

## Appendix 1

To the Programme Regulations 2012 of the  
Master's degree programme in Mathematics

2 October 2018 (Version: 1 October 2021)

*Applies to students who commence or re-enter the degree programme in Autumn  
Semester 2022 or later.*

***This English translation is for information purposes only. The original German version is the legally binding version.***

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### Subject and scope

This appendix sets out the academic, language and performance prerequisites for and further details regarding admission to the Master's degree programme in Mathematics. It supplements the stipulations of the Admission Regulations of ETH Zurich and the Directive on Admission to Master's degree programmes.

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## 1 Profile of requirements

### *Policy*

For admission to the Master's degree programme in Mathematics (subsequently 'the degree programme') all of the following prerequisites must be satisfied.

### 1.1 Degree qualifications

<sup>1</sup> For admission to the degree programme one of the following is required:

- a. a university Bachelor's degree in Mathematics comprising at least 180 ECTS credits<sup>(1)</sup> or an equivalent university degree in Mathematics
- b. a university Bachelor's degree in a discipline other than Mathematics comprising at least 180 ECTS credits or an equivalent university degree which – also with the regard to any additional academic requirements within the given framework – satisfies the pertaining academic prerequisites.

<sup>2</sup> A Bachelor's degree qualifies its holder for admission to an ETH Master's degree programme only if it also qualifies said holder to enter, without additional requirements, the desired Master's degree programme within the university system where the Bachelor's degree was acquired. The Rector may also demand proof of this, determining whether such proof must come from the home university or from another university in the country where the Bachelor's degree was acquired.

### 1.2 Academic prerequisites

<sup>1</sup> Attendance of the Master's degree programme in Mathematics presupposes basic knowledge and skills in Mathematics which must in content, scope, quality and skill level be

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<sup>1</sup> ECTS: European Credit Transfer System. Credits describe the average time expended to achieve a learning goal. One credit corresponds to a workload of 30 hours

equivalent to those covered in the ETH Bachelor's degree programme in Mathematics (discipline requirements profile).

<sup>2</sup> The **discipline requirements profile** comprises **143 credits** in total and is based on knowledge and skills covered in the ETH Bachelor's degree programme in Mathematics, including the corresponding methodological scientific thinking skills. Details are set out in Para. 5 below.

<sup>3</sup> If an applicant does not completely satisfy the academic prerequisites, admission may be subject to the acquisition of the missing knowledge and skills in the form of additional requirements. Completion of additional requirements is expressed in credits. For further details, see Section 4 below.

<sup>4</sup> Admission to the degree programme is not possible if the academic gaps in the candidate's background are too extensive. For further details, see the Sections below.

<sup>5</sup> The **discipline requirements profile** is structured in the two parts set out below. Details regarding the content of the corresponding course units from the ETH Bachelor's degree programme in Mathematics are published in the ETH Course Catalogue ([www.courses.ethz.ch](http://www.courses.ethz.ch)).

#### **Part 1: Basic knowledge and skills (83 credits)**

Part 1 comprises 83 credits and covers basic knowledge and skills in Mathematics. The substance of the following course units is required:

- Analysis I and II (20 credits)
- Linear Algebra I and II (14 credits)
- Complex Analysis [Funktionentheorie] (6 credits)
- Algebra I and II (12 credits)
- Topology (6 credits)
- Measure and Integration [Mass und Integral] (6 credits)
- Probability and Statistics [Wahrscheinlichkeit und Statistik] (7 credits)
- Numerical Analysis I and II [Numerische Mathematik I und II] (12 credits)

#### **Part 2: Subject-specific knowledge and skills (60 credits)**

Part 2 comprises 60 credits and covers knowledge and competences in one or more of the disciplines Mathematics, Physics and Computer Science. Both pure and applied Mathematics should be represented. For example:

- Areas of pure Mathematics such as Algebra, Analysis and Geometry
- Areas of applied Mathematics such as Probability Theory, Statistics, Numerics, Theoretical Physics and Theoretical Computer Science
- Physics (e.g., the material taught in the Physics lectures on the curriculum of the ETH Zurich Bachelor's degree programme in Mathematics)

- Computer Science (e.g., the material taught in the «Computer Science» and «Algorithms and Complexity» courses of the ETH Zurich Bachelor's degree programme in Mathematics)

### 1.3 Language prerequisites

<sup>1</sup> The teaching language of the degree programme is English.

<sup>2</sup> For admission to the degree programme, proof of sufficient knowledge of English (Level C1)<sup>(2)</sup> must be provided.

<sup>3</sup> The required language certificates must be submitted by the application deadline. The ETH Zurich publishes a list of the language certificates accepted.

## 2 Specific stipulations for admission and entering the degree programme

### 2.1 Specific stipulations for admission to the degree programme

#### 2.1.1 Candidates with a Bachelor's degree in Mathematics from ETH Zurich

##### *Unconditional admission*

The following persons are guaranteed unconditional admission to the degree programme:

- Holders of a Bachelor's degree in Mathematics from ETH Zurich
- Students enrolled in the ETH Bachelor's degree programme in Mathematics

#### 2.1.2 Candidates with a Bachelor's degree in Mathematics from the University of Zurich

<sup>1</sup> A differentiation is made between the following types of Bachelor's degree in Mathematics at the University of Zurich (UZH):

- One-subject Bachelor's degree in Mathematics, with 180 credits in the subject of Mathematics (see Para. 2 below)
- Bachelor's degree with a major in Mathematics, with 150 credits in the subject of Mathematics (see Para. 3 below)
- Bachelor's degree with a major in Mathematics, with 120 credits in the subject of Mathematics (see Para. 4 below)

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<sup>2</sup> The required language level is measured according to the Common European Framework of Reference for Languages (CEFR) scale

## <sup>2</sup> *Unconditional admission*

- a. Unconditional admission to the degree programme is guaranteed for persons holding a one-subject Bachelor's degree in Mathematics from the University of Zurich with 180 credits in the subject of Mathematics.
- b. Admission is subject to fulfilment of the language prerequisites set out in section 1.3 above.

## <sup>3</sup> *Admission guaranteed*

- a. Admission to the degree programme is guaranteed for persons holding a Bachelor's degree with a major in Mathematics from the University of Zurich with 150 credits in the subject of Mathematics.
- b. Admission is subject to fulfilment of the language prerequisites set out in section 1.3 above.
- c. Admission may be subject to additional requirements.

## <sup>4</sup> *Admission not guaranteed*

Admission to the degree programme is *not* guaranteed for persons holding a Bachelor's degree with a major in Mathematics with 120 credits in the subject of Mathematics. This type of Bachelor's degree is subject to the stipulations set out in section 2.1.5 below.

### **2.1.3 Candidates with a Bachelor's degree in Mathematics from another Swiss university**

#### <sup>1</sup> *Admission guaranteed*

- a. Admission to the degree programme is guaranteed for persons holding a Bachelor's degree in Mathematics from a Swiss university (other than ETH Zurich and the University of Zurich) as long as this degree was a one-subject degree involving at least 150 credits in the subject of Mathematics.
- b. Admission is subject to fulfilment of the language prerequisites set out in section 1.3 above.
- c. Admission may be subject to additional requirements.

#### <sup>2</sup> *Admission not guaranteed*

Admission to the degree programme is *not* guaranteed for persons holding a Bachelor's degree from a Swiss university with a major in Mathematics with 120 credits or less in the subject of Mathematics. This type of Bachelor's degree is subject to the stipulations set out in section 2.1.5 below.

### **2.1.4 Candidates with a Bachelor's degree in Mathematics from a university outside Switzerland**

<sup>1</sup> Holders of a Bachelor's degree or the equivalent in Mathematics from a university outside Switzerland must satisfy all of the academic and language prerequisites listed in Section 1.2 and 1.3 above for admission to the degree programme.

<sup>2</sup> Admission may be subject to additional requirements.

<sup>3</sup> Admission is not possible if any of the following apply

- a. the language prerequisites are not satisfied
- b. the content, scope, quality and skills level of the degree are not equivalent to those at ETH Zurich
- c. the number of additional credits required to satisfy the academic prerequisites (see Section 1.2) exceeds 30 credits in total

### **2.1.5 Candidates with a university Bachelor's degree in a discipline other than Mathematics**

<sup>1</sup> Holders of a university Bachelor's degree or the equivalent in a discipline other than Mathematics may be admitted to the degree programme if they can satisfy all of the following prerequisites

- a. the academic requirements set out in Section 1.2 above are satisfied within the given framework
- b. the language prerequisites set out in Section 1.3 above are satisfied
- c. a very good academic performance during the Bachelor's degree studies

<sup>2</sup> Admission may be subject to additional requirements.

<sup>3</sup> Admission is not possible if any of the following apply

- a. the language or performance prerequisites are not satisfied
- b. the content, scope, quality and skills level of the degree are not equivalent to those at ETH Zurich
- c. the number of additional credits required to satisfy the academic prerequisites (see Section 1.2) exceeds 30 credits in total

## 2.2 Specific stipulations for entering the degree programme

### 2.2.1 Candidates with an ETH Bachelor's degree in Mathematics

Students of the ETH Zurich Bachelor's degree programme in Mathematics may enrol in the degree programme directly via [www.mystudies.ethz.ch](http://www.mystudies.ethz.ch). The admission procedure outlined in Section 3 is waived. Further details:

- a. The normal ETH enrolment dates and deadlines apply.
- b. Enrolment is possible as soon as:
  1. only a maximum of 45 credits towards the Bachelor's degree are pending; and
  2. the first-year examinations and the compulsory second-year subjects of the Bachelor's degree programme have been passed
- c. Admission is provisional until the Bachelor's degree is issued. Admission will be revoked if the Bachelor's degree is not or cannot be issued.

### 2.2.2 Candidates with an ETH Bachelor's degree in a discipline other than Mathematics

The following stipulations regarding entry to the Master's degree programme apply to students from an ETH Zurich Bachelor's degree programme (other than Mathematics) who have been granted admission:

- a. The normal ETH enrolment dates and deadlines apply.
- b. They can enrol in the programme once they have acquired that number of credits which would qualify them to enrol in the Master's degree programme consecutive to their original subject.<sup>3</sup>
- c. Admission is provisional until the Bachelor's degree is issued. Admission will be revoked if the Bachelor's degree is not or cannot be issued.

### 2.2.3 Candidates with a Bachelor's degree from another university

Non-ETH graduates who have been granted admission may only begin the degree programme when they have completed the previous (Bachelor's) degree programme.

## 3 Application and admission procedure

<sup>1</sup> All candidates – with the exception of matriculated ETH Zurich students from the Bachelor's degree programme in Mathematics – must submit an application for admission to the degree programme. The binding specifications for application, in particular the documents required and the submission dates/deadlines, are published on the website of the ETH Zurich Admissions Office ([www.admission.ethz.ch](http://www.admission.ethz.ch)).

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<sup>3</sup> The permitted number of missing credits is set out in the Programme Regulations of the respective consecutive Master's degree programme (e.g., BSc Physics → MSc Physics).

<sup>2</sup> Application may be made even if the required preceding degree has not yet been issued.

<sup>3</sup> Applications will not be considered if

- a. they are submitted late or not in the correct form, *or*
- b. the relevant fees have not been paid.

<sup>4</sup> The admissions committee of the degree programme determines how far the background of the candidate corresponds to the profile of requirements. The Chair of the admissions committee<sup>4</sup> formulates and submits an application for admission/rejection to the Rector.

<sup>5</sup> On the request of the Chair of the admissions committee the Rector makes the final decision regarding admission or rejection.

<sup>6</sup> The candidate receives a written admissions decision which includes relevant information concerning any additional admission requirements.

## **4 Fulfilling additional admission requirements**

### **4.1 General regulations**

<sup>1</sup> Candidates who are admitted subject to the fulfilment of additional requirements must acquire the required additional knowledge and skills before or during the Master's degree programme via self-study or by attending classes. The corresponding individual performance assessments must take place by set deadlines.

<sup>2</sup> If the candidate fails said performance assessments or does not respect the set deadlines she/he will be regarded as having failed the programme and will be excluded from it.

<sup>3</sup> The deadlines and conditions for undergoing said performance assessments are set out in Section 4.2 below.

### **4.2 Performance assessment deadlines and conditions**

<sup>1</sup> Candidates must undertake all of the performance assessments pertaining to the additional admission requirements by the end of the first year of the Master's degree programme at the latest. All additional requirements, including any assessment repetitions, must be fulfilled within 18 months of the start of the Master's degree programme at the latest.

<sup>2</sup> A pass grade in each individual performance assessment is required.

<sup>3</sup> A failed performance assessment may only be repeated once.

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<sup>4</sup> The Chair of the admissions committee must be an ETH Zurich professor.