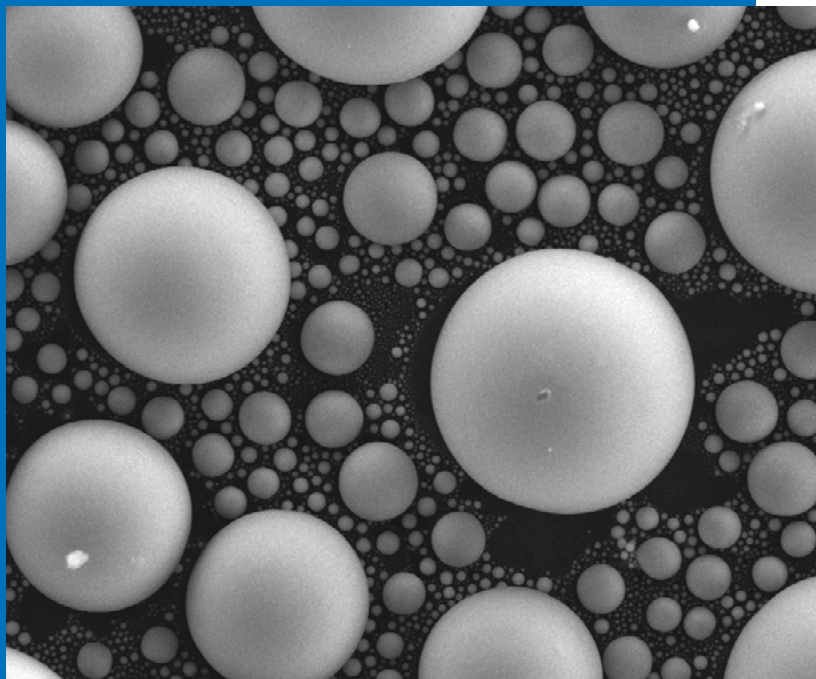


Study Guide



for the Doctorate at D-MATL

Content

1. Legal basis	2
2. Important associations and contacts	2
3. The phases of a doctorate	4
3.1 Admission	4
3.2 Supervision	4
3.3 Doctoral plan & aptitude colloquium	4
3.4 Progress report & annual status conversation	6
3.5 Doctoral studies	6
3.6 Writing the thesis & doctoral examination	8
3.7 Final steps	10
4. Overview of administrative steps	11
5. Contact, forms and documents	12
6. Notes	13

Doctoral studies at the Department of Materials

The Department of Materials at ETH Zurich offers doctoral students a broad portfolio of research topics, state-of-the-art infrastructure, the opportunity to educate themselves by attending lectures, courses and conferences and the possibility to engage in the department's teaching.

A doctorate is carried out in one of the department's research groups under the supervision of a professor. The topic of the project is discussed with the supervisor before starting the doctorate. The duration of the doctorate is established by the PhD supervisor and is on average four and a half years. The maximum duration is six years.

Doctoral students at the Department of Materials are typically associated with the [MaP Doctoral School](#) and one of its [thematic tracks](#). By being part of the School, you get access to new educational offers, to a network reaching across eleven ETH departments and you benefit from a varied program to develop your skills. Please note that you need to [sign-up](#) to receive information and invitations to the activities of the School. All offers and activities of the School are voluntary.

This summary provides doctoral students who have been admitted to the Department of Materials at ETH Zurich with an overview of the processes associated with the doctorate. Since a new Doctoral Ordinance came into effect on January 1, 2022, there is a transition period during which different rules may apply for doctoral students that started at different points in time.

1. Legal basis

The following documents provide the legal basis for the doctoral studies at the Department of Materials at ETH Zurich:

- [ETH Zurich Ordinance on the Doctorate](#)
- [Rector's Implementation Provisions](#)
- Detailed terms for doctoral students at the Department of Materials who started their doctorate:
 - until July 31, 2019:
[German](#) / [English](#)
 - after July 31, 2019:
[German](#) / [English](#)

2. Important associations, applications and contacts

AVETH and SAM

[AVETH](#), the Academic Association of Scientific Staff at ETH Zurich represents doctoral students, postdocs and other scientific staff at ETH Zurich. AVETH organizes events, is involved in university politics, offers counseling and other services for its members. In addition, AVETH published a very helpful [survival guide for doctoral students](#).

[SAM](#), the scientific staff association at D-MATL, is part of AVETH and offers events and services for all scientific staff members at D-MATL. SAM organizes, for example, the Materials Colloquium, an annual PhD and Postdoc retreat and

social activities. These events are great opportunities to familiarize yourself with the department and become an active member of the community. SAM also represents the scientific staff members in the department and teaching commission and can contribute ideas and raise concerns directly at the department level.

myStudies, VVZ and ETHIS

[“myStudies”](#) is the central web application for students to manage their studies. This includes, for example, the enrolment for courses that are part of the doctoral studies.

All important information regarding courses, course contents and performance assessments are published in the [Course Catalogue \(VVZ\)](#). The course catalogue for the next semester is generally published in calendar week 20 (for HS) and in calendar week 46 (for FS). The information published in the course catalogue is binding once the semester has started.

[“ETHIS”](#) is ETH Zurich's web portal for finance and personnel management, for example for keeping track of holidays or the reimbursement of expenses for conference travel.

Administrative support

As a doctoral student you may need administrative support in a variety of matters. There are three contacts:

The [Doctoral Administration Office](#) of ETH Zurich is your point of contact for general questions regarding the admission, the final steps, changing supervisor or withdrawal from the doctorate.

The [D-MATL study administration](#) provides advice and administrative support for all issues regarding your doctoral studies, the aptitude colloquium, accreditation of courses and the doctoral examination.

For all questions regarding employment, infrastructure or finances, your research group's administrative assistant will be able to help.

Difficult situations

If you experience difficulties, be it conflicts at the workplace or difficult personal situations, ETH Zurich and its organizations offer various counseling services.

Doctoral students and other department members at D-MATL are encouraged to contact the department head or the director of studies if an issue at the workplace arises that could not be solved with the direct supervisor.

D-MATL also assigned three additional persons of trust that are available to discuss problems in confidence. If you prefer to talk to your peers first, you may contact the volunteers of the SAM Counseling Helpdesk. All the contact information can be found on our [website](#).

You can also get professional advice at the [psychological counseling service](#). These services are confidential and free of charge.

Links to other websites that may provide helpful information

- [ETH Welcome Center](#): non-academic information on topics such as immigration, finding accommodation, child-care and living in Switzerland.
- [Master your Doctorate](#): short stand-alone events, workshops and seminars to support doctoral students
- [Maternity](#): information about rights and duties as an employee and expectant mother.
- [Language Center](#): possibilities to learn one of the Swiss languages and many others.
- [ASVZ](#): sporting activities at a minimal fee.
- [Career Center](#): offers career management [seminars](#) and other support for a career in industry

3. The phases of a doctorate

3.1 Admission

Doctoral students have a double status. They are registered as students and in most cases, they are employed at ETH Zurich or one of the institutions of the ETH Domain, for example Empa or PSI.

For registration, please follow the instructions on the [website of the Doctoral Administration Office](#) that manages this process for the whole university. Please note that at ETH Zurich, the contract of employment can only be drawn up once the application has been processed.

3.2 Supervision

Doctoral students at ETH Zurich are supervised by at least two persons: the doctoral thesis supervisor and a second advisor.

The doctoral thesis supervisor and you designate an academically qualified person with proven expertise as a second advisor. This person provides you with additional specialist support.

The second advisor is normally a professor or a permanent scientific staff member from a different research group at D-MATL or within the ETH domain. In case the doctoral thesis is carried out at Empa or PSI and the thesis supervisor is located at

ETH Zurich, the direct supervisor at Empa or PSI (usually a group leader) takes over the role of second advisor.

The doctoral administration must be notified of the second advisor with the [corresponding form](#).

3.3 Doctoral plan and aptitude colloquium

Within the first twelve months after starting the doctorate, you will need to submit a doctoral plan and pass an aptitude colloquium in front of the aptitude committee. This is a very important step during the doctorate.

a) Aptitude committee

The committee consists of at least three members: the thesis supervisor, the second advisor and the deputy head of department who acts as a chairperson. If the second advisor is not an elected professor, the aptitude committee must be supplemented by an additional member. This person must be an elected or associate D-MATL professor. The committee may include further additional members. These must be approved by the chairperson, if they are not elected professors or permanent scientific staff members.

b) Doctoral plan

The doctoral plan is prepared in consultation with the thesis supervisor. You need to demonstrate that you have identified

a research problem and that there are sufficient ideas to make sure a doctoral thesis can be written both at the level expected at ETH and feasible within the designated timeframe.

The document should contain

- the objectives and motivation of the doctoral thesis,
- placement in the scientific context,
- description of methodologies and procedures, and
- preliminary results.

The doctoral plan must also include an outline of the teaching duties, and possibly other tasks that you are expected to perform in the research group (for example equipment responsibility, outreach or others). The supervisory relationships must also be outlined.

The doctoral plan needs to be submitted to the committee at least two weeks before the date of the aptitude colloquium.

c) Aptitude colloquium

The aptitude colloquium consists of a 25-30 min presentation and 30 min discussion. The committee assesses the submitted doctoral plan and your overall performance at the aptitude colloquium. You also need to be able to answer general questions about background knowledge in your project area.

The committee reports the «passed» or «failed» verdict of the aptitude colloquium immediately. After passing it, definitive admission is issued.

A failed aptitude colloquium may be repeated once within four weeks to three months after the first attempt, provided that the doctoral thesis supervisor agrees to a repetition. The deadline is determined by the committee. The committee can also ask you to implement changes to the written document (i.e. the doctoral plan).

When looking for a date for the project assessment, please follow the [instructions](#) on the website.

After the project assessment the form «[assessment - aptitude colloquium](#)» and a copy of the doctoral plan with signature of thesis supervisor need to be submitted to the D-MATL study administration.

3.4 Progress report and annual status conversation

Once you have been definitively admitted, a progress report on the status of the research project and future plans must be put together annually. Significant deviations from the doctoral plan must be indicated. The progress report is discussed at the annual status conversation.

This meeting consists of two separate parts:

- Discussion of the academic progress on the basis of the progress report with the doctoral thesis supervisor and second advisor.
- Development discussion that includes mutual feedback and the further development of competences. This part is conducted confidentially between the doctoral thesis supervisor and the doctoral student.

It is the responsibility of the doctoral student and doctoral thesis supervisor that signed copies of the progress report and the result of the annual status conversation are kept until the completion of the doctorate.

3.5 Doctoral studies

a) Obtaining the credits

Doctoral students must continue their education and acquire a total of 12 credits. Each department issues their own detailed regulations on the extra requirements for these 12 credits. One credit corresponds to 25-30 working hours.

Enrolment before January 2022

- at least 4 of the 12 credits must be acquired outside the field of research.
- at least 8 of the 12 credits must be earned with courses or seminars.

Credits can be obtained for a variety of activities, for example oral presentations at an international conference, attendance of courses listed in the course catalogue, Summer Schools and participations in university bodies and committees. The detailed list can be found on our [website](#).

The following credits are counted as «outside the field of research»:

- language courses
- courses on scientific writing
- management courses
- courses offered by D-GESS

Any courses in natural sciences or engineering that should be counted as

«outside the field of research» need confirmation by the supervisor.

If you are not sure whether a certain course is «outside your field of research», please check with the study administration (e-mail to studies@mat.ethz.ch).

Please fill out the [course attendance confirmation sheet](#) for credits that are not listed in your myStudies account and have the form signed by your supervisor. Once you have acquired all course credits, the study administration will confirm on the [registration form](#) for the doctoral examination that you have obtained the credits that are associated with the doctoral studies.

Please fill in the form and pass by the study administration early enough, ideally 6 months before the doctoral examination, so that enough time is left in case one of the requirements is not met.

Enrolment after January 1, 2022

Doctoral students must obtain at least one ECTS credit in each of the following areas:

- Deepening and broadening of knowledge within and outside the research area of the doctoral thesis
- Acquisition of transferable skills (e.g. ethics, scientific writing, management)
- Integration into the scientific community

All doctoral students at ETH Zurich must obtain at least 1 ECTS on the topic of good scientific practice and ethics. The MaP Doctoral School offers a course that is tailor made for doctoral students in Materials ([327-2226-00 Ethics and Scientific Integrity for Doctoral Students](#)).

At D-MATL the following additional requirements apply:

- At least 8 ECTS must be obtained within the ETH domain.
- At least 8 ECTS must be acquired through the attendance of courses or summer/winter schools.
- At least 1 ECTS must be obtained in scientific writing.

Credits can be obtained for a variety of activities, for example oral or poster presentations at an international conference, attendance of courses listed in the course catalogue, Summer Schools and participations in university bodies and committees. The detailed list can be found on our [website](#).

We recommend the courses [327-0721-00 Writing for Publication in Materials Science](#) or [327-2229-00 From Idea to Submission: The Scientific Writing Process \(MaP Dr School\)](#) that are offered by the language center/MaP Doctoral School and are tailor-made for doctoral students of D-MATL. The Language Center also offers

a [Writing Center](#) and an [Advanced Writing Workshop](#) for additional consultation.

If you study under the new doctoral ordinance, you must request the completion of doctoral studies via myStudies before registration for the doctoral exam.

b) Being a teaching assistant

As a doctoral student you are not only working on your own research project, but you are also involved in the department's teaching and the supervision of students. These teaching duties are a great opportunity to develop personal skills, such as leadership and communication that may be important for your future career.

The type of teaching that you will be doing depends on the distribution of duties within your research group. Most doctoral students are involved in supervising laboratory courses or assisting in exercise classes for at least one semester during their doctoral studies.

In addition, many doctoral students supervise several Bachelor's theses or Master's theses and projects.

ETH Zurich offers courses for those interested in good practice in teaching, for example the course [Learning to Teach](#) offered by UTL.

3.6 Writing the thesis & doctoral examination

a) Writing the thesis

Since each research project is unique, there is no standard structure. A simple joining of publications is not allowed at D-MATL. The thesis must contain a comprehensive introduction and a summary/conclusion, the details of the writing are usually discussed with the thesis supervisor and are subject to the research group's policies.

There are some formal aspects that apply to all theses. These can be found on the [website of the Doctoral Administration Office](#).

b) Examination committee

The examination committee consists of a chairperson (any of the D-MATL elected professors can take over this role), the thesis supervisor and at least two co-examiners, one of which must be completely independent from the thesis supervisor. Additional experts can be included as additional members of the examination committee. At least one of the co-examiners must be from outside ETH Zurich (see [implementation provisions, item 11.3](#)).

The thesis supervisor must submit the examination committee to the D-MATL study administration, so that it can be approved by the department conference,

which takes place only four times a year ([see dates](#)).

c) Doctoral examination

Finding a date that suits all members of the examination committee can be tricky. We advise you to start planning well in advance. Room reservation for the doctoral examination is done by the doctoral student him- or herself. You may ask your group's administrative assistant for support with the reservation. Doctoral examinations often take place in the department's seminar room HCI J 498.

At least 20 working days before the doctoral examination the completed doctoral thesis must be submitted electronically to the examination committee and the D-MATL study administration. The format of the thesis must conform to the requirements specified in the rector's [implementation provisions](#).

At least 15 working days (Monday to Friday, no holidays) before the date of the examination, you must register for the examination with the Doctoral Administration Office. For the registration you need:

- A completed copy of the form [Registering for the doctoral examination](#)
- A copy of the thesis title page as PDF

The registration confirmation and thesis number will be directly sent to you and the department after processing.

Please also notify the D-MATL study administration of the date, time and location (online, hybrid or in person) of your doctoral examination and the e-mail addresses of your co-examiners. Since doctoral examinations are public, the study administration then sends out an invitation to the examination committee and the department.

If you pass the doctoral examination, the thesis still needs to be approved by the Department Conference ([see dates](#)). This happens automatically at the next Department Conference after the examination. In case corrections are requested, it may be approved at a later date.

If you do not pass the oral examination or your thesis is sent back for revision, the chairperson of the examination committee will inform you in writing of what you have to do next and will send you the deadline for revisiting the doctoral thesis or retaking the examination.

3.7 Final steps

After passing your doctoral examination, you still need to go through some final steps. After the doctoral thesis has been

approved by the Department Conference, you will receive a provisional confirmation by the Doctoral Administration Office. You will also be dematriculated on this date.

You then have 3 months during which you need to hand in [the deposit copies](#) of your thesis at the Doctoral Administration Office and submit the PDF to ETH Zurich's research collection. Only once these deposit copies have been delivered, you receive the definitive confirmation of the doctoral title.

The doctoral awards ceremony at which doctoral certificates are presented takes place four times a year. Once you have handed in the deposit copies to the Doctoral Administration Office, you receive a registration form for the ceremony.

The dates of the award ceremonies are published in the [academic calendar](#).

4. Overview of administrative steps

When	What	Who/Where
Before admission	Registration	Doctoral Administration (eApply)
Upon admission	Sign up for a thematic track of the MaP Doctoral School	MaP (online form)
Within 12 months	Submitting form for second advisor	Doctoral Administration (e-mail)
	Handing in signed documents for «Aptitude colloquium»	D-MATL Study Administration (e-mail)
6-3 months prior to doctoral examination	Complete doctoral studies	D-MATL Study Administration (HCP F 33.1 or e-mail)
	Approval of co-examiners	Supervisor → D-MATL Study Administration (e-mail)
Latest 15 working days before doctoral examination	Submission of thesis and registration forms	Doctoral Administration (e-mail)
	Send e-mail with time, place, co-examiner's e-mail addresses	D-MATL Study Administration (e-mail)
After the next department conference	Hand in deposit copies and upload the PDF into the Research Collection	Doctoral Administration (HG FO 23.1)

5. Contact, forms and documents

- [Aptitude colloquium](#) (D-MATL)
- [Registration for doctoral examination](#)
- [Course attendance confirmation sheet](#)

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HCP F 33.1

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