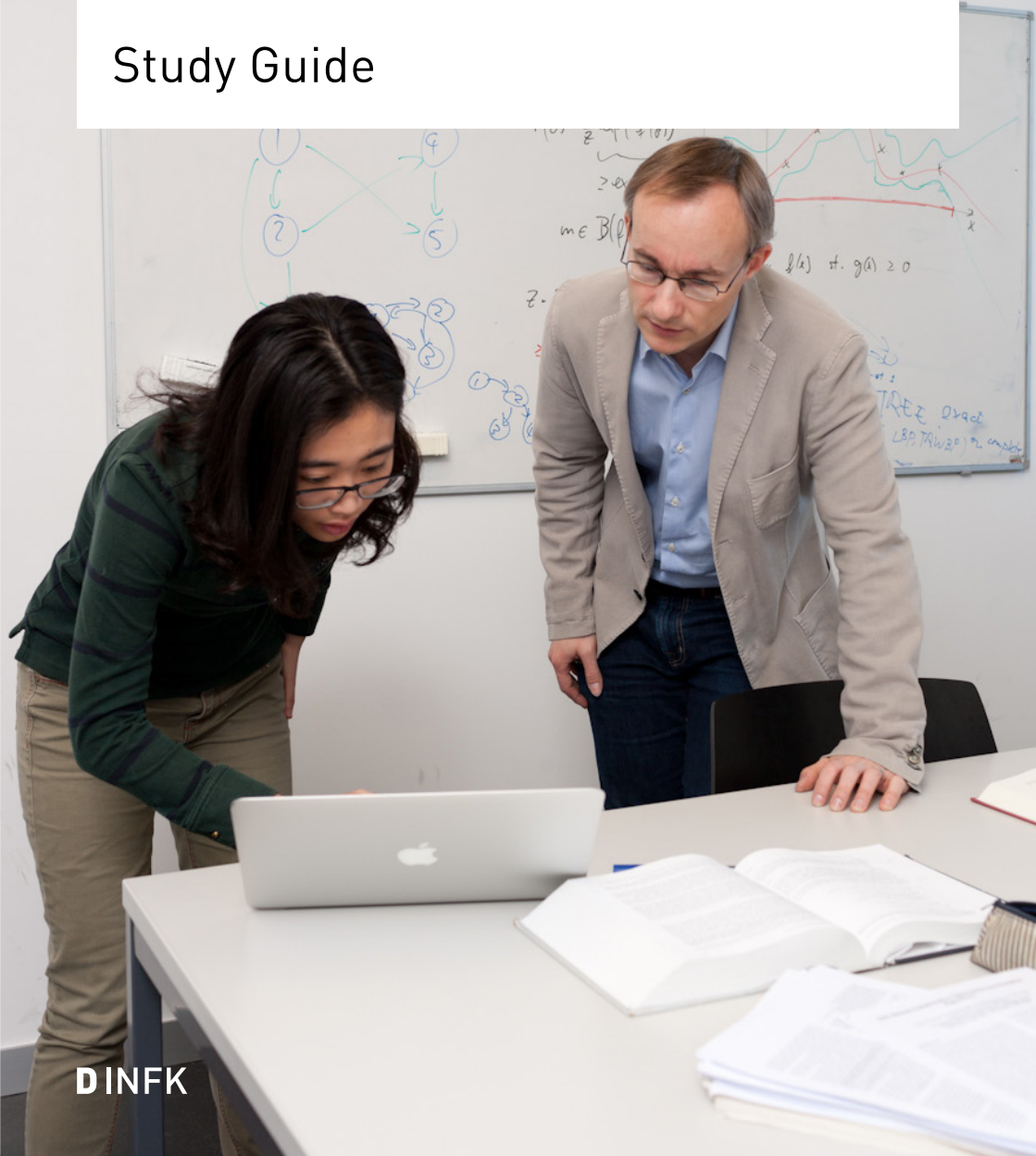


# Direct Doctorate in Computer Science

## Study Guide



# Important addresses and contacts

Direct Doctorate in Computer Science:	<a href="http://www.inf.ethz.ch/doctorate/direct-doctorate-computer-science.html">www.inf.ethz.ch/doctorate/direct-doctorate-computer-science.html</a>
Course Catalog:	<a href="http://www.vvz.ethz.ch">www.vvz.ethz.ch</a>
Academic Services:	ETH Zurich, HG Building Rämistrasse 101 CH-8092 Zurich <a href="mailto:kanzlei@rektorat.ethz.ch">kanzlei@rektorat.ethz.ch</a> <a href="http://www.ethz.ch/students/en/studies/administrative.html">www.ethz.ch/students/en/studies/administrative.html</a> Office HG F 19 Mo–Fr, 11:00–13:00 Phone +41 (0)44 632 30 00 Mo–Fri, 09:00–11:00, 14:00–16:00
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MoEB:	Committee for Master students without an ETH Bachelor CAB E 31 / +41 (0)44 632 72 12 <a href="mailto:vis@vis.ethz.ch">vis@vis.ethz.ch</a> <a href="http://www.vis.ethz.ch">www.vis.ethz.ch</a>
Coaching:	Pascal Kogelmann HG F 67.3, Rämistrasse 101 <a href="mailto:pascal.kogelmann@sts.ethz.ch">pascal.kogelmann@sts.ethz.ch</a> <a href="http://www.sts.ethz.ch">www.sts.ethz.ch</a>
Psychological Counseling Service:	Upon appointment +41 (0)44 634 22 80 <a href="mailto:pbs@ad.uzh.ch">pbs@ad.uzh.ch</a> <a href="http://www.pbs.uzh.ch">www.pbs.uzh.ch</a>

# Direct Doctorate in Computer Science Study Guide

Program Regulations 2009

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# 1 INTRODUCTION & GENERAL INFORMATION

## 1.1 Target Audience & Advantages

The direct doctorate program in computer science is tailored to the needs of excellent students having 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 different research groups at the department prior to the selection of a topic and a supervisor for their doctoral thesis.

Furthermore, admitted direct doctorate students benefit from the advantage that they will be offered a doctoral position at the Department of Computer Science, provided that they will have met all requirements of the first two years of the direct doctorate program.

## 1.2 About this Study Guide

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

### 1.2.1 Study Guide of the Master's Program

The study guide of the master's program in computer science 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, but for the exceptions mentioned in chapter 2.2.1. The master's program in computer science study guide can be found [here](#).

### 1.2.2 Guidelines of Doctoral Studies

The detailed guidelines for the doctoral studies at the Department of Computer Science 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 guidelines can be found [here](#).

## 1.3 Contacts

Do not hesitate to approach one of the contacts mentioned below for further advice. For names and addresses, please refer to the contact provided before.

- The Director of Studies is responsible for the degree programs, examination regulations and for the validation of examination results. All requests addressed to the Director of Studies have to be handed in at the Studies Administration Office in written form.
- For questions on planning the studies or other content related concerns, students may contact the Study Coordinator of D-INK.
- The Studies Administration Office can help students with most issues, in particular with administrative affairs. In any case, the Studies Administration Office can refer students to the right person.

## 2 DIRECT DOCTORATE PROGRAM

### 2.1 Program Overview

The program is designed to be completed within six years, of which a maximum of two years are designated to pass the master's studies, the research project, the research plan and optionally additional courses. Subsequently, students write their doctoral thesis in one of the research areas at the department within the period of four years.

The direct doctorate in computer science is a fulltime program. Students obtain 120 ECTS for their master's studies, 30 ECTS of which are dedicated to additional direct doctoral achievements and an additional 12 ECTS for their doctoral studies.

#### 2.1.1 Tutor & Supervisors

In addition to the contacts mentioned in chapter 1.3, the following people will support students in order to successfully complete the direct doctorate program. Note that detailed descriptions of the topics mentioned will be provided below in the respective chapters.

Role:	Characteristics:	Program:	Supervision:	Deadline for appointment:	Advice:
Tutor	D-INFK faculty of chosen track	MSc	learning agreement	end of 1 <sup>st</sup> semester	send an e-mail
Research Project Supervisor	D-INFK faculty, dissimilar from Master's Thesis Supervisor	DD	research project	end of 2 <sup>nd</sup> semester	have a talk with the professor (and optionally with his/her research group)
Master's Thesis Supervisor	D-INFK faculty, dissimilar from Research Project Supervisor	MSc	master's thesis	- default study plan: beginning of 3 <sup>rd</sup> semester - alternative study plan: beginning of 4 <sup>th</sup> semester	have a talk with the professor (and optionally with his/her research group)
Doctoral Supervisor	D-INFK faculty	PhD	research plan & doctoral thesis	beginning of 4 <sup>th</sup> semester	have a talk with the professor (and optionally with his/her research group)

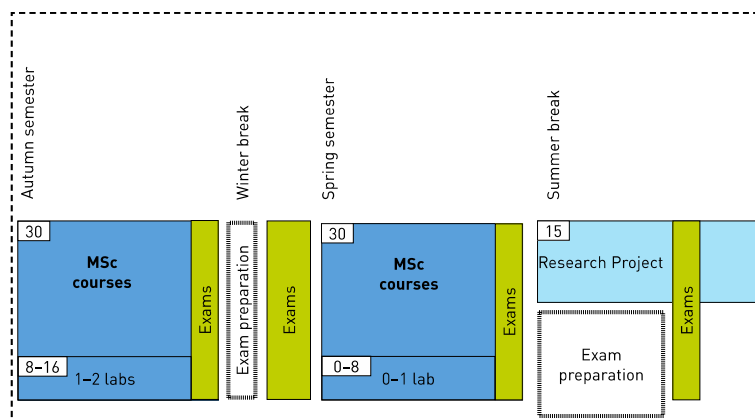
#### 2.1.2 Exclusion from the Program

Students who fail any of the minimum requirements (see chapters 2.2.4, 2.3.2, 2.3.5 and 2.5) consequently fail the direct doctorate program. If a student fails the direct doctorate program only due to the direct doctorate minimum requirements and not due to master's program requirements, they may continue to complete their master studies. In addition, a student is still eligible to reapply for admission to the doctoral program after having completed the master's program.

Excluded students' scholarships are suspended.

## 2.2 First Year

During the first year of studying, students are primarily concerned with master's courses, exam preparation and the direct doctorate research project.



Exams either take place 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 the summer break (session exams), depending on the courses.

### 2.2.1 Master Track, Tutor & Learning Agreement

The department offers eight different tracks for master's students, of which direct doctorate students can select all but the general track. After having decided for a track, students select a tutor (of the chosen track) and agree with her or him on their personal study plan, called learning agreement. A tutor may be chosen independently from the master's and doctoral thesis. Students have to submit the learning agreement approved by their tutor by the fourth week of the first semester. Further information on how to submit the learning agreement can be found [here](#).

### 2.2.2 Master's Courses

The direct doctorate program includes several master's courses amounting to 60 ECTS, which students attend in their first two semesters. Students should refer to the [MSc study guide](#) or the [course catalogue](#) for further descriptions of the master courses and its requirements. Special attention should be paid to the interfocus courses, as they are of a very competitive nature. Students who fail the master's program, consequently fail the direct doctorate program.

We strongly recommend registering for one interfocus course in the first semester in order to ensure that two of them will have been passed by the end of the first year. So if students fail the interfocus course in their first semester, they still have the opportunity to register for the two interfocus courses offered in the spring semester. Since a repetition of an interfocus course is only possible one year later, direct doctorate students do not have time to wait for this option.

### 2.2.3 Research Project

Students having successfully completed their first semester of the direct doctorate program may start with the research project in the summer after their second semester.

For the direct doctorate research project, students join a research group during the summer in their first year. The research group must be different from the one selected for their master's thesis. In this way, students gain a broad view of the different research groups and areas at the department, prior to the selection of a topic for their doctoral studies.

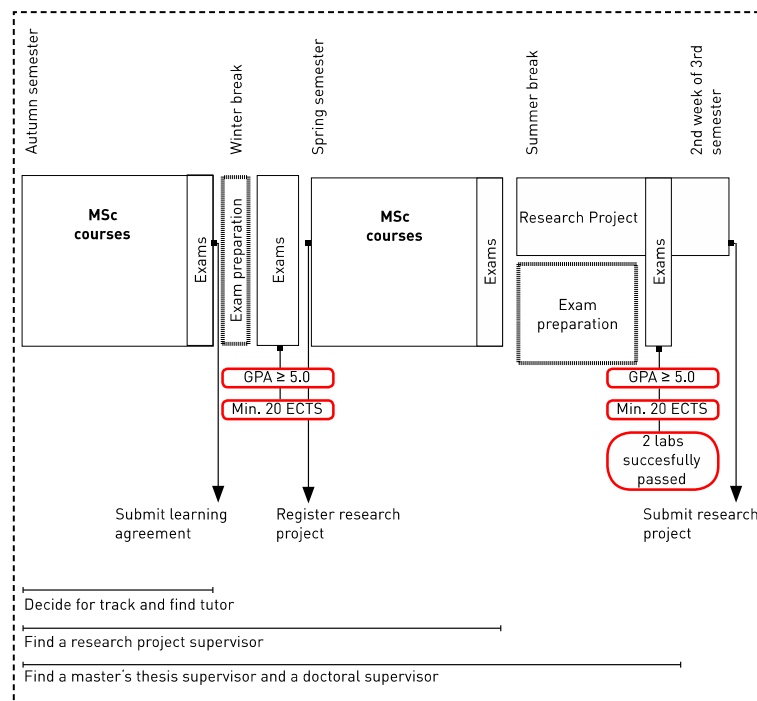


The designated workload of the research project is equivalent to half a semester (15 ECTS) and can only be conducted within a research group from the Department of Computer Science, not in the industry, nor at other external parties. A further registration for a “research in computer science project” (available in the course catalogue) is not possible.

Students must register the research project in myStudies in their third semester, although they already start with it directly after the second semester has ended. The research project supervisor must have registered the grade by the end of the second week of the third semester. No additional material has to be submitted, the grade is sufficient. Note that a pass or fail grading scheme applies. The research project will be included on the addendum of the academic record.

## 2.2.4 First Year: Minimum Requirements

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



- Students must achieve a minimum GPA of 5.0 per semester (see GPA calculation).
- Each semester a minimum of 20 ECTS must be obtained.
- At least 12 credits in the interfocus courses must be earned (see chapter 2.2.2).

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

### 2.2.4.1 GPA CALCULATION

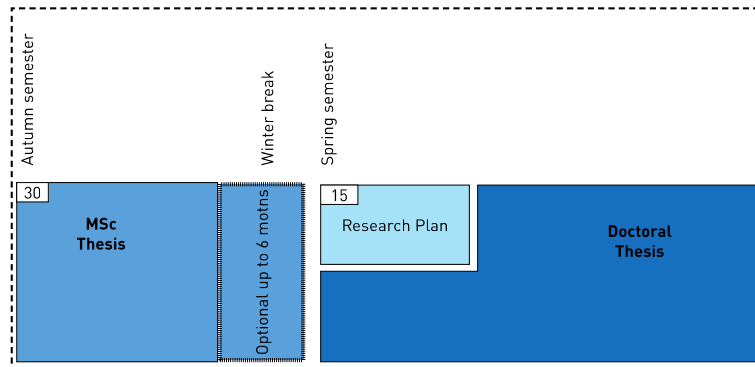
All grades of the semester including failed exams are weighted according to their amount of ECTS points. No-show-exams (unexcused absences) are valued as a grade '1'. 'Pass/fail' grades are not taken into consideration.

## 2.3 Second Year

During their second year of studying, students are primarily concerned with their master's thesis, the research plan and the start of their doctoral thesis.

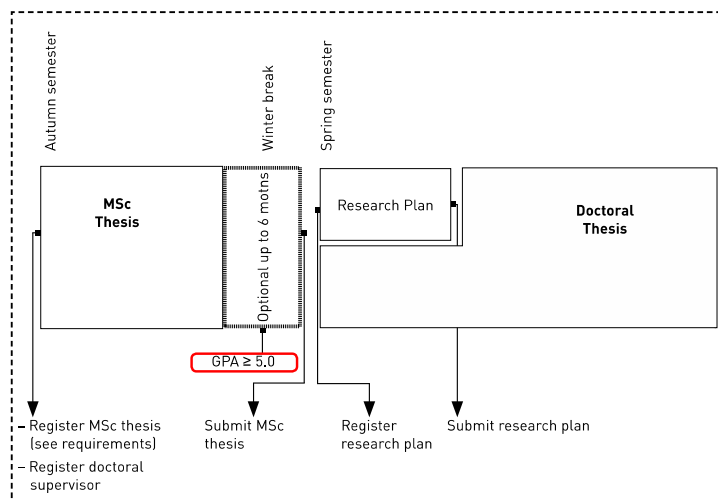
### 2.3.1 Default Study Plan

According to the default study plan, students commence their master's thesis directly after having completed all master's courses and their research project. In their fourth semester, students write and complete their research plan and begin with their doctoral thesis.



### 2.3.2 Default Study Plan: Minimum Requirements

The following factors are critical for a successful completion of the second year (default study plan). Note that the box outlined in red is a minimum requirement and if not reached, will lead to the exclusion of the program.

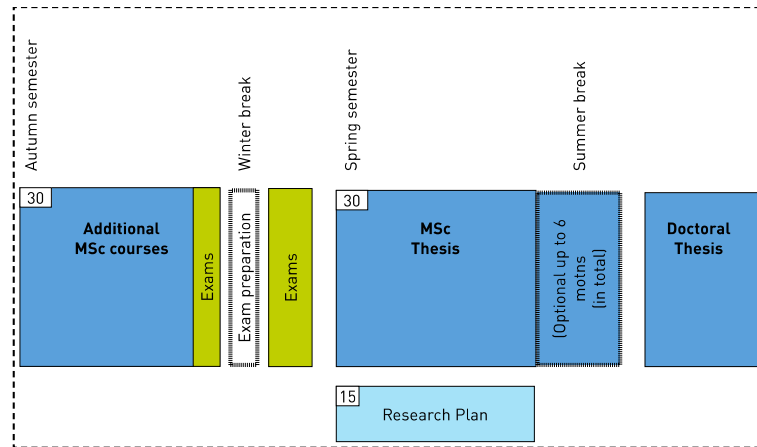


- Students must achieve a minimum grade of 5.0 for their thesis.
- Students must meet all master's program requirements by the end of the second year.

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

### 2.3.3 Alternative Study Plan

Students following the alternative study plan attend additional master's courses after having completed all mandatory master's courses and their research project. Consequently, the master's thesis is postponed to the fourth semester. As the deadline for the submission of their doctoral thesis does not change (see chapter 0, this consequently means that students have half a year less time for their doctoral thesis.



### 2.3.4 Additional Master's Courses

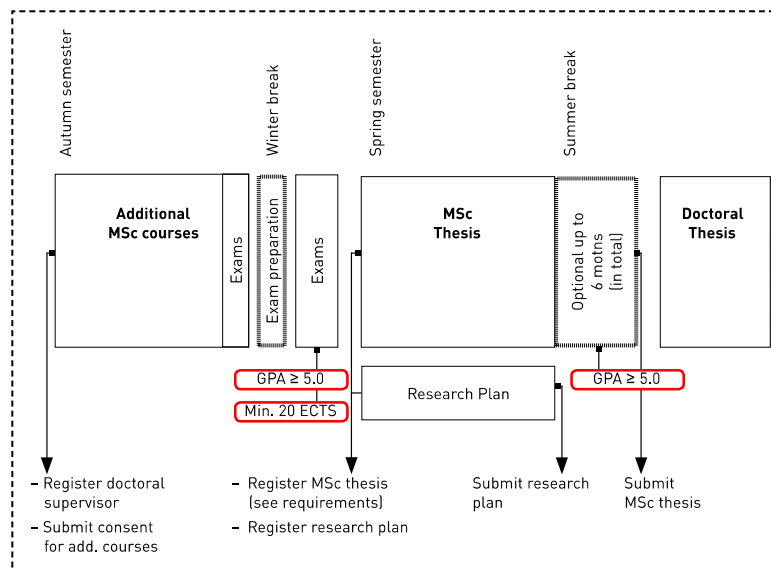
Additional courses with a workload of up to 30 ECTS may be taken during the third semester, provided that

- a written consent from the doctoral supervisor has been sent to the direct doctorate studies administration office (an e-mail is sufficient),
- all credit requirements of the master's studies except for the master's thesis have been met
- the research project has been completed.

Additional courses will be included on the addendum of the academic record.

### 2.3.5 Alternative Study Plan: Minimum Requirements

The following factors are critical for a successful completion of the second year (alternative study plan). Note that the boxes outlined in red are minimum requirements and if not reached, will lead to the exclusion of the program.



- Students must achieve a minimum GPA of 5.0 per semester (see GPA calculation).
- In the third semester, a minimum of 20 ECTS must be obtained.
- Students must meet all master's program requirements by the end of the second year.

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

## 2.4 Extracurricular Options

The regulations allow for two kinds of extracurricular options during the master's studies, but in reality, they are almost impossible to coordinate with the program's demands. Furthermore, we strongly encourage students rather to focus fully on their studies at ETH in order to prepare for the demanding doctoral studies.

### 2.4.1 Exchange

Only students who have obtained their bachelor's degree from ETH are eligible to take part in an exchange program. Note that at most 15 ECTS achieved during the exchange may be acknowledged. Therefore, students need to earn at least an additional 5 ECTS at ETH during their exchange in order to meet the minimum requirements.

### 2.4.2 Internship

Internships are not part of the program and therefore no credit points are issued. As a consequence, students need to earn at least 20 ECTS during their internship in order to meet the minimum requirements. Furthermore, the studies administration office will only consent to write a letter of support if two interfocus courses have been passed.

### 2.4.3 Master's Thesis

A master's thesis shall demonstrate that students are able to use the knowledge and skills acquired during the master's studies to solve a complex computer science problem. For the successful thesis, 30 ECTS are issued. The necessary requirements for starting the master's thesis can be found [here](#). Note that for direct doctorate students the following rules apply in addition:

- Prior to beginning with the thesis, the doctoral supervisor has to be designated.
- The master's thesis supervisor must not be the same person as the research project supervisor.
- Finally, the thesis must have been completed by no later than the end of the first two years of the direct doctorate studies.

### 2.4.4 Research Plan

Students having successfully completed the first three semesters of the direct doctorate program may start with their research plan. The same rules and procedures apply as for all other doctoral students at the department.

Writing a research plan helps students to structure and plan their research work and thesis. It further helps them gaining valuable experience in writing research proposals. The guidelines on how to structure the research plan and on its expected content can be found [here](#). Note that these guidelines are general and minimal requirements. Some research groups have their own guidelines and might require more content. Furthermore, direct doctorate students should also designate the co-examiner of their doctoral thesis in the research plan. Students must register the direct doctorate research plan in myStudies in their fourth semester: 263-0620-00L. After having written the research plan, students need to present it to their doctoral supervisor and their co-examiner. After their approval, the research plan will be forwarded to the doctoral committee for their approval.

The doctoral supervisor must have registered the grade of the research plan **by the end of the fourth semester**. Note that a pass or fail grading scheme applies. For the successful research plan 15 ECTS are issued. The research plan will be included on the addendum of the academic record.

## 2.5 Doctoral Studies

Once students graduate from the master's program and their research plan has been approved, students begin to focus exclusively on their doctoral thesis. Further details can be found in the guidelines mentioned above (see chapter [1.2.2](#)).

### 2.5.1 Doctoral Thesis

Direct doctorate students start writing their thesis during the fourth semester (default study plan) or after the summer break of their second year (alternative study plan). The doctoral studies conclude with the doctoral thesis, which is subsequently defended during the doctoral examination. Prior to beginning with the thesis, the student's doctoral supervisor has to be registered at the Doctoral Administration Office.

## 2.5.2 Doctoral Degree: Minimum Requirements

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

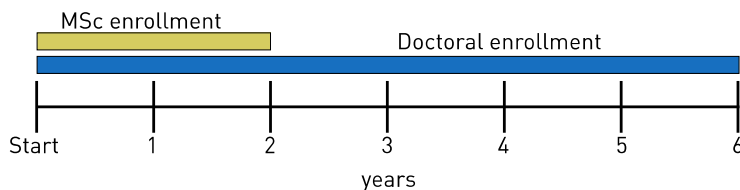
- Doctoral students must earn at least 12 credits, whereby at least 4 credits must be acquired outside their research field.
- The doctoral examination must be undertaken within 6 years after having started with the direct doctorate program.

## 3 ADMINISTRATIVE MATTERS

The following chapters address administrative concerns. If students have questions regarding enrollment, scholarship etc., they can refer to the study administration office.

### 3.1 Enrollment & Degrees

Throughout the entire program, students will be enrolled as doctoral students. In addition, they will be enrolled in the master's program in computer science during the first two years.



Subsequently, students also see two enrollments in myStudies during their first two years.

#### 3.1.1 Master's Degree

Once the 120 ECTS credit requirements for all master's courses are fulfilled, students file the master's diploma degree request. Students who fail the direct doctorate program due to direct doctorate minimum requirements only and not because of master's program 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 have the following academic title:

English: **Doctor of Science ETH Zurich (Dr. sc. ETH Zurich)**

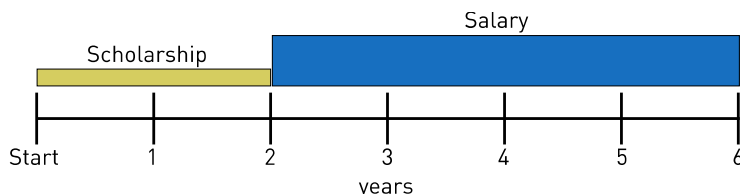
German: **Doktor bzw. Doktorin der Wissenschaften ETH Zürich (Dr. sc. ETH Zürich)**

### 3.2 Finances

Direct doctorate students receive a scholarship during the first two years of the program, which covers all living costs. In addition, tuition fees do not apply to direct doctorate students.

A competitive doctoral salary will be paid after the first two years, doctoral study fees apply. More information on financial affairs can be found [here](#).

We strongly advise students against working during their studies.



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

## **Contact**

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