

Department of Mathematics (D-MATH)
Detailed stipulations regarding the doctorate

of 23 November 2021

This English translation serves information purposes only and has no legal force. The original German version is the legally binding document.

The ETH Zurich Executive Board,

at the request of the Department of Mathematics at ETH Zurich¹, and pursuant to Art. 52 of the ETH Zurich Ordinance on the Doctorate of 23 November 2021²,
hereby decrees the following detailed stipulations regarding the doctorate:

Section 1: General provisions**Art. 1** Scope

These detailed provisions set out the department-specific details governing the doctorate at the Department of Mathematics at ETH Zurich (D-MATH). They are based on the fundamental provisions of the ETH Zurich Ordinance on the Doctorate of 23 November 2021³ and on the Rector's Implementation Provisions for the ETH Zurich Ordinance on the Doctorate of 23 November 2021⁴.

Section 2: Recruitment and admission to the doctorate**Art. 2** Recruitment and provisional admission

¹ Individuals who are interested in a doctoral programme in Mathematics and who fulfil the basic requirements according to Art. 7, Para. 2 of the ETH Zurich Ordinance on the Doctorate can either contact a possible supervisor at D-MATH directly or apply via the portal of the Zurich Graduate School in Mathematics (ZGSM, www.zgsm.ch). If the commitment of a doctoral thesis supervisor or an offer letter from the ZGSM is available, the application for provisional admission can be submitted to Academic Services.

² Candidates with an excellent university Bachelor's degree have the possibility to pursue a direct doctorate according to Annex 2 of the Programme Regulations of the Master's degree programme in Mathematics⁵.

¹ Resolution of the D-MATH Department Conference of 5 October 2021 (approval of the detailed stipulations)

² SR 414.133.1

³ SR 414.133.1

⁴ RSETHZ 340.311

⁵ RSETHZ 324.1.0900.11

Art. 3 Zurich Graduate School in Mathematics (ZGSM)

Every doctoral student at D-MATH is automatically a member of the Zurich Graduate School in Mathematics (ZGSM). The ZGSM is a joint body of ETH Zurich D-MATH and the University of Zurich Institute of Mathematics. It encompasses and coordinates doctoral education in mathematics at the two universities and promotes international visibility. The ZGSM supports administrative processes, especially in the recruitment of doctoral students; compiles the graduate course programme; promotes the implementation of special teaching events such as retreats and Summer Schools; provides information; and promotes exchange among doctoral students and lecturers.

Art. 4 Doctoral plan

Doctoral candidates prepare the doctoral plan in consultation with the doctoral thesis supervisor and ensure that the doctoral plan is submitted to the aptitude committee three working days before the aptitude colloquium.

Art. 5 Aptitude colloquium

¹ The doctoral thesis supervisor sets the date of the aptitude colloquium in consultation with the persons involved and the department secretariat.

² Only the doctoral candidate and the members of the aptitude committee take part in the aptitude colloquium.

³ The aptitude colloquium usually lasts 45 to 60 minutes and includes a presentation and a discussion of the research project described in the doctoral plan.

Section 3: Supervision of the doctorate

Art. 6 Approval of an adjunct professor or *PrivatdozentIn* as doctoral thesis supervisor

¹ At D-MATH, adjunct professors are on a par with professors with regard to the supervision of doctoral theses.

² *PrivatdozentInnen* require the approval of the department to supervise a doctoral thesis.

Art. 7 Special points of contact

¹ General organisational questions concerning the doctorate can be addressed to the department secretariat or the scientific secretariat of the ZGSM.

² For special extracurricular concerns D-MATH appoints a confidant for the doctorate.

³ This person and other department and ETH Zurich contact points are listed on the D-MATH intranet.

Section 4: Regular doctoral studies

Art. 8 Regular doctoral studies

¹ In consultation with the doctoral thesis supervisor, the doctoral candidate chooses the study achievements to be accrued in regular doctoral studies (without additional requirements; see Art. 34 of the ETH Zurich Ordinance on the Doctorate).

² As per Art. 36 of the ETH Zurich Ordinance on the Doctorate at least 12 ECTS credits must be acquired in three different areas; 1 credit corresponds to a workload of 25-30 hours. Further details regarding the creditability of various study achievements are listed in 10.3 of the Rector's Implementation Provisions for the ETH Zurich Ordinance on the Doctorate.

³ The number of credits awarded for regular courses usually corresponds to

- the number of weekly lecture hours for courses specifically designed for doctoral studies (e.g. *Nachdiplomvorlesungen*)
- half the number of weekly lecture hours rounded up for courses from the Master's curriculum, provided that these are also offered for doctoral studies

These courses usually conclude with ungraded semester performance tasks.

⁴ The personal performance required is determined by the lecturers. In addition to regular course attendance, expectations of the student include active participation in discussions and exercises and, if applicable, the presentation of learning content.

⁵ In exceptional cases, the doctoral thesis supervisor may decide on the creditability of a particular study achievement or certify the receipt of credits.

⁶ A compilation of the courses offered by ETH Zurich and the University of Zurich for the doctoral programme in Mathematics is published at the beginning of each semester in the electronic newsletter and the homepage of the ZGSM.

Section 5: Doctoral thesis and doctoral examination

Art. 9 External doctoral theses

Requests to conduct external doctoral thesis projects must be approved by the doctoral committee.

Art. 10 Cumulative doctoral theses

¹ Cumulative doctoral theses are possible. The individual papers involved, which may have been submitted for publication or published, should be thematically related, reproduced in a uniform layout and linked by an overarching introduction.

² The supervisor judges whether a paper or (especially in the case of co-authorship) part of a paper may be included in the thesis.

³ A published article may not be integrated as a whole into several doctoral theses.

Art. 11 Notification and approval of co-examiners

¹ The doctoral thesis supervisor communicates details of the co-examiners (both internal and external) to the department secretariat in good time such that they can be announced and approved at a Department Conference prior to registration for the doctoral examination.

² If an adjunct professor is the doctoral thesis supervisor it is not required that at least one co-examiner be an ETH Zurich professor.

Art. 12 Procedure before the doctoral examination and submission of examination copies and reports

¹ Registration for the doctoral examination with Academic Services may only proceed after completion of doctoral studies and only with the consent of the doctoral thesis supervisor.

² The documents listed in 11.4 of the Rector's Implementation Provisions for the ETH Zurich Ordinance on the Doctorate are required for registration. In particular, a printed examination copy of the doctoral thesis must be available to the department secretariat at this time.

³ The doctoral thesis supervisor sets the examination date in consultation with the doctoral candidate, the co-examiners and the department secretariat. The examination takes place at the earliest 15 working days and at the latest three months after registration for the examination. All reports must be received by the department secretariat ten working days before the examination.

Art. 13 Doctoral examination

¹ The doctoral examination addresses the content and the professional context of the doctoral thesis and comprises a presentation followed by a discussion.

² The first part of the doctoral examination is open to all scientists working at Swiss universities and research institutions and to all students and doctoral candidates in Mathematics and the other disciplines concerned. The examination chairperson may admit other persons. Questions from the audience are allowed.

³ Only the examination committee and the candidate take part in the subsequent examination discussion.

⁴ The examination committee decides whether the doctoral thesis will be accepted (possibly with additional requirements) and whether the doctoral examination has been passed.

⁵ A guide value for the total duration of the doctoral examination is 90 minutes.

Art. 14 Deposit copies of the doctoral thesis

In addition to the deposit copies of the doctoral thesis to be submitted to Academic Services, the doctoral candidate must submit a bound copy to the Mathematics Library.

Section 6: Final provisions

Art. 15 Transitional provisions regarding regular doctoral studies

Doctoral students who are completing regular doctoral studies under the previous regulations in accordance with Art. 65 of the ETH Zurich Ordinance on the Doctorate are subject to the provisions set out in Annex 1.

Art. 16 Entry into force

These detailed stipulations enter into force on 1 January 2022. They replace the detailed stipulations on individual doctoral studies of 27 May 2014.

Application of salary rates

Salary rates for doctoral students are governed by the stipulations set out in Art. 8, Para. 3 of the Ordinance Governing Scientific Employees of ETH Zurich⁶, in association with Section 1 (3) of the Directives for Doctoral Students Employed at ETH Zurich⁷.

D-MATH provides more specific details on the application of salary rates in its detailed stipulations regarding the Ordinance Governing Scientific Employees of ETH Zurich.

⁶ SR 172.220.113.11

⁷ RSETHZ 622

Annex 1

Department of Mathematics (D-MATH)

Detailed Stipulations on Doctoral Studies

of 27 May 2014

1. Upon regular consultation with their advisors and according to their needs, doctoral students decide on their choice of courses taken in the doctoral programme. The student has to take 1/3 of her/his classes outside of his research area.

During their studies, doctoral students are required to earn 12 credit units (KE, see Appendix C.1) from courses of the doctoral programme of the ZGSM (see point 2 below) or through the "Doctoral Studies Course" (see point 3 below).

2. In any given semester, the Newsletter of the Zurich Graduate School in Mathematics (ZGSM) publishes the courses offered in that semester together with the corresponding credit units (KE). For lectures at the doctoral level the amount of credit units for a course usually equals the number of hours of lectures per week, advanced undergraduate classes may also be offered for doctoral students with 1 KE per 2 hours of lectures per week.

3. Each advisor can offer to his/her doctoral students the course "Doctoral Studies Course" with one or two credit units per semester. At the discretion of his/her advisor, a doctoral student can earn in this way credit units for courses not listed on the programme of the ZGSM such as summer schools (usually $\frac{1}{4}$ KE per day at the summer school), working groups (Arbeitsgemeinschaften), or courses outside of mathematics. Altogether a doctoral student can earn at most 4 credit units from Doctoral Studies Courses.

The thesis and the examination are regulated by the D-MATH at ETH (see Appendix A) and the I-MATH at the UZH (see Appendix B) independently.

Appendix A - Additional regulations for doctoral students of the D-MATH at ETH

A.1 The student can only register for the examination once the advisor has verified the documents provided by the student that show that the student has fulfilled all official requirements, including the necessary 12 credit units, for the doctoral programme.

A.2 A cumulative dissertation is allowed. The various pieces of the thesis (which may be submitted for publication or already published) need to be on related topics and need to be combined with a general introduction.

A.3 The referee reports for the thesis have to reach the department at the latest 12 days before the doctoral examination.

A.4 The examination comprises two parts. In the first part the student gives a presentation on the thesis of about 45 minutes in length, which is followed by a public discussion. In this part all scientists from Swiss Universities and research institutes as well as students of mathematics and of the subjects that relate to the thesis are invited. The head of the examination committee may also allow other specialists. The second part of the examination consists of a discussion on the topics of the thesis. This takes place only between the examination committee and the student. The examination should take at least 60 minutes but usually not more than 90 minutes. The language of the examination is decided upon by the examination committee.

A.5 The student has to give a bound copy of her/his thesis to the library of the D-MATH. Exceptions to the above rules: If it should happen that the above regulations regarding allowed courses and KE lead to hardship cases, then the doctoral studies committee decides upon request on possible exceptions to these rules.

Appendix C - Notes

C.1 A credit unit (abbreviated KE for Krediteinheit) is not to be confused with the ECTS system of "credit points" which is used for the bachelor and master studies programme. The number of KE for a course is found in the ZGSM newsletter and will follow the definition that one KE should correspond to 25-30 hours of work for the average doctoral student.

The student earns credit units for a personal contribution in the course. The ZGSM considers the regular attendance, together with the work on the problem sheets, the contributions to discussions, and if required the presentation of topics, a sufficient condition for obtaining the credit units.

However, the personal contribution is verified by the lecturer and the precise method of checking the personal contribution will be decided by the lecturer.

C.2 Courses that have been listed in the bachelor or master degree of the student or courses that were required for entrance to the doctoral programme do not contribute to the required 12 credit units.

If the distribution of the credit units is not handled by the ETH or UZH electronically, then the lecturer signs the document "Testatbogen für Doktorierende". In exceptional cases the advisor can sign for the lecturer.

C.3 This English translation is provided for your convenience but officially only the German originals "Detailbestimmungen des Doktoratsstudiums D-MATH / I-MATH" are legally binding.