



Eidgenössische Technische Hochschule Zürich  
Swiss Federal Institute of Technology Zurich



Universität  
Zürich<sup>UZH</sup>

## LSZGS PH.D. PROGRAM “Biomedicine (BioMed)”

### MISSION STATEMENT

The comprehensive study and understanding of organ function in health and disease (physiology and pathophysiology) requires multidisciplinary approaches in basic and applied biomedical research. The Ph.D. program “Biomedicine” (BioMed) is part of the Life Science Zurich Graduate School (LSZGS) and imparts knowledge, concepts and modern technologies to address complex Biomedical Science questions on a molecular, cellular and systems level with the vision to advance clinical translation and improve patient care. BioMed offers students a strong interactive program that combines groups from the Swiss Federal Institute of Technology in Zürich (ETHZ), the University of Zürich (UZH) and the University Hospital Zürich (USZ). The highly international scientific environment at the three institutions combines cutting-edge research with a modern teaching curriculum.

### PROGRAM OVERVIEW

The Ph.D. Program “Biomedicine” is a 3-4 year MSc. (or equivalent) to Dr. sc. program. It is part of the Life Science Zurich Graduate School. Participating students can choose from a broad selection of research topics and participate in cutting edge research. Enrollment into the program is decided by an admission committee.

To graduate, students need to fulfill the following requirements:

- Participation in at least two student retreats of the program, including paper or poster presentation
- Passing of two exams (defense of research project and strategy) during the second and third committee meeting
- Submission and defense of a Ph.D. thesis describing the student’s original research work
- Other requirements imposed by the host institution (University of Zurich (UZH) or ETH Zurich) which also include the acquisition of at least 12 credit points (ECTS).

The final degree is conferred by either the University of Zurich or the ETH Zurich, depending on the academic institution where the student is matriculated.

### BASIC REGULATIONS

- Once Ph.D. students are accepted by a professor to her/his research group (either via track I or track II) they have to register at the professor’s university

(UZH or ETH). The Professor is affiliated with either a given “faculty” at University of Zurich (UZH) or a given “department” at ETH.

- The professor’s research group will be hosted by one of the various institutes in the different fields of research at UZH and ETH.
- BioMed is an international Ph.D. program under the umbrella of the Life Science Zurich Graduate School.
- Regulations regarding the written thesis and defense to obtain the Ph.D. are determined by the dean’s offices of the Universities and faculties or departments.
- Acquisition of ECST credits is required by both universities.

## **SPECIFIC REGULATIONS FOR THE PhD Program**

### **1. Admission**

Applicants must hold a Master's degree or equivalent from a university before starting the BioMed Ph.D. program, but applications can be submitted before obtaining the degree. Applicants should, however, obtain their degree within six months after the application deadline. Students of the Life Sciences, (Bio)Informatics, Mathematics, Medical Sciences or (Bio)Engineering are invited to apply via the Life Science Zurich Graduate School. Admission to a graduate school is a prerequisite for enrollment and obtaining a doctoral degree at the University of Zurich, but not at ETH.

#### **1.1. Track I and Track II**

For admission to the BioMed program, students can either apply to the LSZGS (track I) or directly to a research group leader at UZH or ETHZ, who is a member of the BioMed program (track II). Track II candidates can apply to the BioMed program via the LSZGS application tool before the start of thesis, but no later than 3 months after start of the PhD thesis.

#### **1.2. Applications**

Application deadlines for the BioMed Program via track I are December 1<sup>st</sup> and July 1<sup>st</sup>. Applications via track II are accepted year-round. Candidates have to apply via the online application tool provided by the Life Science Zurich Graduate School (LSZGS).

In step 1 of the application process, you can select the BioMed PhD program as program preference. For further information please refer to the website of the LSZGS.

#### **1.3. Admission Interviews**

The BioMed program commission consists of five to eight research group leaders and a student representative and reviews all applications and selects the best candidates for an admission interview. Interviews for track I candidates take place twice a year, while interviews for track II candidates take place four times a year. For positively evaluated students from outside of Europe, a selection interview may be

conducted by video conference. The interviews involve the presentation of a research project (ideally the Master thesis) by the candidate and will determine, whether the candidate's scientific knowledge, motivation and English communication skills are sufficient for admission. Based on the interview, the BioMed program commission decides on the admission of the candidate to the program.

Track I applicants invited for an on-site interview will have the opportunity to meet with group leaders of their choice to discuss possible areas of research and PhD projects. The official language of the program is English. Accommodation and travel expenses for the on-site interview of track I applicants are reimbursed by the LSZGS.

Candidates that are accepted into the BioMed program are informed shortly after the interviews and should ideally start their work within six months of acceptance. Accepted applicants will have to register for student status with the faculty of science (MNF) of the University of Zurich or a given department at ETH Zurich, depending on the affiliation of their host research group.

Candidates who have not been admitted to the BioMed PhD program cannot reapply. Candidates, who have previously been rejected from a different doctoral program at the LSZGS, cannot apply to the BioMed program.

## **2. Thesis Committee**

The thesis committee consists of at least 4 members

- The official thesis supervisor (BioMed member)
- The direct thesis supervisor (BioMed member)
- A mentor (BioMed member who must not be from the same institute as the direct thesis supervisor; appointed by the BioMed program)
- An external expert (not BioMed).
- Additional members can be appointed

The official thesis supervisor who represents the student in the department (ETHZ) or faculty (UZH) will chair the thesis committee.

At least two members of the thesis committee have to have the right to award doctorates at the Faculty of Science (MNF) for students matriculated at the UZH.

The chair:

- Guides through the meeting (students may prepare a short agenda beforehand)
- Checks that the committee members have obtained the proposal or progress report in advance
- Gives the student the opportunity to speak to the committee in absence of the direct thesis supervisor
- Gives the direct thesis supervisor the opportunity to speak to the rest of committee in the absence of the student
- Checks that the report written by the student circulates among the committee members allowing them to provide additional comments.

- Once all members have agreed, the chair signs and forwards the meeting form, potentially with additional attachments, to the BioMed program coordinator.

The mentor:

- Participates in the committee meetings
- Functions as independent counselor for both, the PhD student and the other members of the committee and ensures a mutual fairness between student and supervisor and/or committee
- The mentor must not be from the same institute as the direct thesis supervisor and not be involved in the project of the student

With regard to the thesis committee, the Ph.D. Program “Biomedicine” complies with the ETH Zurich and University of Zurich regulations.

### **3. Project/Research Proposal**

Within the first six months, the student writes a research proposal describing her/his PhD project in the format of a short grant application. It should contain the background of the research field, preliminary results (if any), the specific aims and planned experiments (max. 3'000 words excluding references). Please include the title page that is provided by the BioMed program. At the first meeting (see below), the proposal has to be signed by all committee members and submitted to the program administrator via DissGo by the student. This document is the doctoral agreement and has to fulfill the requirements of the faculty (UZH) or department (ETH) the student is enrolled in or affiliated with. The student has to hand in the research proposal to the faculty/department and BioMed administrators.

### **4. Thesis Committee Meetings and Reports**

The students are responsible for organizing the meetings. At least three members (including the direct thesis supervisor) have to be present at each meeting. The students have to make sure their department's (UZH) or faculty's (ETH) requirements regarding progress reports and committee meetings are met additionally to the BioMed's regulations. At every meeting, the chair of the doctoral committee must keep a transcript of the proceedings (minutes), which has to be signed by her/him and submitted to the BioMed program office via the DissGo platform within a week of the meeting.

The first thesis committee meeting is held at the end of month 6. Subsequent meetings are held after 1.5 and 2.5 years and, if necessary (see below), before the end of the 4<sup>th</sup> year.

The research proposal and progress reports should be sent to all members of the thesis committee no later than two weeks before the respective meeting.

During the 1<sup>st</sup> meeting, the student has to present the research proposal in a short presentation followed by a discussion with the committee members. The student will additionally present the plans for her/his course work (collection of ECTS) and (if applicable) her/his teaching assignments. The first meeting will also discuss the performance of the student during the initial 6 months of work.

During the 2<sup>nd</sup> meeting 1.5 years after the start of the thesis, the student has to present and discuss research progress, data and future strategy. The 2<sup>nd</sup> meeting will also review the course work (collection of ECTS) and (if applicable) her/his teaching assignments..

During the 3<sup>rd</sup> meeting 2.5 years after the start of the thesis, the student has to present and discuss her/his research data in a scientific context/background and defend project, data and strategy. The defense has to be passed in order for the student to proceed to the PhD defense. In case of a 'no-pass', the defense has to be repeated within 2 months. The 3<sup>rd</sup> meeting will also review the course work (collection of ECTS) and (if applicable) her/his teaching assignments.

During the 4<sup>th</sup> meeting (only mandatory in case the PhD defense does not take place within 1 year after the 3<sup>rd</sup> meeting), the student has to present and discuss her/his research data in a scientific context/background. The 4<sup>th</sup> meeting will also review the course work (collection of ECTS) and (if applicable) her/his teaching assignments.

The following requirements for the reports apply:

**Title page, proposal only:** Please use the template provided by BioMed.

**Report-form, subsequent committee meetings:** Please use the template provided by BioMed.

Content:

- Introduction (suitable for 'general biologists')
- Description of the questions/hypotheses/goals that the dissertation will address
- Experimental approach/strategy
- Preliminary data obtained in the period until submission of the proposal/the most important results of the time passed
- Time schedule (what should be achieved when and by which means)
- List of relevant references, cited in the text

Should the student repeatedly fail to comply with the regulations regarding the organization of thesis committee meetings, he or she may be excluded from the program by the chair of the Ph.D. program.

## 5. Coursework within the PhD Program

### 5.1. Credit points

The program includes a curricular part of at least 12 ECTS credits. The curricular part is determined individually by each doctoral student. Attendance of the course 'Introduction to Scientific Integrity' as well as at least two visits of the yearly retreat of the BioMed Ph.D. program over the course of the Ph.D. are compulsory.

The 12 ECTS Credits can be collected through the participation in program specific courses as detailed on the BioMed homepage, in transferable skills courses at the UZH or ETHZ or in courses offered by other institutes of higher education.

A maximum of 2 ECTS can be acquired by preparing a grant proposal of at least CHF 20'000 as principal author. A maximum of another 2 ECTS credits can be

gained by the presentation (oral, poster) of scientific data at an international conference (1 ECTS per poster / presentation).

## 5.2. Thematic Block Courses

Compulsory courses:

- Introduction to Scientific Integrity 0 ECTS
- Attendance of 2 PhD retreats 0 ECTS

Elective courses, 1 week each:

- Diabetes and the Metabolic Syndrome 2 ECTS
- Basic and Applied Cancer Biology 2 ECTS
- Stem cells and Regeneration 2 ECTS
- Genomic Medicine 2 ECTS

Elective courses, 2 days each:

- Introduction to human physiology:  
Membrane transport / Signal transduction 1 ECTS
- Mouse physiology and pathophysiology 1 ECTS
- Molecular Biology Methods 1 ECTS
- Introduction to human physiology: Sensory systems:  
How we hear and see 1 ECTS
- Introduction to human physiology:  
Regulation of cardiovascular function 1 ECTS
- Introduction to human physiology:  
Respiration and blood 1 ECTS

Additional courses of variable length:

- BIO632 - Introduction to Flow Cytometry 1 ECTS
- Supervision of molecular biology lab class 1 ECTS
- LSZGS – transferable skills courses variable ECTS
- LSZGS – program specific courses variable ECTS
- Graduate Campus UZH – transferable skills courses variable ECTS

Additional possibilities to collect ECTS:

- Writing a grant proposal worth of at least CHF 20'000 2 ECTS
- Presentation of a poster or a paper at an  
international meeting (1 ECST per presentation) max 2 ECST

For other courses, an email request has to be sent to the BioMed director (Prof. C. Wolfrum (if you are with an ETHZ group) or Prof. C. Grimm (if you are with a UZH group)) with information on your own curriculum, course details and ECTS. Courses have to be conform with faculty/department regulations (responsibility of the student) and need to be agreed upon with the direct thesis supervisor.

## 5.3. Seminar Series

The students should visit seminar series of their host institute and of other institutes either at the University of Zurich or at ETH.

## 5.4. Advanced Courses

Advanced courses also outside Zurich, such as summer schools, are encouraged throughout the Ph.D. program. All courses have to fulfill UZH/ETH requirements and if not listed here have to be approved by the BioMed Director on the basis of your curriculum and detailed information on the course.

## **6. Off-Site Meeting, Annual Retreat**

The attendance of two annual retreats is mandatory for all BioMed students. Participation in additional retreats is possible, depending on availability of space. Participating students have to submit an abstract and present their work. Some will be chosen to give a talk, all others will present their work in poster sessions. It is not guaranteed that everyone gets a chance to give a talk throughout their participation in the program.

## **7. Teaching**

It is obligatory for Ph.D. students of the MNF (UZH) to assist with teaching according to the document "Teaching requirement for PhD students" (please refer to [www.biologie.uzh.ch/Studium/Doktorat.html](http://www.biologie.uzh.ch/Studium/Doktorat.html)). A minimum of 100 to a maximum of 420 hours of teaching is required for each student. For ETH students, no formal teaching requirements exist. Participation in course supervisions need to be discussed on an individual basis with the PhD supervisor

## **8. Written Thesis**

The PhD project is usually completed within 3 to 4 years (full-time). During this time, the PhD student should contribute to at least two peer-reviewed publications that are published, accepted for publication or submitted. The PhD student should be the primary author of at least one of these publications.

The dissertation thesis summarizes the own independent scientific research and can be written in a cumulative (several publications) or thesis format.

It is the student's responsibility to learn about the regulations regarding the format and procedure of completing the Ph.D. at the department (ETH) or faculty (UZH) where they are registered. Information is available on the respective web pages.

The Ph.D. students are required to strictly apply the rules for correctly citing works by others and for avoiding plagiarism.

## **9. Thesis Defense**

After handing in the thesis, there will be an exam led by the professors of the examination committee (ETHZ) or doctoral committee (UZH). The thesis defense will follow the rules established by faculty (UZH) or department (ETH) at which the candidate is registered as a student. Differences lie in the format of the exam, such as the length of the presentation and exam part, or whether it is public or not. The chair for the exam will be provided by the department (ETH) or is the chair of the PhD committee (UZH).

## **10. Publications and Presentations**

Any publications with a Ph.D. student as author or co-author should mention the Ph.D. program “Biomedicine” in the author’s affiliation. The Ph.D. program should also be mentioned on posters and in the acknowledgements of scientific talks.

## **11. Confidentiality**

One important aspect of the Ph.D. program is the exchange of scientific data and results between the different institutes of the participating universities. These results are to be treated with confidentiality and cannot be communicated to individuals outside of the program as long as the results are not published by the author or originator of the data.

Participants of the Ph.D. program cannot use scientific results to the disadvantage of the Universities involved and no participant should obstruct the universities’ right to intellectual property by premature publication or other premature announcement of results.