



University of
Zurich^{UZH}

ETH zürich



University
of Basel

Zurich-Basel Plant Science Center

Guide to the PSC PhD Program Plant Sciences 2020

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1 Why a PSC PhD Program in Plant Sciences?

Welcome to the PSC PhD Program in Plant Sciences. The Zurich-Basel Plant Science Center (PSC) offers training in techniques at the forefront of plant sciences and a qualification framework for building up transferable skills and competencies for a successful career in academia and beyond. These guidelines should help you plan your PhD studies and tailor your training to your needs. The guide outlines what professional skills we expect you to develop during your PhD studies (Section 3). In the training overview and course catalogue, we present the wide range of workshops, designed to help you attain these skills (Section 4).

As a PhD student, you make research your absolute priority. You are also expected to develop into an independent researcher, able to publish, present and communicate your work to a variety of audiences, including the public. You need to be able to write successful grant proposals. You must learn to be aware of your responsibilities as a researcher. You need skills to collaborate with other researchers and to build up your own scientific network.

You will need assistance in developing all these challenging skills. PSC trainings provide an introduction to conceptual and technical approaches in research and also up-to-date methodological knowledge from research frontiers in plant sciences. Our workshops aim to enhance your interdisciplinary research competence in the field of plant sciences and we offer training in the development of transferable skills following the competence matrix laid out in Section 3.

What if you plan to leave the academic world after your PhD studies? Our workshops provide training in a range of transferable skills that will prove valuable outside of academia as well. Completion of a structured PhD Program is expected by many potential future employers, both inside and outside academia.

To be awarded with the PSC PhD Program Certification, you must complete 12 ECTS during your 3-year PhD study period.

As outlined above, an excellent way to develop many of the skills, is by participating in the organization of our bi-annual international PSC PhD symposium (next in 2020). As part of the organization committee you will ensure a high-quality scientific program with invited speakers from all over the world in this highly interdisciplinary symposium.

Within the PSC PhD Program in Plant Sciences, you are embedded in a lively and international community of about 600 researchers.

2 Admissions, Registration and Regulations

2.1 Admission to the PSC PhD Program

The PhD Program is open to you if your research group has a membership within the PSC (overview of affiliated groups: www.plantsciences.uzh.ch/aboutus/people.html).

All PSC PhD students must be enrolled at the University of Zurich (UZH), ETH Zurich (ETHZ) or at the University of Basel (UNIBAS). The candidate is conditionally accepted to the PhD Program after requirements are fulfilled. Final acceptance depends on the formal admission requirements of the UZH, ETHZ or UNIBAS.

There are two tracks to join the PSC PhD Program. Track I and Track II (<https://www.plantsciences.uzh.ch/en/teaching/registration.html>)

To ensure equal treatment of Track I (recruitment via Life Science Zurich Graduate School, LSZGS) and Track II (direct application to the Principle Investigator, PI) candidates, and in accordance with the rules of the LSZGS, group leaders are required (as of January 2013) to organize a formal admission interview with their future PhD students if recruited via Track II. The interview should be conducted in presence of at least one other PI or faculty member, and the supervisor should fill out an interview protocol to be submitted to the program office. Please contact your supervisor if you are a Track II student.

2.2 Registration for the PSC PhD Program

All necessary documents (incl. an overview of all necessary processes) can be downloaded on our webpage: www.plantsciences.uzh.ch/teaching/phdplantscience/procedures.html

All students: Register for the PSC PhD Program of their choice by filling in the registration form provided on our webpage within 3 months after start of your PhD. We will then send you a welcome package with all necessary documents.

NOTE: For the progress supervision of the PhD students, the PSC and the UZH MNF are requested to use two different data and document management systems, depending on your home institution!

ETHZ/UNIBAS → **Dissertation Go (DissGo)**: <https://www.dissgo.uzh.ch/login>

You will receive your login after having sent the registration form for the PhD Program.

UZH MNF → **StudentAdmin**: <https://studentadmin.mnf.uzh.ch/>

You will receive your login after successful matriculation at the UZH.

At these databases you need to upload all the documents for certifying the progress of your studies (e.g. thesis committee meeting protocols, certificates of courses, etc.).

University of Zurich (UZH), Faculty of Science (MNF)

All PhD students must register for a structured PhD Program. The PSC office must sign the “Acceptance confirmation Structured Doctoral Program” letter that is part of your matriculation documents (for information about the matriculation see: <http://www.uzh.ch/en/studies/application/doctoralstudies>)

PSC can only sign the form after admission interviews have been conducted, and after we have received the signed interview protocol and the signed registration form. Registration is necessary within 3 months of beginning your PhD. Templates for both documents are available here: <https://www.plantsciences.uzh.ch/en/teaching/procedures.html>

Furthermore, PhD students must register to the UZH MNF by using the following link: Registration Doctoral Studies <http://www.mnf.uzh.ch/en/studium/phd/anmeldung.html>.

For more information on the Graduate Schools and Doctoral Studies at the MNF, please visit the following website <http://www.mnf.uzh.ch/en/studium.html>.

ETH Zurich (ETHZ)

PhD students must register to the ETHZ Admission for Doctorate by using the following link: <https://www.ethz.ch/en/doctorate/registration-admission.html>.

They need to fill the form to complete their application to the ETHZ: https://www.ethz.ch/content/dam/ethz/main/doctorate/files/application_form_doc.pdf.

University of Basel (UNIBAS)

PhD students must register to the UNIBAS, Philosophisch-Naturwissenschaftliche Fakultät by using the following link:

<https://philnat.unibas.ch/de/forschung/promotionphd/immatrikulation-ab-hs-2016-registered-fall-semester-2016-or-later/>.

2.3 Institution-specific regulations during PhD studies

First, you need to carry out your PhD studies in accordance with the regulations of your home institution (=Academic affiliation of the host laboratory where the research work is carried out). Thus, please refer to the regulations for PhD students of ETHZ, UZH or UNIBAS and of your home department/faculty.

Second, you need to comply with the regulations of the PhD Program.

On our website you'll find an overview table as a checklist of documents to be submitted during your PhD studies: <https://www.plantsciences.uzh.ch/en/teaching/procedures.html>

Here we present a brief summary of some of the relevant regulations at the three partner institutions:

University of Zurich (UZH), Faculty of Science (MNF)

For more information on the Graduate Schools and Doctoral Studies at the MNF, please visit the following website <http://www.mnf.uzh.ch/en/studium.html>.

Teaching requirements: PhD candidates must complete the "Planning teaching hours" form from the Department (Fachbereich) of Biology for the fulfilment of a minimum of 100 teaching hours and maximum of 420 hours. Please consult the following website for in-depth explanations of the teaching requirements: <https://www.biologie.uzh.ch/de/Studium/Doktorat.html>.

Planned teaching activities need to be submitted to via UZH MNF StudentAdmin.

Thesis Committee: The PSC PhD student and the supervisor select the thesis committee 6 months after the beginning of the project. The composition of the committee has to be as following: at least three members, including the supervisor. Two members of the committee (including the chairperson) are from the MNF with "Promotionsrecht" (Professors with the right to confer a PhD). Members with "Promotionsrecht" can be consulted on the following website:

<https://www.mnf.uzh.ch/en/fakultaet/fakultaetsangehoerige/promotionsrechtler.html>.

The thesis committee composition **must be communicated to the program office** and the UZH MNF via UZH MNF StudentAdmin.

The first **thesis committee meeting** should be held 6 – 12 months after the beginning of the PhD. Subsequent meetings are held every 12 months. If at the yearly meeting the thesis committee finds that the progress of the PhD candidate is not sufficient, it can request that the Dean of Studies disqualify the candidate. At least three members of the thesis committee (including thesis supervisor) have to be present. Participation of external members can also be arranged by using Skype, etc. It is the responsibility of the PhD student to set up the composition of the thesis committee, arrange the yearly thesis committee meetings, and document the activities.

The signed thesis committee meeting protocol is to be submitted to UZH MNF StudentAdmin within 8 weeks after the meeting took place.

All templates are available at:

<https://www.plantsciences.uzh.ch/en/teaching/phdplantscience/procedures.html>.

For details see: <http://www.mnf.uzh.ch/en/studium/reglemente.html#4>

ETH Zurich, D-USYS and D-BIOL

Research Plan: A written research proposal, including the research plan, is to be defined 12 months after registration. The research plan needs verification through the representative of the doctoral board and the thesis committee. Should a thesis be carried out outside the ETHZ domain, it should be specified in the research plan. Doctoral students who are requested to take qualifying exams may only submit their research plan once they have completed those exams.

The research plan needs to be submitted to the ETHZ Doctoral administration first! (Deadline, see ETHZ MyStudies). Afterwards, the Research Plan (pdf) needs be uploaded to DissGo.

Information on the research plan:

<https://www.ethz.ch/services/en/teaching/administration-doctorate/informationen-departemente/forschungsplan.html>.

Submission of the research plan for D-BIOL: <https://www.biol.ethz.ch/en/doctoral-studies/research-proposal.html>; and for D-USYS: <https://www.usys.ethz.ch/en/doctorate.html>.

Thesis Committee: The PSC PhD student and the supervisor select the thesis committee 6 months after the beginning of the project. For D-BIOL: The committee has min. three members: the official thesis supervisor (professor at the Department), the direct supervisor (if applicable), two additional professors or senior scientist of which one is independent from the institute of the official supervisor. For D-USYS: Direct supervisor plus at least one co-examiner (should not be from own group and not be a co-author with the candidate on papers

or manuscripts up to the point of the PhD defence).

The thesis committee composition must be communicated to the PSC program office in the Doctoral Agreement which has to be send to the program coordinator.

The first committee meeting should be held 6 – 12 months after the beginning of the PhD. Subsequent meetings are held every 12 months. It is the responsibility of the PhD student to set up the thesis committee, arrange the yearly thesis committee meetings, and document the activities. Participation of external members can also be arranged by using Skype etc.

The signed thesis committee meeting protocol is to be submitted to DissGo within 8 weeks after the meeting took place.

All templates are available at:

<https://www.plantsciences.uzh.ch/en/teaching/phdplantscience/procedures.html>.

D-BIOL: <https://www.biol.ethz.ch/en/doctoral-studies.html>

D-USYS: <https://www.usys.ethz.ch/en/doctorate.html>

ETHZ (all other Departments)

For information about your doctoral studies at ETHZ are available here:

<https://ethz.ch/students/en/doctorate.html>

Particular requirements of different ETHZ departments are available here:

<https://ethz.ch/en/doctorate/legal-basis.html>.

UNIBAS, Philosophisch-Naturwissenschaftliche Fakultät

Thesis Committee: The composition of the doctoral committee consists in the first supervisor, second supervisor, external members (e.g. experts and other experts, subject to application). The thesis committee composition must be communicated to the PhD Program office in the Doctoral Agreement (i.e. UNIBAS Doktoratsvereinbarung).

The thesis committee composition must be communicated to the PSC program office in the Doctoral Agreement which has to be submitted to DissGo.

The first **thesis committee meeting** should be held 6 – 12 months after the beginning of the PhD. Subsequent meetings are held every 12 months.

The signed thesis committee meeting protocol (i.e. UNIBAS Doktoratsvereinbarung) has to be submitted to DissGo within 8 weeks after the meeting took place.

You can find the templates on the following webpage of the PSC:

<https://www.plantsciences.uzh.ch/en/teaching/phdplantscience/procedures.html>.

For an description, please refer to:

https://philnat.unibas.ch/fileadmin/user_upload/philnat/3_Forschung/Doktoratsstudium_L_eitfaden_ENG_Version_10.2017_1.pdf.

Exam Registration and Doctoral Examination

The final degree is conferred by your home institution.

UZH, MNF

For your registration to the examination, have a look at:

(<http://www.mnf.uzh.ch/en/studies/students/doctoral-studies-at-mnf.html#c470>)

ETHZ

For your registration at the doctoral administration, have a look at:

(<https://ethz.ch/content/associates/students/en/doctorate.html>)

UNIBAS, Department of Environmental Sciences

Please study the document provided by the faculty:

<https://philnat.unibas.ch/de/forschung/promotionphd/immatrikulation-ab-hs-2016-registered-fall-semester-2016-or-later/>

2.4 Admission to Courses

We accept PhD students from LSZGS programs into our courses, provided that spaces are available. PSC students registered in the PSC PhD Programs (i.e. Plant Sciences or Science & Policy) have enrolment priority. For PhD students registered in LSZGS programs, all courses of the PSC PhD Programs are fully recognized.

PhD students select their individual course work in agreement with their PhD supervisor or their PhD thesis committee.

2.5 PSC PhD Certification

Upon successful completion of the PSC PhD Program in Plant Sciences, the PSC will award a program certification based on the following criteria:

- 12 credits (ECTS) acquired during doctoral term from lectures, courses and workshops. 1 ECTS is equal to either a lecture of 1 hour per week during one semester or a full two-to three-day workshop including homework or preparatory work (=30 learning hours).
- 6 ECTS from courses that are either organized or accredited by the PhD Program in Plant Sciences. We fully accredit the following courses: courses organized by the PSC.

(www.plantsciences.uzh.ch/teaching/phdplantscience/courses.html) or the LSZGS (www.lifescience-graduateschool.ch/index.php?id=11).

- 6 ECTS may be acquired in courses outside of our own program, for example from the PhD Programs associated within the Swiss Plant Science Web (www.swissplantsciencweb.ch/education/phd-programs/) or other national and international PhD courses. Note all ECTS acquired outside of UZH, UNIBAS, ETHZ and associated PhD Programs need a confirmed accreditation through the PSC office.

Fill the form at:
<https://www.plantsciences.uzh.ch/en/teaching/phdplantscience/procedures.html>

--> Accreditation of external ECTS.

- 1 ECTS can be earned for active presentations at international conferences, presentation and posters. Please contact the coordination office to receive the adequate template.
- Active participation in the colloquium "Challenges in Plant Sciences" (2 ECTS) during one semester is mandatory for the PSC PhD Certification in Plant Sciences. You are advised to participate in the colloquium at the beginning of your PhD studies. If you have already participated in the colloquium during your Master's studies you can choose your 12 ECTS freely from other courses organized or accredited by the PSC.
- 4 ECTS should be acquired in the area of transferable skills.
- It is possible to obtain credit points through the organization of the PSC PhD symposium (3 ECTS).

The PSC issues a PhD Program certification (incl. a transcript of all records) after all requirements have been fulfilled and the Doctoral Degree Certificate of your home university has been awarded.

For receiving the PSC PhD Program certificate:

- **Certificates** (pdfs) of all training activities (i.e. courses, workshops, summer school, conferences¹, etc.) need to be uploaded to DissGo (ETHZ, UNIBAS) or UZH MNF StudentAdmin (UZH)
- A copy of your **Doctoral Degree Certificate** has to be send to the PhD Program coordinator via E-Mail (pdf).

The certification will be prepared and send to you within 3 weeks of submission.

2.6 Confidentiality

It is an important goal that the participants of the PhD Program exchange their scientific results between different institutes and their host institution. Any such results shall be kept strictly confidential by all participants of the program and shall not be disclosed to persons

¹ Accreditation of credits for external course participation (incl. poster presentation or talks at international conferences) has to be requested using the corresponding document on the PSC Webpage: <https://www.plantsciences.uzh.ch/en/teaching/procedures.html>

outside of the program as long as the results are not published by the author/originator of the results. No participant of the PhD Program shall use any scientific result to the detriment of one of the host institutions. In particular, no participant shall impair a host institution's right to seek protection for intellectual property contained in such results by a way of a premature publication or other premature disclosure of results.

3 Curriculum and Course Catalogue

3.1 Curriculum

Note: For all students that have started their PhD after February 2016 it is mandatory to visit the LSZGS introduction event "Introductory Lecture to Good Scientific Practice and Scientific Integrity" (2 hours, no ECTS). Within the event you will sign the declaration of "Good scientific practice" that will become a part of your DissGo (ETHZ, UNIBAS) or MNF StudentAdmin (UZH) documents. Please, register via: <https://www.lifescience-graduateschool.uzh.ch/en/courses/tsc.html>. All PhD students that have or will visit a course on "Research Integrity" or "Ethics" in their PhD Program don't need to visit this introduction course.

Tailor coursework to your needs within the PSC PhD Program in Plant Sciences by combining courses from the following domains. Note, the colloquium is mandatory):

Activities	ECTS
<u>Compulsory Activity:</u> Colloquium "Challenges in Plant Sciences" [corresponding: 3.3.1]	2
<u>Core Elective Activity:</u> <ul style="list-style-type: none"> • Technical Courses in all areas of Plant Sciences: Intensive workshops on skills, methods and techniques used in plant science research [corresponding: 3.3.2] • Statistical Methods [corresponding: 3.3.3] • Transferable Skill Courses (Communicating and Disseminating Science / Professional Conduct in Research / Research Management / Professional and Career Development / Finance, funding and resources) [corresponding: 3.3.4] • Workshops from the specialized PSC PhD Program in Science and Policy can be accredited [corresponding: 3.3.6] 	4 - 10
<u>Elective Activity:</u> Remainder of 12 ECTS may be chosen from*: <ul style="list-style-type: none"> • Participation in international scientific symposium with own scientific contribution (oral or poster presentation) (max. 1 ECTS) • Transferable skill course can also be visited at GRACE (UNIBAS), GRC or LSZGS and other continuing education offers • Organization of PSC PhD Symposium (max. 3 ECTS) [corresponding: 3.3.5] 	max. 6

	12**
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* with approval from principal investigator or thesis committee.

** At UNIBAS, a total of 18 ECTS are requested.

The **mandatory** colloquium “Challenges in Plant Sciences” should be taken in the first half of the PhD studies (offered each autumn term). We strongly recommend that you complete additional coursework in the first half of your PhD:

- Scientific Writing I (offered each autumn term)
- Scientific Presentation Practice (offered each spring term)
- Responsible Conduct in Research (offered each spring term)
- Courses in Statistical Methods

PSC Summer Schools: Our summer schools allow students to engage in cutting-edge plant science topics and to meet the experts from all over the world. The summer schools address the biggest challenges currently facing science and society. Example topics from recent years:

2018 PSC Summer School: Responsible Research and Innovation in Plant Sciences

2017 PSC Summer School: Understanding Risks and Resilience in Plant Systems

2016 PSC Summer School: Agriculture in Transformation – New Concepts for an Agriculture Production that is socially fair, environmentally safe and economically viable

2015 IDP BRIDGES Summer School: Shaping our Future

2014 PSC Summer School: Green Revolution Reloaded - Emerging Technologies for Sustainable Crop Production

2013 Science & Policy Summer School: Governing the Transition to a Bio-based Economy

2013 SPSW Summer School 2013: Plant Volatiles: from lab bench to application

2012 SPSW and SystemsX.ch Summer School: Modelling Development in Plant Sciences

2011 SPSW Summer School 2011: Terrestrial Ecosystem Dynamics in a Changing World

2011 PSC-ETNA Summer School: Food Security – How can Science and Policy Contribute?

2010 SPSW Summer School: the global food crisis - how can plant sciences contribute?

3.2 Research and Transferrable Skills Developed in the PhD Program

All courses of the PSC have been developed to advance the acquisition of research skills and transferable skills that will serve you both in and outside of academia. Below is a list of skills we expect you to acquire during your PhD Program.

Cited and adapted from Joint Skills Statement (2001):

<http://www3.imperial.ac.uk/graduateschools/transferrableskillstraining/jointskillsstatement>

Research Skills and Techniques – you will develop:

1. The ability to recognize and validate research problems and to formulate and test hypotheses.
2. Original, independent and critical thinking and the ability to develop theoretical concepts.
3. Knowledge of recent advances within your field and in related areas.
4. An understanding of relevant research methodologies and techniques and their appropriate application within your research field.
5. The ability to critically analyse and evaluate your findings and those of others.
6. An ability to summarize, document, report and reflect on your research progress.

Understanding the Research Environment and the Scientific Community – you will develop:

1. A broad understanding of the context, at national and international levels, in which your research will take place.
2. Awareness of issues relating to the rights of other researchers, of research subjects, and of others who may be affected by your research, e.g. confidentiality, ethical issues, attribution, copyright, malpractice, ownership of data and the requirements of the Data Protection Act.
3. Appreciation of standards of good research practice in your institution and/or discipline.
4. An understanding of the relevant health and safety issues and responsible working practices.
5. An understanding of funding processes and evaluation of research.
6. The ability to justify the principles and experimental techniques used in your own research.
7. An understanding of the process of academic or commercial exploitation of research results.

Research Management – you will be able to:

1. Apply effective project management through the setting of research goals, intermediate milestones and prioritization of activities.
2. Design and execute systems for acquisition and collection of information through the effective use of appropriate resources and equipment.
3. Identify and access appropriate bibliographical resources, archives, and other sources of relevant information. Use information technology appropriately for database management, recording and presenting information.

Personal Effectiveness – you will develop:

1. A willingness and ability to learn and acquire knowledge.
2. An ability to be creative, innovative and original in your approach to research.
3. Flexibility and open-mindedness.
4. Self-awareness and the ability to identify own training needs.
5. Self-discipline, motivation, and thoroughness.

6. An ability to recognise boundaries and draw upon/use sources of support as appropriate.
7. Show initiative, work independently and be self-reliant.

Communication Skills – you will learn how to:

1. Write clearly and in a style appropriate for the purpose, e.g. progress reports, published papers, and PhD thesis.
2. Construct coherent arguments and articulate ideas clearly to a range of audiences, formally and informally through a variety of techniques.
3. Constructively defend research outcomes at seminars and in examinations.
4. Contribute to promoting the public understanding of your research field.
5. Effectively support the learning of others when involved in teaching, mentoring or demonstrating activities.

Networking and Teamwork – you will:

1. Develop and maintain co-operative networks and working relationships with supervisors, colleagues and peers, within the institution and the wider research community.
2. Be able to understand your behaviour and its impact on others when working in and contributing to the success of formal and informal teams.
3. Listen, give and receive feedback and respond perceptively to others.

Career Management – you will develop:

1. An appreciation for the need for and show commitment to continued professional development.
2. Ownership for and manage your career progression, set realistic and achievable career goals, identify and develop ways to improve your employability.
3. Demonstrated insight into the transferable nature of research skills to other work environments and the range of career opportunities within and outside academia.
4. An ability to present your skills, personal attributes and experiences through effective CVs, applications and interviews.

4 Reimbursement of Travel Expenses for PhD students at University of Basel

Enrolled PhD students in our programs from UNIBAS can ask for reimbursement of their travel (bus or train ticket, 2nd class) to PSC, ETHZ, UZH or other national training events. Contact Maura Ellenberger (Unibas, maura.ellenberger@unibas.ch). Please keep original ticket/receipt for reimbursement.

5 Legal basis for the PhD Program regulations at the home institutions

UZH

- Verordnung über die Promotion an der Mathematisch-naturwissenschaftlichen Fakultät der Universität Zürich (Promotionsverordnung) vom 31. Januar 2011.
- Doktoratsordnung für die Promotion an der Mathematisch-naturwissenschaftlichen Fakultät der Universität Zürich vom 13.12.2012.

ETHZ

- Ordinance on Doctoral Studies at the Swiss Federal Institute of Technology Zurich (Ordinance on Doctoral Studies ETH Zurich of 1 July 2008 (Version: 1 November 2013) (<https://rechtssammlung.sp.ethz.ch/Dokumente/340.31en.pdf>).
- D-USYS: Department of Environmental Systems Science (D-USYS) Detailed regulations for Doctoral Studies D-USYS (effective on 01.11.2013).
- D-BIOL: Department Biology (D-BIOL) Detailed Regulations for Individual Doctoral Studies from 1 December 2009 (As of 1 January 2014).
- Detailed regulations for individual doctoral studies (further ETH Departments) are available online: <https://ethz.ch/en/doctorate/legal-basis.html>.

UNIBAS

- Promotionsordnung der Philosophisch-Naturwissenschaftlichen Fakultät der Universität Basel vom 15. September 2015 (https://www.unibas.ch/dam/Oeffentliche-Dokumente/Rechtserlasse_LegalRegulations/Phil.-Nat.Fakultaet_FacultyofScience/Promotion_Doctorate/446_730_P_Phil_Nat_00.pdf).