Study Guide

for the Doctorate at D-MATL
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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.

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 Zürich is your point of contact for general questions regarding the admission, the final steps, changing supervisor or withdrawal from the doctoral studies.

The D-MATL study administration provides advice and administrative support for all issues regarding your doctoral studies at D-MATL, e.g. registrations, accreditation of courses, deadlines etc.

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, childcare and living in Switzerland.
- 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.
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 Zürich 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 in general a professor or adjunct professor 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. Doctoral students, who started before 2022 must nominate their second advisor at the latest by December 31, 2022.

3.3 Research plan & project assessment (new: doctoral plan and aptitude colloquium)

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

a) Project committee (new: aptitude committee)

The committee consists of three to four members, of which at least three members need to be elected professors of D-MATL. The thesis supervisor, the second advisor and the head of department (or the deputy head) who chairs the committee must be present. If one of them is not an elected professor, another professor from among the elected members of D-MATL
needs to participate. Exceptions regarding the composition of the committee may be approved by the head of department.

b) Research plan (new: doctoral plan)
The research plan (or 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.

For doctoral students starting in 2022, 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 research plan (or doctoral plan) needs to be submitted to the committee at least two weeks before the date of the project assessment (or aptitude colloquium).

c) Project assessment (new: aptitude colloquium)
The project assessment (or aptitude colloquium) consists of a 25-30 min presentation and 30 min discussion. The committee assesses the submitted research plan (or doctoral plan) and your overall performance at the project assessment (or 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 project assessment (or 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 research or doctoral plan).

When looking for a date for the project assessment, please follow the instructions on the website.

Doctoral students who enrolled before January 2022: After the project assessment
the following three documents need to be submitted (as a PDF) to the study administration: approval of research plan, project assessment, copy of the research plan with signature of thesis supervisor.

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 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 will offer a course that is tailor made for doctoral students in Materials (more details will follow).

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 all students the course 327-0721-00 Writing for Publication in Materials Science that is offered once a year by the language center and is tailor-made for doctoral students of D-MATL. The Language Center also offers a Writing Center (two free consultations per semester) and an Advanced Writing Workshop for additional consultation.
b) Being a teaching assistant
As a doctoral student you are not only working on your own research project, but you will also be involved in the department’s teaching and/or the supervision of students’ projects. 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 (“Praktikum”) 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 LET.

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:
- An official title page is required.
- Each thesis must include an abstract in one official Swiss language and in English, plus a CV.
- References and quotes must comply to ETH Zurich’s citation etiquette.
- Copyrights must of course be respected.

For more detailed information, please have a look at the website of the Doctoral Administration Office.

b) Examination committee
The examination committee consists of a chairperson (the head of department or one of the former heads of department), the thesis supervisor and at least two co-examiners that are independent from the thesis supervisor. Additional experts can
be included as additional members of the examination committee.

The thesis supervisor must submit the examination committee to the D-MATL study administration, which takes care that the committee can be approved by the department conference, which takes place only four times a year (see dates).

For doctoral examinations that take place after January 1, 2024, at least one of the co-examiners must be from outside ETH Zurich (see implementation provisions, item 10.3).

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 25 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, item 10.4.

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 including confirmation of credits with original stamp and signature of the department.
- 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 and bring a printed copy of the completed thesis to the D-MATL study administration. 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 doctoral awards ceremony.

The dates of the award ceremonies are published in the academic calendar.
## 4. Overview of administrative steps

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<thead>
<tr>
<th>When</th>
<th>What</th>
<th>Who/Where</th>
</tr>
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<tbody>
<tr>
<td>Before admission</td>
<td>Registration</td>
<td>Doctoral Administration (HG F0 23.1)</td>
</tr>
<tr>
<td>Within 12 months</td>
<td>Submitting form for second advisor</td>
<td>Doctoral Administration (HG F0 23.1)</td>
</tr>
<tr>
<td></td>
<td>Handing in signed documents for «Research plan defense»</td>
<td>D-MATL Study Administration (HCP F 33.1)</td>
</tr>
<tr>
<td>6-3 months prior to doctoral examination</td>
<td>Obtaining confirmation of credit points for doctoral studies</td>
<td>D-MATL Study Administration (HCP F 33.1)</td>
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<tr>
<td></td>
<td>Approval of co-examiners</td>
<td>Supervisor → D-MATL Study Administration (e-mail)</td>
</tr>
<tr>
<td>Latest 15 working days before doctoral examination</td>
<td>Submission of thesis and registration forms</td>
<td>Doctoral Administration (HG F0 23.1)</td>
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<tr>
<td></td>
<td>Send e-mail with time, place, co-examiner’s e-mail addresses</td>
<td>D-MATL Study Administration (e-mail)</td>
</tr>
<tr>
<td>After the next department conference</td>
<td>Pick up your copy of the thesis (if still needed)</td>
<td>D-MATL Study Administration (HCP F 33.1)</td>
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<tr>
<td></td>
<td>Hand in deposit copies and upload the PDF into the Research Collection</td>
<td>Doctoral Administration (HG F0 23.1)</td>
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5. Contact, forms and documents

- Project assessment for doctoral students (ETH)
- Approval of research plan (D-MATL)
- Registration for doctoral examination
- Course attendance confirmation sheet

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