Master's programme.

2.2 First Year

During the first year of study, students are concerned primarily with their Master's course and exam preparation. Depending on the course, examinations take place either in the two weeks before and after the end of the semester (end of semester exams) or in the exam sessions in the winter and summer break (session exams).

2.2.1 First Year: Minimum Requirements

The following factors are critical for successful completion of the first year. Note that the boxes outlined in red are minimum requirements, which, if not reached, will lead to exclusion from the programme.



- Students must achieve a minimum GPA of 5.0 per semester (see below)
- A minimum of 20 ECTS must be obtained in each individual semester
- At least 16 credits must be earned in the Inter Focus Courses by the end of the second semester

Students who fail any of these factors consequently fail the direct doctorate programme. In the GPA calculation, all semester grades, including failed exams, are weighted according to their ECTS points. No-show-exams (unexcused absences) are valued as a grade 1. Pass/fail grades are not taken into consideration.

2.3 Second Year

During their second year of study, students are concerned primarily with completing the required courses and conducting their Master's thesis.

2.3.1 Practical Work and Research in Computer Science

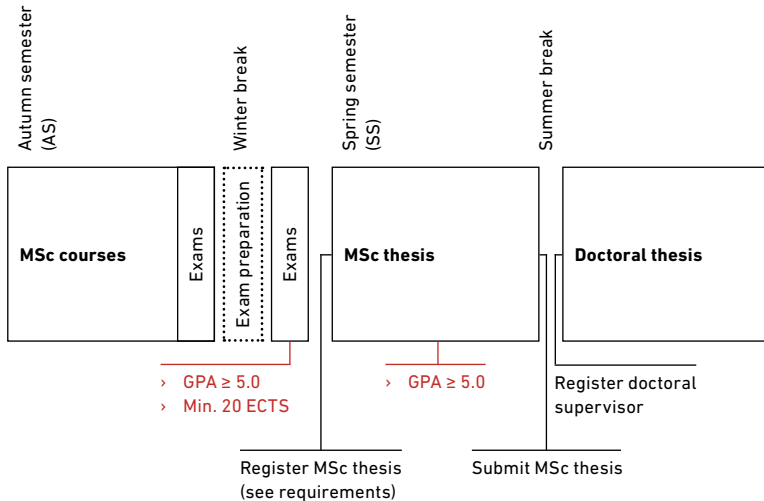
The programme includes a course category called Practical Work, which fosters the student's ability to solve scientific problems by applying acquired knowledge and social competencies. Practical Work is either a semester project or a lab course, conducted under the supervision of a professor in the Department of Computer Science or an associated professor. Practical Work can be conducted as a group work, provided that each student's performance is assessed individually. Students are asked to refer to the websites of the individual research groups or talk to research groups in the preferred area in order to find a suitable project. Further details can be found [here](#).

Students are strongly advised to choose a research-oriented semester project as their Practical Work. To maximise their exposure to different groups (and to increase the likelihood of finding a doctoral supervisor), it is recommended that the semester project and Master's thesis are carried out in different groups.

Direct doctorate students may choose Research in Computer Science as an elective course, which allows them to work on another research project. Practical Work and Research in Computer Science can also be combined into one larger research project. Note, however, that both units have their own requirements that must be met in order to make use of this combination. Further information can be found in the [course catalogue](#).

2.3.2 Second Year: Minimum Requirements

The following factors are critical for successful completion of the second year. Note that the boxes outlined in red are minimum requirements, which, if not reached, will lead to exclusion from the programme.



= reasons for failing the programme

- Students must achieve a minimum GPA of 5.0 per semester (see [GPA calculation](#))
- A minimum of 20 ECTS must be obtained in the third semester
- Students must meet all Master's programme requirements by the end of the second year

Students who fail any of these factors will consequently fail the direct doctorate programme.

2.3.3 Master's Thesis

The Master's thesis demonstrates that a student is able to use the knowledge and skills acquired during the Master's studies to solve a complex computer science problem. A successful thesis gains 30 ECTS. The necessary requirements for starting the Master's thesis can be found in the [MSc Study Guide](#). Note that for direct doctorate students, the following rules apply in addition:

- The thesis must be completed by no later than the end of the first two years of the direct doctorate studies. Students should start their Master's thesis no later than the third week of the corresponding semester.

2.4 Doctoral Studies

After graduation from the Master's programme, students begin to focus exclusively on their doctoral studies. The same rules and procedures apply as for all other doctoral students in the department. Further details can be found in the guidelines above (see [Guidelines 1.2.2](#)).

2.4.1 Doctoral Plan & Aptitude Colloquium

Each doctoral student must compile their own doctoral plan. It forms the basis for the aptitude colloquium - scientific works includes the ability to formulate and defend research ideas and to plan their possible realization. The doctoral plan helps to attain and practice this ability. The guidelines on how to structure the doctoral plan and its content can be found [here](#). Furthermore, doctoral students must assign a second-advisor. Detailed information on the second-advisor can be found [here](#).

2.4.2 Doctoral Thesis

The doctoral studies conclude with the doctoral thesis, which is subsequently defended during the doctoral examination. Before beginning the thesis, the student's doctoral supervisor must be registered at the [Doctoral Administration Office](#).

2.4.3 Doctoral Degree: Minimum Requirements

The following factors are critical in the successful completion of a doctoral degree:

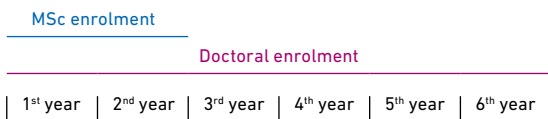
- Doctoral students must earn at least 12 credits, in three categories. Details can be found [here](#).
- Doctoral students must submit their doctoral plan at the latest after 11 months after graduation.
- All doctoral students must subject themselves to a discussion in an aptitude colloquium within 12 months of provisional admission.
- The doctoral examination must be undertaken within six years of starting the direct doctorate programme.

3 Administrative Matters

The following sections address administrative concerns. If students have questions related to enrolment, they may refer to the Studies Administration Office.

3.1 Enrolment and Degrees

Students are enrolled as doctoral students throughout the entire programme. In addition, they are enrolled in the Master's programme in Computer Science during the first two years.



As a result, students have two enrolments in *myStudies* during their first two years.

3.1.1 Master's Degree

After the 120 ECTS credit requirements for all Master's courses have been fulfilled, students may file the Master's diploma degree request. Students who fail the direct doctorate programme due to direct doctorate minimum requirements only, and not due to the Master's programme requirements, may still proceed towards obtaining a Master's degree, but without a scholarship (see [chapter 3.2](#)).

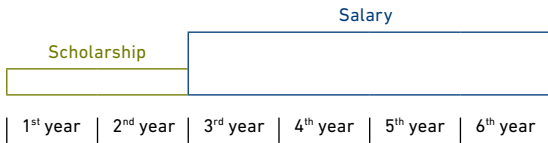
3.1.2 Doctoral Degree

The doctoral degree at ETH entitles graduates to hold the following academic title:

English: **Doctor of Science ETH Zurich** (Dr. sc. ETH Zurich)
 German: **Doktor** bzw. **Doktorin der Wissenschaften ETH Zürich**
 (Dr. sc. ETH Zürich)

3.2 Finances

Throughout the six years of the programme, students are financially supported by the scholarship and afterwards by a salary. The scholarship during the first two years of the programme covers all living costs. In addition, tuition fees do not apply to direct doctorate students. From the third year, students are employed with a competitive salary. The direct doctorate programme is a full-time programme. Therefore, students are strongly advised not to work during their studies.



A failure of the direct doctorate programme leads to the loss of financial support by ETH. In this case, students must arrange their financial support privately.

Important addresses and contacts

Direct Doctorate in Computer Science	www.inf.ethz.ch/direct-doctorate-cs
Course Catalogue	www.vvz.ethz.ch
Academic Services	<p>ETH Zurich, HG Building Rämistrasse 101 8092 Zurich, Switzerland kanzlei@rektorat.ethz.ch www.ethz.ch/students-admin Office HG F 19 Mo–Fri, 11:00–13:00 Phone +41 (0)44 632 30 00 Mo–Fri, 09:00–11:00, 14:00–16:00</p>
Department of Computer Science	<p>ETH Zurich, CAB Building Universitätstrasse 6 8092 Zurich, Switzerland</p>
Director of Studies	<p>Prof. Dennis Hofheinz directdoctorate@inf.ethz.ch</p>
Studies Administration Office	<p>Bernadette Giansesi CAB H 37.1 / +41 (0)44 633 42 23 directdoctorate@inf.ethz.ch</p>
Student Exchange	<p>Brigitte Marti CAB H 36.1 / +41 (0) 44 633 71 26 mobility@inf.ethz.ch</p>
VIS	Association of computer science students
MoEB	<p>Committee for Master students without an ETH Bachelor's degree CAB E 31 / +41 (0)44 632 72 12 vis@vis.ethz.ch www.vis.ethz.ch</p>
Coaching	<p>Pascal Kogelmann HG F 67.3, Rämistrasse 101 pascal.kogelmann@sts.ethz.ch www.sts.ethz.ch</p>
Psychological Counselling Service	<p>By appointment +41 (0)44 634 22 80 pbs@ad.uzh.ch www.pbs.uzh.ch</p>

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