Universität Zürich[UZH]

ETH Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich

LIFE SCIENCE ZURICH

LIFE SCIENCE ZURICH GRADUATE SCHOOL ANNUAL REPORT 2021

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(Photo by Stefan Walter)

1 Executive summary

With 2021 being year two of the Covid-19 pandemic, a return to “normality” was, unfortunately, still out of reach. Though courses, gatherings and admission interviews carried out in zoom were no novelty anymore, the personal and thus also the scientific exchange between students and program members had to happen most of the time virtually. It is very likely that we will only know in a few years, which aspects of the PhD education were affected the most by the Corona crisis. Similar to the rest of the world, the Life Science Zurich Graduate School (LSZ GS) tried to maintain all their services, but it could of course not make up for the missing social interactions that are of such a paramount importance for a comprehensive doctoral education.

In the year 2021, the Life Science Zurich Graduate School did not undergo any major organizational changes, there are still 16 PhD programs and one MD-PhD program assembled under the roof of the Graduate School. At present, the LSZ GS includes 646 research group leaders and 1’655 doctoral students (as of 31 December 2021). Compared to 2020, the number of principal investigators (607) increased a bit more than the number of early researchers (1’629). 59.5% of our doctoral students are female and more than 72% come from abroad. 60.5% of them are enrolled at the University of Zurich, 38% at ETH Zurich and 1.5% at other academic institutions in Switzerland (mainly at the Universities of Basel and Berne).

The LSZ GS could again test the “new” organization of the recruitment introduced in September 2020 with a first, virtual round of “lab visits” and a second, optional round of in-person meetings. While on-site visits were extremely scarce in February – only 18 candidates of 151 interviewed applicants travelled to Zurich – one third of the September candidates (44 out of 126) arranged an in-person visit despite of sometimes complicated and frequently changing travel restrictions. In fact, the Program Directors’ Conference (PDC) decided unanimously in November 2021 to keep the 2-step intake in place for the time being. They not only hold that the virtual interviews are easy to organise and to carry out, but also the programs can potentially invite a bit more applicants because general expenses and travel costs are considerably lower. Last but not least, the LSZ GS might contribute actively to the reduction of carbon emissions and make the recruitment a bit more sustainable.

In general, the recruitment numbers are a bit a mixed bag of downward and upward trends. For the 1 July deadline, the numbers of complete applications dropped by roughly 150 compared to the numbers of the previous deadline (1502 and 1’686 respectively). Interestingly, the LSZ GS obtained for the July 2021 a maximum of 3’704 applications and it remains a mystery why more than 2’100 applicants did either not finish their application or not submit it. The number of complete applications is, of course, only one landmark of a given recruitment round. In February, 70% of the offered positions were filled, however the rate dropped to 59% for the September interviews. In contrast to these good to average rates, the matching rates were with 38% (February) and 41% (September) clearly on the low side. All in all, most of the rates are on the lower side and just within the average of past years. We will of course carefully observe the further developments and make any necessary adjustments where it is indicated.

With 40 transferable skills courses and 750 participants the LSZ GS reached again the level of the pre-pandemic years. Except for 10 courses, all were jointly offered or funded by a doctoral program or another university institution and the Graduate School. The constantly changing restrictions the Covid-19 crisis entailed forced the trainers to remain flexible regarding the offered settings sometimes until the very end of their workshop. The variety of the used formats - on-site, virtual, embedded or hybrid - might be another of the many legacies that will outlast the pandemic.

2 Introduction

The idea to found a graduate school that houses all the different PhD programs in the Life Sciences offered at the University of Zurich and the ETH Zurich came up in September 2005. On 8 December 2005, the Life Science Zurich Graduate School was officially launched and became an autonomous branch of the Life Science Zurich Initiative. The LSZ Graduate School currently consists of seventeen highly competitive PhD programs. Thanks to a strong teaching curriculum and a clear mentoring system these programs attract the best students worldwide.

2.1 Mission

The aim of the Life Science Zurich Graduate School is to promote first-class graduate education in the life sciences at the University of Zurich (UZH) and the ETH Zurich (ETH). The LSZ GS offers centralized services (e.g. recruitment administration, assistance in identifying new funding possibilities) and products (e.g. transferable skills courses) that support established PhD programs and facilitate the development of new programs in the Life Sciences. The centralized administration of these services enables the individual PhD programs to focus on the education of their graduate students within the respective research fields. The individual PhD programs are thereby relieved of administrative tasks and ensuing costs in areas not directly related to their specific research fields.

Specifically, the Life Science Zurich Graduate School aims:

- to increase the visibility and attractiveness of the LSZ-PhD programs world-wide in order to reach excellent undergraduates who consider doing a PhD in the life sciences
- to initiate the recruitment process to attract the best students internationally
- to improve the coordination of recruitment, avoiding redundant reviews of applicants
- to support the development of new PhD programs
- to improve the coordination of teaching for PhD programs with common areas of interest and/or curricula
- to support the PhD programs by providing a centralized course program in relevant transferable skills for all graduate students
- to provide support on career development for the graduate students; alumni of the LSZ GS should be equipped with the key attributes for successfully entering the competitive job market in the life sciences
- to identify and pursue new funding opportunities for the Graduate School and its member PhD programs (e.g. European funding, foundations, SNF)
- to ensure *quality* and *sustainability* of the services and products of the LSZ GS

The LSZ Graduate School:
a family of PhD programs spanning the Life Sciences

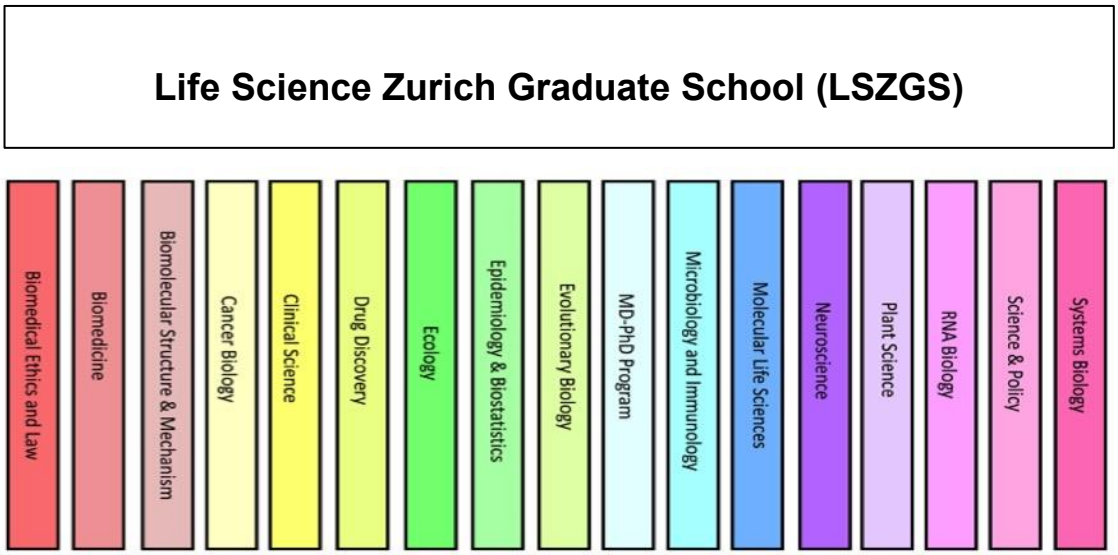

Figure 1: Chart of the LSZ Graduate School PhD programs

Numbers: ▪16 PhD programs and 1 MD-PhD program ▪ over 500 research groups ▪ more than 1600 students

2.2 Strategy and products of the LSZ GS

The major units of the LSZ GS are:

a) LSZ GS Directors' Conference (program directors from each PhD program form the steering committee)
b) PhD programs
c) Graduate School office: administration

Table 1: Roles and responsibilities of the LSZ GS units

Unit	Roles and responsibilities
LSZ GS steering committee	• Strategic development of LSZ GS • Advice and support for the PhD programs and GS administration • Development of common criteria for quality assurance of the PhD programs • Promotion of relevant contacts within the scientific community of life sciences • Identification of common course needs • Development of a transferable skills curriculum • Identification and development of joint funding initiatives
PhD programs	• Evaluation and acceptance of students into the program • Development, implementation and funding of a discipline-specific graduate curriculum • Quality assurance • Fundraising for a specific PhD program • Tracking development of the students within each program • Funding travel expenses and accommodation for interview candidates from abroad
Graduate School office	• Increasing visibility of the PhD programs world-wide • Advertising the graduate school and its recruitment procedure (advertisements on web platforms, posters etc.) • Coordination of the recruitment process (application forms, internal and external communication, i.e. information to PI and to candidates) • Organization of interviews • Funding for PR, the common application platform and the transferable skill courses • Development and maintenance of the LSZ GS web site for dissemination of information • Financial planning and financial controlling of the LSZ GS activities (esp. recruitment and courses) • Advice and support for the development of new programs (practical procedures, know-how transfer) • Fundraising for LSZ GS in areas *independent* of a specific research field (e.g. for common activities or for fellowships for students from a specific country) • Development and organization of a centralized Transferable Skills Course Program for all graduate students, including acquisition, commitment and support of internal and external facilitators, advertising the courses (GS web site) and coordinating sign-up • Support for the career development of graduate students (courses, activities, web-information) • Assurance of quality and sustainability of the services and products of the LSZ GS office • Exchange and collaboration with other units of the Life Science Zurich • Exchange and collaboration with other graduate schools, both in- and outside of Zurich

2.2 a) LSZ GS Steering committee and participating PhD programs

With the fusion of the Integrative Molecular Medicine (imMed) and the Molecular and Translational Biomedicine (MTB) program to the new Biomedicine (BioMed) program that was approved in May 2019 by the PDC, the Life Science Zurich Graduate School got reduced to sixteen PhD programs and a MD-PhD program. Each program is presided by a director, who generally represents the program in the steering committee (see list below). In 2021, this steering committee met twice in order to decide on the strategic orientation and development of the Graduate School. Since July 2017, Prof. Eilika Weber-Ban, Institute of Molecular Biology and Biophysics (ETH) is presiding the LSZ GS as chair. Prof. Alex Hajnal, Institute of Molecular Life Sciences (UZH) is the current vice-chair.

Table 2: Directors of the LSZ GS PhD programs

Program	Director
Biomedical Ethics and Law [medical track]	Prof. Nikola Biller-Andorno (Institute of Biomedical Ethics, UZH)
Biomedicine	Prof. Christian Grimm (Division of Ophthalmology, USZ) Prof. Christian Wolfrum (Institute of Food, Nutrition and Health, ETH)
Biomolecular Structure and Mechanism (BSM)	Prof. Raimund Dutzler (until July 2021) (Institute of Biochemistry, UZH) Prof. Martin Jinek (since July 2021) (Institute of Biochemistry, UZH)
Cancer Biology	Prof. Maries van den Broek (Institute of Experimental Immunology, UZH)
Clinical Science	Prof. Dr. med. Beatrix Latal (Children's hospital Zurich)
Drug Discovery	Prof. Michael Arand (Institute of Pharmacology and Toxicology, UZH)
Ecology	Prof. Anna-Liisa Laine (Institute of Evolutionary Biology and Environmental Studies, UZH)
Epidemiology & Biostatistics	Prof. Torsten Hothorn (Institute of Social and Preventive Medicine, UZH) Prof. Milo Puhan (Institute of Social and Preventive Medicine, UZH)
Evolutionary Biology	Prof. Kentaro K. Shimizu (Department of Evolutionary Biology and Environmental Studies, UZH)

Program	Director
MD-PhD Program	Prof. Adriano Aguzzi (Institute of Neuropathology, UZH) Prof. Alexandra Trkola (Institute of Medical Virology, UZH)
Microbiology & Immunology (MIM)	Prof. Rolf Kümmerli (Department of Quantitative Biomedicine, UZH) Prof. Jörn Piel (Institute of Microbiology, ETH)
Molecular Life Sciences (MLS)	Prof. Ohad Medalia (Department of Biochemistry, UZH)
Neurosciences (ZNZ)	Dr. Wolfgang Knecht (Institute of Brain Research, UZH)
Plant Science (PSC)	Prof. Samuel Zeeman (Institute of Agricultural Science, ETH)
RNA Biology (RNA)	Prof. Frédéric Allain (Institute of Biochemistry, ETH)
Science and Policy	Prof. Ueli Grossniklaus (Institute of Plant Biology, UZH)
Systems Biology	Prof. Uwe Sauer (Institute of Molecular Systems Biology, ETH) Prof. Jörg Stelling (Department of Biosystems Science and Engineering, ETH)

Program administrators, who are in charge of day-to-day affairs, normally also participate in steering committee meetings, although without voting rights. They have their own meetings to discuss more practical issues as well as administrative matters. They get together irregularly throughout the year and gather also informally for lunch or coffee. The following persons currently act as program administrators:

Table 3: Administrators of the LSZ GS PhD programs

Program	Administrator
Biomedical Ethics and Law [medical track]	Dr. Roberto Andorno Michelle Heimgartner (Institute of Biomedical Ethics, UZH)
Biomedicine (BioMed)	Andrea Schmitz (ZIHP, UZH)
Biomolecular Structure and Mechanism (BSM)	Judita Tillova (Institute of Biochemistry, UZH)
Cancer Biology	Bettina Rausch (Institute of Molecular Cancer Research, UZH)
Clinical Science	Lisa Marxt (until October 2021) (Dean's Office of the Faculty of Medicine UZH) Lea Schwab (since October 2021) (Dean's Office of the Faculty of Medicine UZH)
Drug Discovery	Susanne Holliger (Institute of Pharmaceutical Sciences, ETH) Olga von Niederhäusern (Institute of Pharmacology and Toxicology, UZH)
Ecology	Dr. Debra Zuppinger-Dingley (Institute of Evolutionary Biology and Environmental Studies, UZH)
Epidemiology & Biostatistics	Dr. Sarah Ziegler (Institute of Social and Preventive Medicine, UZH)
Evolutionary Biology	Dr. Tony Weingrill (Anthropological Institute, UZH)
MD-PhD Program	Jacqueline Wiedler (Institute of Neuropathology, UZH)
Microbiology & Immunology (MIM)	Judith Zingg (Institute of Microbiology, ETH)
Molecular Life Sciences (MLS)	Dr. Susanna Bachmann (Institute of Molecular Life Sciences, UZH)
Neurosciences (ZNZ)	Heidi Gauss (Neuroscience Center Zurich, UZH & ETH)

Program	Administrator
Plant Science (PSC)	Dr. Melanie Paschke Dr. Luisa Last (Institute of Plant Science, ETH)
RNA Biology (RNA)	Rahel Büchi (Institute of Biochemistry, ETH)
Science and Policy	Dr. Luisa Last (Institute of Plant Science, ETH)
Systems Biology	Dr. Andrea Huber Brösamle Swantje Pless (Department of Biosystems Science and Engineering, ETH)

Graduate School student body 2021

Table 4: Graduate School Student Body

Details of each program are published in the appendix 2.

Total numbers as of 31 December 2021	
Total students	1655
Affiliated at UZH	1005
Affiliated at ETH	623
Other affiliation	28
Track I students	596
Track II students	1062
Female students	988
Male students	668
International students	1189
Swiss students	467
Program drop-outs	106
Completed PhD	268
Program alumni	3183

2.2 b) Graduate School office

Since 1 April 2006, the Graduate School has its own administrative office. Dr. Susanna Bachmann is employed on a part-time basis of 40% and attends the day-to-day business of the LSZ GS. Since June 2011, Helen Stauffer is working as assistant for Life Science Zurich. She dedicates about 25% of her employment to the LSZ GS.

The school administrator attended the EUA-CDE (European University Association - Council for Doctoral Education) thematic online workshop on “Artifical intelligence, data management and the digital world of doctoral education” on 21-22 January 2021. She also participated in the 3rd online Pride Conference on 5-6 May 2021. Between 13-15 September she took part in the vitual EUA-CDE Annual Meeting on “Preparing doctoral education for a post-pandemic world”. Furhermore, she met online with the other members of the GRADE (Goethe Research Academy for Early Career Researchers) advisory board on 6 October for the annual encounter.

In addition, she attended a 1-day course on “Supporting student & staff mental health and well-being” held by Desiree Dickerson and organized by the Graduate Campus of the University of Zurich on 8 February. Later that month she followed a one-day webinar on “New Perspective on Teams and Individuals” offered by Rob Thompson (RTTA). In order to strengthen the marketing outreach of the Graduate School, the school administrator also participated in two short virtual lectures on the recruitment of doctoral students offered by FindAPhD.

3 Activities

3.1 Recruitments

As in former years, for both recruitment rounds the applicants of the Indian subcontinent (India, Pakistan and Bangladesh) formed the largest group (approximately 1/4 of all applicants of the December and the July deadline). They were followed by students from China, Italy, Iran and Germany in varying order for the two deadlines (see appendix 3).

Table 5: Complete applications per PhD program in 2021

	1 Dec. 2020	1 July 2021	1 Dec. 2021
Biomedical Ethics and Law (med. Track)	no data	no data	no data
Biomedicine	101	58	82
Biomolecular Structure and Mechanism	42	44	55
Cancer Biology	208	173	201
Clinical Science	16	18	19
Drug Discovery	96	71	80
Ecology	62	41	28
Epidemiology and Biostatistics	46	72	63
Evolutionary Biology	27	8	12
Microbiology and Immunology	224	150	174
Molecular Life Sciences	209	139	174
Neuroscience	197	114	171
Plant Science	70	96	75
RNA Biology	31	35	25
Science and Policy	235	430	34
Systems Biology	122	53	67
TOTAL	**1'686**	**1'502**	**1'260**

A glance at the total of application numbers in figure 2 makes it obvious that these numbers are constantly varying and it is difficult to find a satisfying answer why there is such steady boom and bust. While we saw numbers decreasing in 2016 and 2017, the negative trend came to a temporary halt in December 2018. Though most programs obtained again less applications for the deadline in July 2019, the dip was not as dramatic as it looks like. Several programs did not secure their data for the this deadline and had no access to it after the LSZ GS had given up the Glowbase application platform and switched to the new tool. With the switch of the application database the numbers raised again up to 1'493 for the December 2019 deadline and remained nearly the same for the following July 2020 deadline. Despite another increase of around 200 applications for the December 2020 deadline, the next downward trend already set in for the following, July 2021 deadline. We will only know in the future, whether we will have reached with the total of 1'260 applications the current trough or not.

While the implementation of a more user-friendly database and the Covid-19 pandemic might partially explain the short boom between mid 2019 until end of 2020, it is more difficult to think of convincing reasons for the actual low. It is possible that the surge of the Omicron wave in

November 2021 had this time a contrary impact and may have led quite a few applicants to give up or postpone their plans to study abroad. However, the Omicron variant of the Corona virus cannot have been reason for the incipient downwards trend in summer 2021. Interestingly, the LSZ GS obtained for the July 2021 a maximum of 3'704 applications and it remains a mistery why more than 2'100 applicants did either not finish their application or not submit it. Equally, the Science & Policy program attracted in Summer 2021 many more applicants than usual. But again it is difficult to explain why half of their applicants decided against submitting their application.

With the pandemic, the whole recruitment process underwent in summer 2020 for the first time a fundamental re-organisation. The Directors' Conference had agreed in May to have a two-step recruitment with a first virtual round of admission interviews and meetings with PIs and group members. These were carried out during the same time as usual (Wednesday to Friday of week 6 and 36) but thereafter the applicants and PIs were free to arrange personal meetings or to come to a job agreement without having met each other in person. This new two-step process remained in place in 2021 with more (September) or less (February) applicants be able to travel to Switzerland for lab visits. In fact, the Directors' Conference decided in November 2021 that the LSZ GS will keep for the time being this two-step process. Main driver for this decision was not the pandemic situation anymore or the saved costs but the apirations of the Faculty of Science to reduce carbon emissions of the unit. While in 2021 there were still travel restrictions in place or people entering Switzerland had to certify that they were either vaccinated against Sars-CoV-2, recently cured from an infection or tested negative, the graduate school is yet to run and test the new regime under "normal" conditions. So far, the number of applicants who accepted a job offer without visiting the lab has continuously decreased from September 2020 to September 2021, whereas the number of in-person lab visits went up at a similar pace.

Although the matching rates were within the range of the last years, it is still too early to draw already any conclusions and to recognise trends. We will most likely have to further adapt and amend the whole recruitment process once all the pandemic restrictions are relieved. The virtual recruitment has definitely its strengths and advantages but lab visits extending over several months might not be the most convincing means to fill PhD vacancies in fast moving times. If the LSZ GS manages to find a good balance and a timely succession of virtual and on-site events, it should be able to hold it's ground and remain an attractive player with a good visibility in order to recruit a satisfactory number of excellent PhD applicants.

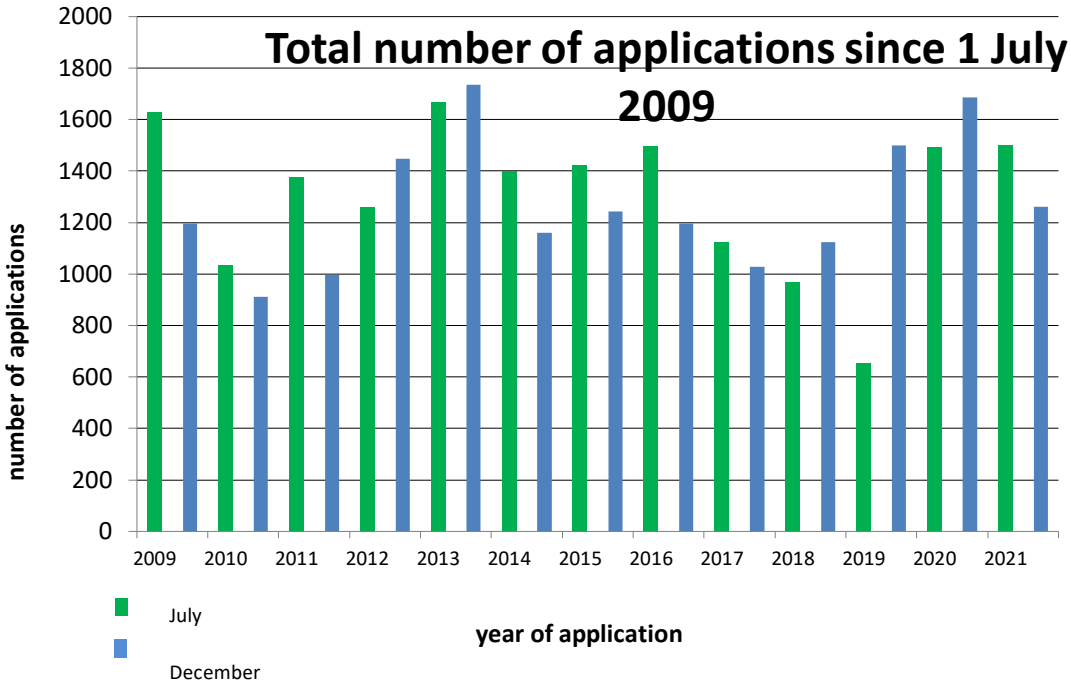

Figure 2: Total number of applications since 1 July 2009.

The trend we observed in the past years with the female students slowly but steadily catching up in number with the male applicants remained more or less on the level of the past years. In December 2020, we obtained 145 applications more from female than from male students. In July 2021 the difference was only 30 applications. As for the previous recruitment rounds, we invited clearly more female than male candidates for an interview. Most of the applicants learned about the program from the internet (from our own web page or ads on different recruiting web sites, a fourth indicated google search). As in former years, applicants also learned about the program from friends who have once applied to the LSZ GS or who are performing their PhD in one of the programs. With the pandemic we definitely gave up the poster as a recruiting tool, which means that we do not send around printouts anymore but still use a pdf version of the poster for the online and email marketing.

After the admission committees of the different programs had reviewed the applications, the top 10-12% of the applicants were invited to virtual admission interviews. Whereas in December, only 39% of the interviewed candidates were offered a position in Zurich, this rate was with 41% only a little bit higher in July. Both rounds were clearly on the low side of recruitment success compared to previous years. In the winter round, 12% of the accepted candidates rejected a position offered by our group leaders or dropped out of the recruitment process after the interview. In contrast, with 6% this ratio was quite a bit lower in summer and again within the range of past rounds (4-10%). Many of the students who turned down our offer probably joined other very strong programs in Europe or in the US. The drop-out rate before the interviews was with 23% for the December deadline on the very high side and with 18% for the July deadline on the upper side of the average of former recruitment rounds (15-20%).

Table 6: LSZ GS recruiting statistics in 2021

	Dec. 1, 2020	July 1, 2021	Dec. 1, 2021
Complete applications	1’686	1’502	1’260
Invited candidates	194	153	*
Drop-outs before interview	43	27	*
Candidates at interview	151	126	*
Free slots	81	87	*
Matches	57	51	*
Candidates without matches	71	56	*
Decision against LSZ GS	18	7	*
Rejected candidates	5	14	*

*data will be included in 2022 annual report

In February 2021 (December 2020 deadline), we managed to fill 70% of the open positions -– despite the travel restrictions because of the Corona pandemic. With 59% this ratio was a bit less successful in September 2021. Still both rates correspond to the average of the last years. Although we were relieved to see that the changes because of the Covid-19 crisis did not affect the entire recruitment process in a very negative way, we will still have to stand the test of time. Many matches in February happened without PI and PhD candidate meeting personally, actually only 18 of the 151 candidates at interview came or could come for a visit to Zurich (this number does not include Switzerland-based students unless they claimed travel costs with the LSZ GS office). In September, when travelling was already quite a bit easier 44 out of 126 interviewed applicants arranged in-person lab visits. As it is at the moment difficult to predict to what kind of “normal” we will return after the pandemic and how the directors’ conference might decide in future upon the introduced changes in the recruitment process, we do not plan major alterations for 2022 but we will concentrate on smaller amendments and analyse the feedback of the PhD applicants and PIs very carefully when planning the next recruitments.

Because not all open positions can be filled during a given recruiting round and some outstanding applicants don’t want to wait for 6 months, if they have just missed an application deadline, all programs also accept "track II" candidates. Track II students are students who have applied independently to (and have been accepted by) a group leader who is a member of a specific PhD program. This more traditional way of recruiting students is more pronounced in some programs than in others. Currently, about 5 out of 8 students are hired via track II. Applications of track II students are administrated directly by the different programs.

3.2 Data systems and webpages

In hindsight, it had been a wise and timely decision to give up the Glowbase application platform in 2019 and to switch to the “join” database programmed by a small team based at the Institute of Mathematics at UZH. At least regarding the recruitment database the LSZ GS was as prepared as possible to tackle the challenges the Corona pandemic brought.

Instead of fully concentrate on amending the weaker parts of the application platform or introducing additional “nice-to-haves” during the year 2020, the graduate school was forced to implement completely new functions: because of the restrictions the Covid-19 crisis entailed, the entire recruitment process had to be redefined. Thus the fine-tuning was postponed for one year and just one main goal was set for 2021: to better represent the single steps of the application process by the layout of the database and to guide the candidate through the entire process from submitting the application until accepting a job offer. This additional feature was implemented in summer so that the invited candidates of the July intake could resort to a useful aid to guide them through the upcoming steps of the application process. A green window on the dashboard now shows them the current application phase with the next upcoming deadline. By clicking on the corresponding link the overview of the process pops up and indicates to the applicant at which stage he or she is and which steps are yet to come with which deadline. It seems that this additional feature is serving the purpose of guiding better through the application process and reducing the confusion of the candidates regarding the different deadlines for the in-person visits and the final preference list.

Nr.	Step	Deadline / End	Instructions	Status
1	Submit Application	01.07.2021	Fill out at least all required fields of the application form. This includes asking up to four referees to write a letter of recommendation for you. You may submit your application when at least two letters of recommendation have arrived.	✔
2	Wait for Review	31.07.2021	Your application is being reviewed.	✔
3	Select Positions	08.08.2021	Go to Open Positions. Choose and rank up to eight positions you are interested in. At least your top two positions have to match your primary program interest. Submit your choice before the deadline. Furthermore, you should receive an invitation for the admission interview per email.	✔
4	Wait for Schedule	03.09.2021	Please wait until 03.09.2021 while an interview- and lab-visit-schedule is being prepared.	✔
5	Pass the Admission Interview & Go to (virtual) Lab Visits	Admission Interview: 08.09.2021 End of Lab Visits: 11.09.2021	Admission Interview: Your interview will take place on 08.09.2021, 10:00 at the location: zoom: https://uzh.zoom.us /j/63219757033?pwd=TVU3djcyNG1yUWd3OC8yVVd5Wnd0Zz09. (Virtual) Lab Visits: You can find your schedule for (virtual) lab visits in the Calendar.	Admission Interview: ✔ (passed) (Virtual) Lab Visits: ✔
6	Select Labs You Want to Visit in Person	14.09.2021	Go to In Person Lab Visits and choose which labs you would like to visit in person. If you don't want any lab visit, proceed to step 8.	✔
7	Go to (in person) Lab Visits	30.11.2021	You have 3 in-person lab visits scheduled. You can view the Details to see who invited you and you may find further information regarding the visit in the Calendar. Please be aware that lab visits for this round are scheduled continuously. No fixed schedule will be published beforehand.	✔
8	Create your Final Position-Wishlist	30.11.2021	Make your final preference list. Preference list	✔ (1 positions are on your final preference list)
9	Accept or Decline Potential Job Offers	No job offer yet	You will be notified via email if you receive a job offer. You may accept or decline these offers via email or directly on the page Job Offer Detail	(no job offer received so far)

Unfortunately, there are no news to report regarding the “DissGo” database, the LSZ GS’s own PhD portal. Since the Program Directors’ Conference decided - under reserve that there is a solution for the administrative handling of the ETH students - to give up “DissGo” in favor of the

“studentadmin” datasystem the Faculty of Science (MNF) had introduced in early 2019, things have not moved any further. “DissGo” is still used by the program coordinators because “studentadmin” does not offer them the data and functions they need to govern the programs. However, most programs offered their UZH students to switch entirely to the studentadmin in order to avoid that they have to feed two systems with their data. Thus “DissGo” is only used to administrate the PhD students but the data documenting their PhD process (doctoral agreement, research proposal and committee reports) are stored in “studentadmin”. Because “DissGo” is not going to be used in the longer run, the LSZ GS was recultant to implement any new features.

Another reason why the negotations with the Faculty of Science regarding the inclusion of the ETH PhD students in the studentadmin did not move further after a first meeting in December 2019 was the fact that ETH was about to implement new regulations for the doctorate for the Fall 2021 semester. Therefore, the representatives of the D-BIOL suggested waiting until all the details of the regulations were known and the new ordinance officially approved before entering in detailed discussions. With a small delay the new promotional regulations will enter into force as from January 2022 and the LSZ GS hopes that it can come over the unsatisfying database deadlock in the coming year.

3.3 Transferable skills courses

Besides the centralization of the application process, one of the main motivations to found the Graduate School was to offer common courses, which are not related to the specific scientific focus of a program. The transferable skills course (TSC) program of the Life Science Zurich Graduate School focuses on the development and training of some key skills early stage researchers should dispose of for carrying out their dissertation project as well as for their future career, be it as scientist or in a leading position in industry or the public sector. The offered courses can roughly be grouped in 5 categories: Best Scientific Practice and Ethics, Communication & Presentation Skills, Methodical Skills, Scientific Writing and Publishing as well as Social and Self-Management Skills. Nearly 750 PhD students attended one or several of the 40 courses the LSZ GS offered in 2021. Because some programs disposed still of a lot of swissuniversities funding but could not spend it on social activities such as retreats or symposia, they decided to offer their doctoral students at least a plethora of online courses. Although the LSZ GS organized most courses of the TSC, they were in fact bearing only the costs of 10 courses fully by themselves. As in former years, several courses were organized by another university institution such as the Functional Genomics Center Zurich or the Animal Welfare and 3R. 3 courses were offered by in-house staff and thus not liable to costs. The program administrators agreed on the following policy for joint courses: the organizing program obtains half of the seats for its own students, if the LSZ GS bears half of course costs. Should the program need more seats, the LSZ GS reduces its financial support accordingly.

For organisational reasons, the LSZ GS offers also a few methodological courses within the TSC – these courses are normally taught by the facility centers of the universities, such as the Functional Genomics Center or the Flow Cytometry and the Microscopy and Imaging Centers. In 2018, we therefore renamed the course program webpage slightly to “Transferable and Methodological Skills Course Program”. This way it should be obvious to our PhD students that they can also find some courses in our program, which help to improve their methodological skills.

The pandemic also had in 2021 an effect on the transferable skills course program of the Graduate School: during the first part of the year all courses had taken place online because gatherings of more than 5 persons were not allowed and the universities had banned all non-

practical courses from their campuses. After a few carefree summer months, Corona infections started to raise again in fall, thus some local trainers switched from on-site workshops to hybrid formats before they went back to full online courses towards the end of the year. Because of complicated and often changing travel restrictions, most of the external facilitators desisted from travelling to Zurich. Many of the professional trainers actually changed and adapted their courses profoundly during the course of the pandemic. Whereas in the beginning of the Covid-19 crisis, the course content had simply been moved from on-site to online, the formats were later better tailored to the specific setting of remote teaching and learning. In fact, several trainers offer in the meantime very sophisticated webinars in which self-study parts, plenum discussions and Q/A sessions with the trainer are ideally balanced. It is therefore to expect that courses without a strong focus on social interactions of the participants may remain online for the time being. Actually, a choice of different formats – in-person, embedded, online or hybrid – will make the TSC even more attractive and most likely the enourmous impuls the pandemic had on the digitalization of society will have a continuous impact on how we teach and learn – also at the Life Science Zurich Graduate School.

Table 7: Courses offered by the LSZ Graduate School from January to December 2021

Transferable skills courses for PhD students 2021	Number of courses	Number of participants	UZH affiliation (+ USZ & Kispi)	ETH affiliation	other
Best scientific practice & ethics	**9**	**333**	**222**	**101**	**10**
Scientific Integrity Introductory Course (4 x online)	4	265	179	77	9
The Impact of Ethics on Doing Science (1 x online, 1 x on-site)*	2	37	20	17	0
3R and the Ethics of Animal Research (1 x online, 1 x on-site)*	2	31	23	7	1
Patenting in Life Sciences*	1	9	8	1	
Communication & presentation skills	**6**	**84**	**56**	**27**	**1**
Effective Presentations / Poster Presentation / Speaking with Confidence and Impact (online)*	4	59	40	19	0
Logic and Reasoning for Scientists (online)*	1	15	7	7	1
Science Events Planning and Management (on-site)*	1	10	9	1	
Methodical skills	**3**	**33**	**19**	**14**	
NGS DNA / RNA Sequencing (1x hybrid format, 1 x on-site)	2	18	11	7	
Introduction to R (on-site)*	1	15	8	7	
Scientific writing & publishing	**11**	**159**	**96**	**53**	**10**
Scientific writing & publishing (online and on-site)*	5	79	44	32	3
Postdoc workshop (on-site)*	1	14	10	4	
5th Science Filmmaking Marathon (in cooperation with the Swiss Science Film Academy & Graduate Campus UZH)	1	15	3	7	5
Storytelling & Storyboarding (in cooperation with the Swiss Science Film Academy)*	1	11	5	6	
Navigating Social Media for Scientists*	1	15	12	3	
Argumentation in Scientific Writing	1	16	14		2
Film Hackathon by SciFilmIt (co-funded by LSZ Graduate School)	1				

Transferable skills courses for PhD students	Number of courses	Number of participants	UZH affiliation (+ USZ & Kispi)	ETH affiliation	other
Social & self-management skills	**11**	**137**	**87**	**49**	**1**
Teaching Science at the University	1	10	10		
Career Cornerstones (online)	1	12	7	5	
Competency Awareness (1 x online, 1 x on-site)	2	22	16	6	
Networking for Conferences, Collaboration and Career (online)*	1	12	9	3	
Project Management (online)	1	16	8	7	1
Successful Start of a Professional Career (1 x online, 1 x on-site)	2	27	16	11	
Time and Career Management (online)*	1	16	7	9	
Unfolding your Self-confidence (on-site)*	2	22	14	8	
Total of all courses	**40**	**746**	**480**	**244**	**22**

* co-funded by MTB and/or MLS program

Due to the pandemice situation, the majority of the courses were held in an online format. Only three courses had to be cancelled: BIO 680 New Generation Sequencing, October, by FGCZ (illness), Advanced technologies in musculoskeletal research, in cooperation with Balgrist Campus, October (few registrations), Project Management for early stage researchers by Verena Lütschg, November (illness).

3.4 Evaluations

In 2019, the Evaluation Office of the University of Zurich had informed that it wanted the LSZ GS to participate in the evaluation of the Third Cycle. This cycle places a stronger focus on the management processes, strategic policies and development plans of the units under evaluation. On 2 and 3 November 2020, the three experts, Prof. Dr. Edwin Constable from the University of Basel, Prof. Dr. Christof Osman from the Ludwig Maximilian University Munich and Dr. Monika Lachner from EMBL, met with all stakeholder groups individually and commonly for the final discussion and debriefing. Due to the pandemic situation the site visit had to be carried out virtually. Shortly before the end of the year, the LSZ GS obtained a comprehensive and elaborated report from the experts, which included many helpful recommendations not only for the Graduate School but also for the Faculty of Science. Roughly summarizing, the recommendations focus on the areas of the LSZ GS's governance, the quality of its management and administration as well as the quality of the doctoral training, the student recruitment and admission and last but not least the finances and rescources.

In early 2021, the Graduate School management and the other stakeholders had the opportunity to make representations on the report before the Evaluation Office. Later in spring, on 14 April, the Evaluation Office was facilitating a meeting of faculty representatives and the LSZ GS to negotiate the further strategies and developments of the Graduate School. The suggestions made by the experts were discussed in detail and it was collectively decided which recommendations should and could be implemented be the LSZ GS. After an extensive round of circulation between the Faculty of Science, the Evalution Office and the Graduate School, the vice-chair obtained the finalized “Agreement on Measures” for approval. The LSZ GS was asked to submit by 1 October its implementation plan to the Vice Dean of the Faculty of Science. The catalogue specificed for each recommendation corresponding measures for implementation and an appropriate time frame for the realisation. In fact, the Program Directors’ Conference had already started during the May and November meetings to define guidelines for the implementation of a working group and the inclusion of student representatives in the PDC’s own assemblies. Hopefully, the determined measures can be put into practice in 2022. Furthermore, the LSZ GS office also got in touch with the Dean of the Faculty of Science to start negotiations regarding the increase of the office’s human resources to 1 FTE. Unfortunately, the Graduate School has not yet obtained any feedback till this day.

In addition to the Third Cycle evalution, the LSZ GS also had to hold another quality meeting in late Spring 2021. The meeting was carried out in zoom and a small group consisting of two student representatives, two program coordinators, two program directors, the vice chair and the school office was deliberating about the previously defined topics. They were mainly reviewing the current situation regarding the salary and financing of the coordinators – a subject listed already for the last quality meeting. Moreover, the Dean of Study wanted to know how well the Gradudate School managed to support the doctoral students during the pandemic and whether there is planned to keep some of the actions taken, for example online and hybrid course formats. Last but not least, the group was also pondering whether the listing of the LSZ GS transferable skills courses should be transferred to one of two university catalogues and if so, to which one.

4 On-going projects

We have just pointed out in the previous chapter that in the current evaluation phase the Graduate School is now asked to implement the suggested measures. While some recommendations might be fulfilled rather swiftly, others are more complex to realize and will require more time to be completed. Thus the entire process will extend far into 2023. Indeed, about two years after the agreement with measures was signed, the university plans to review their implementation in a follow-up round.

As also detailed above, the application database “join” constitutes the very core of our application process and we will be contiuously improving or adding features in order to keep the entire process as smooth as possible. By all means, we should avoid running into troubles caused by missing system and security updates. Although there are at the moment no extensions planned, it is always possible that smaller or bigger changes in the recruitment process may require rearrangements or adaptions. Depending on the further development of the pandemic situation, things might still be in a state of flux for a longer while.

It is an utmost concern of the LSZ GS to bring the disconcerting and for the students of the Faculty of Science rather confusing situation of two parallel data systems to an early end. Even though the Dean of Studies has stressed his goodwill to implement certain features from DissGo also in the studentadmin database, it is not likely that this is going to happen quickly. Now that the new ETH doctoral regulations entered into force, the administration of the newly

introduced requirements will most likely be administrated with the help of a new data system. Which would bring the Graduate School back to square one: own databases for each university that are incompatible among each other. Should this really occur, the coordinators will have to keep on handling two parallel databases for a long spell.

Another persisting issue will be the quest for stable and long-term funding for the Graduate School and its PhD programs. As it has been pointed out in the past, the support of swissuniversities (formerly SUK) has been phasing out and completely ceased by the end of 2020. Ironically, the Covid-19 crisis has had a positive effect on the budgets of the programs and the LSZ GS as they could not spend a lot of their funds as planned. Swissuniversities first prolonged the deadline for using up the grants to June and extended it later to the end of the year 2021. However, with this second prolongation the swissuniversities funding scheme has now definitely come to an end.

Luckily, every cloud has a silver lining: On the one hand the restrictions mandated because of the Corona pandemic lasted far into the year 2021 and limited all social activities. This had again a positive impact on the programs' and the school's budget. In fact, some programs nearly struggled to use up all the swissuniversities funding till the end of the year. On the other hand, the headship of the UZH had decided to partially make up for the losses and they will support the PhD programs, which had obtained support by swissuniversities with a little bit of extra money. Because of the pandemic situation, the programs were allowed to transfer the money to the following year, if they had not been able to spend it all.

Despite the extra support of UZH, the financial adversities are only deferred for a short while – officially the scheme will end in 2024 - because the structural funding problems are not yet solved. Although chances are minimal that new funding sources will be available in the short run, there are a few rays of hope that the tight financial situation of the LSZ GS and its programs might ease a bit in the coming years.

5 Finances

Since UZH and ETH signed their agreement in 2010, the Life Science Zurich Graduate School obtains CHF 700'000 from its host institutions annually. Each year ever since, the directors' conference works out a distribution key (see Appendix for the 2021 key) to allocate the funds. As the distribution of the funds per capita would have been very disadvantageous for the smaller programs, the directors' conference agreed on paying each program a fix allowance besides the per capita contribution. In order not to penalize the bigger programs, the allowance is slightly graded (CHF 5'000 for programs with up to 10 students, CHF 10'000 for programs with 10-20 students and CHF 14'000 for programs with more than 20 students). In order not to encourage a long duration of the PhD, the LSZ GS only finances students until the end of their 4th year. This means that the programs obtain the same amount of money for all students, irrespectively of how long it takes them to complete their PhD.

Although we had expected the financial situation of the Graduate School getting tenser in 2021, the Covid-19 pandemic has postponed the troubles for a year or two. At the same time, the UZH headship delivered its promise to compensate those programs that had obtained swissuniversities money in the last years. Even though the UZH support is on a relatively small scale – the seven LSZ GS programs entitled to these benefits obtain a total of CHF 102'000 – it helped to keep the cutting of services momentarily at bay. In fact, most of the programs managed even to save a considerable share for 2022, because of the prevailing pandemic restrictions.

However, irrespective of whether the UZH is assisting a few programs with a bit of extra money, the LSZ GS has not been able to fund all its PhD programs for a longer while already. Most of the programs (partially) affiliated with the Medical Faculty do not obtain any financial support via the Graduate School. On the contrary, the Clinical Science and MD-PhD program actually pay a membership fee. The RNA Biology program receives funding from the NCCR RNA Biology and thus asks the Graduate School to pay only for the per capita fee of its PhD students but not for the allowance, which is covered by the NCCR. Although the student body is slightly growing at the moment (it rose from 1071 funded PhD students (year 1 to 4) in 2011 to 1'257 in 2016, dropped to 1'178 in 2020 and was back to exactly 1'257 again in 2021), the pecuniary resources for most programs have decreased over the past years because of the addition of new programs and the continuous growth of the student body. In contrast, the support by UZH (CHF 400'000) and ETH (CHF 300'000) remained unchanged since the agreement has been signed in 2010.

Though the request for more core funding handed in at ETH and UZH in 2020 was to no avail, it looks now as if things have nevertheless been set in motion. Not only has one of the program directors started negotiations with the different faculties involved in the LSZ GS to cover the program coordinators' salary, but also one of the main recommendations in the report of the evaluation committee is to raise the human resources for the school's office to 1 FTE. Negotiations with many parties involved usually prove to be tricky and require a lot of time and patience. For this reason, it is still too early to build up our hopes for more sustainable funding. However, we augur it to be a promising sign that the Faculties of Natural Science, Medicine and Veterinary Medicine have entered into negotiations with the Graduate School. It goes without saying that the LSZ GS is more than willing to contribute to the success of the proceedings by carefully checking whether changes that were triggered by the pandemic might be perpetuated in case they are an opportunity to reduce core costs.

Table 8: Annual Account LSZ Graduate School 2021

Earnings 2021	**CHF**
Contribution UZH	104’200
Contribution ETH	18’770
Reimbursement recruitment costs PhD-programs (Sep. 2020 & Feb. 2021)	31’338
Annual support MD-PhD program	3’000
Annual support Clinical Science Program	13’430
Surcharges courses	2’320
Total earnings	**173’058**

Costs 2021	**CHF**
Recruitment rounds (Feb & Sep 2021)	33’036
Transferable skills course program *	33’943
DissGo database & Computer Services (servers etc.)	4’973
Application platform “join” *	6’050
Marketing (online ads & listings)	20’083
Salary administrator	47’232
Overhead	689
Total costs	**146’026**

Balance as of 31 December 2021	**27’032**

* MTB and MLS program took over part of the costs

The social benefit costs for Susanna Bachmann (CHF 10’760) were covered by the Faculty of Science of the UZH.

Life Science Zurich Graduate School: Recruitment costs 2021 in CHF

Table 9	February (151 Stud.)	September (126 Stud.)
General costs	**CHF**	**CHF**
Rent gather town platform	0	395
Total		**395**
Costs per student		0

	February (25 Stud.)	September (47 Stud.)
Travel & accommodation costs for external students	**CHF**	**CHF**
Accommodation	3'482	5'637
Travel costs (includes public transport and meals)	8'950	14'572
Total	**12'432**	**20'209**
Costs per student	497	430

Total costs recruitment	**12'432**	**20'604**

6 Outlook

As shown in the previous paragraphs, the prospect of a substantial and sustainable improval of the financial situation of the Graduate School and its programs is somewhat more promising than a year ago. Although negotiations between the faculties and the LSZ GS have just started and might still take a while, it can be interpreted as a good sign that the stakeholders are willing to discuss the current funding problems. Whether a solution can be found that is realizable and satisfying for both sides will have to be seen. It is likely that the LSZ GS cannot simply hope for a budget increase but they will also have to go over their expenses and see whether cuts or a redistribution of funds is possible. Some of the organisational changes the pandemic provoked for the courses and the recruitment might be a chance to save costs in the longer run.

The report of the experts who visited the LSZ GS on behalf of the Evaluation Office does not focus only on the financial struggle of the Graduate School but brings up some other issues in regard of the supervision of PhD students, the course organisation and the embedding of the LSZ GS in the complex structure of its two host universities. It will be worthwile for the LSZ GS to assess all the recommendations carefully to consider where it can not only further improve its own services but also support the PhD programs better with the quality assurance of the doctorate. Hopefully, the inclusion of the doctoral students in the governing bodies and the implementation of the strongly recommended working group will help to tackle some of the long-lasting problems with full energy and eventually pave the way for new initiatives. Ideally, the appointment of the working group will strengthen the strategic development of the Life Science Zurich Graduate School and support it with fresh visions and concepts how early stage researchers can get prepared in the best way to meet future challenges.

Appendix 1: Financial distribution key

Financial support of ETH and UZH in 2021							
Annual contribution ETH: 300'000 CHF Annual contribution UZH: 400'000 CHF Total contribution: 700'000 CHF			Allowances: up to 10 students: CHF 5,000 11-20 students: CHF 10,000 more than 20 students: CHF 14,000				
Programs	**Allowance**	**ETH students**	**UZH (MNF) students**	**Other uni/ faculty**	**Students total**	**301 CHF per student**	**Total amount**
Biomedicine	14'000	10	43		53	16'324	30'324
Biomolecular Structure and Mechanism	14'000	28	38		66	20'328	34'328
Cancer Biology	14'000	6	99		105	32'340	46'340
Ecology	14'000	24	38		62	19'096	33'096
Epidemiology & Biostatistics	14'000	2	46		48	14'784	28'784
Evolutionary Biology	14'000	1	68		69	21'252	35'252
Integrative Molecular Medicine	3'500		43		43	13'244	16'744
Microbiology & Immunology	14'000	70	117		187	57'596	71'596
Molecular Life Sciences	14'000	69	85		154	47'432	61'432
Molecular & Translational Biomedicine	3'500	18	11		29	8'932	12'432
Neuroscience	14'000	85	138	29	223	68'684	82'684
Plant Science	14'000	48	39	8	87	26'796	40'796
RNA Biology	0	14	9	9	23	7'084	7'084
Sciences and Policy	14'000	22	13	3	35	10'780	24'780
Systems Biology	14'000	42	12	2	54	16'632	30'632
TOTAL CHF	175'000	448	809	88	1'257	381'304	556'304

Life Science Zurich Graduate School 160'126 (= approx. 1257x119.88 CHF)

This support covers 1st - 4th year of PhD

Appendix 2: Graduate School student body

As of 31 December 2021	Total students	Affiliated at UZH	Affiliated at ETH	Other affiliation	Track I students	Track II students	Female students	Male students	International students	Swiss students	Program drop-outs	Completed PhD.	Program Alumni
Graduate School total *	1655	1005	623	28	596	1062	988	668	1189	467	106	268	3183
Biomolecular Structure & Mechanism	78	43	35	0	39	39	36	42	60	18	2	17	151
Biomedicine	120	108	12	0	58	62	77	43	88	32	12	23	280
Cancer Biology	136	123	13	0	90	46[1]	93	43	95	41	2	25	318
Clinical Science	46	46	0	0	5	41	30	16	26	20	5	12	12
Drug Discovery	20	10	10	0	8	12	11	9	15	5	1	2	6
Ecology	85	51	34	0	9	76	54	31	63	22	2	5	207
Epidemiology & Biostatistics	53	49	4	0	18	35	34	19	36	17	0	10	60
Evolutionary Biology	76	75	1	0	5	71	38	38	50	26	5	20	154
Microbiology & Immunology	249	88	161	0	89	160	161	88	160	89	6	39	405
Molecular Life Sciences	183	102	81	0	120	63	110	73	146	37	3	30	543
Molecular & Translational Biomedicine	18	10	8	0	8	10	13	5	13	5	0	14	78
Neuroscience	307	208	95	4**	48	259	174	133	220	87	32	15	697
Plant Science	123	49	62	12	16	108	74	48	92	32	28	17	110
RNA Biology	33	9	17	7 Bern	15	18	17	18	27	6	3	23	23
Science & Policy	57	17	36	5	31	26	34	23	41	16	5	9	41
Systems Biology	71	17	54	0	37	36	32	39	57	14	0	7	98

* Numbers including MD-PhDs
** 1 Uni Bern, 3 Uni Basel

Appendix 3: Statistics intake rounds

LSZ GS Intake round 1 July 2021, number of applicants by nationality
(Figures include more data groups than shown in table 5)

Country	Not invited	Invited	Total
All countries	**1,119**	**155**	**1,274**
Afghanistan	1	0	1
Albania	2	1	3
Algeria	1	0	1
Angola	1	0	1
Armenia	3	0	3
Australia	2	0	2
Austria	4	6	10
Azerbaijan	3	0	3
Bahrain	2	0	2
Bangladesh	5	0	5
Belarus	0	1	1
Belgium	3	1	4
Benin	1	1	2
Bosnia and Herzegovina	1	0	1
Botswana	2	0	2
Brazil	9	1	10
Bulgaria	1	0	1
Cameroon	9	0	9
Canada	6	0	6
Chile	1	0	1
China	108	12	120
Colombia	10	0	10
Costa Rica	1	0	1
Croatia	2	0	2
Cyprus	2	0	2
Czech Republic	3	0	3
Côte d'Ivoire	1	0	1
Democratic Republic of the Congo	1	0	1
Denmark	0	1	1
Ecuador	2	3	5
Egypt	22	1	23
Ethiopia	12	0	12
Finland	0	1	1
France	8	2	10

Gabon	1	0	1
Georgia	1	0	1
Germany	45	25	70
Ghana	18	0	18
Greece	21	6	27
Hungary	7	1	8
Iceland	0	0	0
India	275	12	287
Indonesia	15	0	15
Iran	79	1	80
Iraq	3	0	3
Ireland	3	0	3
Israel	5	0	5
Italy	70	18	88
Japan	0	1	1
Jordan	3	0	3
Kazakhstan	9	1	10
Kenya	11	1	12
Kyrgyzstan	1	0	1
Lebanon	13	0	13
Liberia	2	0	2
Liechtenstein	0	1	1
Lithuania	2	1	3
Malaysia	2	0	2
Mexico	5	3	8
Mongolia	1	0	1
Myanmar	1	0	1
Nepal	10	1	11
Netherlands	3	2	5
Nigeria	30	0	30
Pakistan	73	0	73
Peru	4	0	4
Philippines	6	0	6
Poland	12	1	13
Portugal	9	1	10
Republic of Korea	1	1	2
Romania	5	1	6
Russian Federation	13	4	17
Saudi Arabia	4	0	4
Serbia and Montenegro	2	1	3
Sierra Leone	1	0	1
Singapore	1	0	1
Slovakia	0	1	1

Slovenia	1	0	1
South Africa	1	0	1
Spain	12	6	18
Sri Lanka	7	0	7
Sudan	2	0	2
Swaziland	1	0	1
Sweden	2	1	3
Switzerland	18	21	39
Syrian Arab Republic	1	0	1
Taiwan	8	1	9
Thailand	2	0	2
The former Yugoslav Republic of Macedonia	1	0	1
Trinidad and Tobago	1	0	1
Tunisia	3	0	3
Turkey	26	2	28
Uganda	5	0	5
UK	11	2	13
Ukraine	1	3	4
USA	10	4	14
Viet Nam	6	0	6
Zambia	1	0	1
Zimbabwe	3	0	3

LSZ GS Intake round 1 December 2021, number of applicants by nationality

(Figures include more data groups than shown in table 5)

Country	Not invited	Invited	Total
All countries	983	163	1,146
Afghanistan	3	0	3
Albania	4	0	4
Algeria	1	0	1
Armenia	0	1	1
Australia	1	0	1
Austria	4	4	8
Bangladesh	8	0	8
Belarus	1	0	1
Belgium	2	0	2
Bolivia	1	0	1
Botswana	1	0	1
Brazil	8	0	8
Cameroon	3	0	3
Canada	1	3	4
Chile	1	0	1
China	135	21	156
Colombia	5	0	5
Costa Rica	0	1	1
Croatia	2	1	3
Cyprus	2	3	5
Czech Republic	2	1	3
Côte d'Ivoire	1	0	1
Democratic Republic of the Congo	1	0	1
Denmark	3	0	3
Ecuador	3	0	3
Egypt	17	0	17
Eritrea	1	0	1
Ethiopia	11	0	11
Finland	3	0	3
France	8	3	11
Gambia	1	0	1
Germany	34	28	62
Ghana	11	0	11
Greece	15	4	19
Guatemala	1	0	1

Hungary	2	0	2
India	259	13	272
Indonesia	4	0	4
Iran	67	3	70
Iraq	2	0	2
Ireland	1	0	1
Israel	2	0	2
Italy	42	14	56
Jordan	3	0	3
Kazakhstan	2	0	2
Kenya	5	0	5
Kosovo	0	2	2
Lebanon	7	0	7
Lithuania	2	2	4
Luxembourg	0	1	1
Malawi	1	0	1
Malaysia	2	0	2
Mexico	5	1	6
Myanmar	1	0	1
Namibia	1	0	1
Nepal	4	0	4
Netherlands	4	6	10
Niger	1	0	1
Nigeria	27	0	27
Norway	2	0	2
Pakistan	42	0	42
Peru	3	0	3
Philippines	3	1	4
Poland	18	6	24
Portugal	10	0	10
Republic of Korea	3	0	3
Romania	1	1	2
Russian Federation	21	6	27
Rwanda	2	0	2
Saudi Arabia	1	0	1
Serbia and Montenegro	3	1	4
Sierra Leone	1	0	1
Singapore	1	2	3
Slovakia	1	1	2
Slovenia	2	2	4
South Africa	2	0	2
Spain	13	4	17
Sri Lanka	8	0	8

Sudan	4	0	4
Sweden	0	1	1
Switzerland	23	12	35
Syrian Arab Republic	3	0	3
Taiwan	8	3	11
Thailand	3	0	3
Trinidad and Tobago	1	0	1
Tunisia	3	0	3
Turkey	32	1	33
Uganda	4	0	4
UK	11	4	15
Ukraine	2	1	3
United Republic of Tanzania	1	0	1
USA	7	4	11
Viet Nam	3	1	4
Yemen	1	0	1
Zimbabwe	1	0	1

Appendix 4: PhD Programs Annual Reports

Biomedicine

The program in figures and numbers

Program statistics	as of December 31, 2021 (imMed + BioMed)
Program students	35 + 85 = 120*
Track I students	14 + 44 = 58
Track II students	21 + 41 = 62
Female students	22 + 55 = 77
Male students	13 + 30 = 43
International students	21 + 67 = 88
Swiss students	14 + 18 = 32
Program drop-outs	1 + 11 = 12
Completed PhD	22 + 1 = 23
Program Alumni	279 + 1 = 280
Faculty members	45 + 92 = 137

*108 UZH / 12 ETH

Recruitment (BioMed only)

Recruiting statistics	December 1, 2020	July 1, 2021
Complete applications	99	54
Invited candidates	24	22
Drop-outs before interview	3	3
Free slots (BioMed priority program)	6	13
Matches [1]	5	3
Candidates without matches	8	9
Decision against program	1	1
Rejected candidates	1	4
Change to other LSZGS programs [2]	6	2
Gained from LSZGS programs [3]	2	2

[1] Without crossrecruitment

[2] 6 invited BioMed candidates changed to another PhD Program (job offer)

[3] 2 candidates changed from another PhD Program to BioMed (Job offer PI BioMed)

Finances

	Income	Expenses
Balance January 1		
Income		
ETHZ		
UZH	59’500	
Fees	31’500	
Other	0	
Expenses		
Salaries program		62’888
Social benefits		775
Recruitment December 1		5’348
Recruitment July 1		1’485
Program activities (retreat, symposia, etc.)		9’219
Overhead		
Total	91’000	79’715
Balance as of December 31	11’285	

Program Activities

Graduate courses of the BioMed PhD Program

- February 1/2, 2021: Introduction to human physiology: Sensory systems: How we hear and see
- June 17/18, 2021: Mouse physiology and pathophysiology (via Zoom)
- September 6/7, 2021: Molecular Biology Methods
- September 15/16, 2021: Introduction to human physiology: Regulation of cardiovascular function
- October 25-29, 2021: Course Genomic Medicine for PhD students from different programs) offered by Daniel Stekhoven and Niko Beerenwinkel, Nexus/ETHZ. The course ended with an aperitif.
- Nov/Dec 2021 (6 full days): Bioinformatics Next Generation Sequencing (via Zoom)
- Clinical courses at the University of Lugano (USI) open for all BioMed/imMed/MTB doctoral students)

Seminar series "From Vision 2020 to Future Perspectives"

The new organization committee led by Dominika Brchnelova has started to organize the next vision 2020 events in 2022. The first event will take place on March 17, 2022. Guest speaker is David Nutt, an English neuropsychopharmacologist specializing in the research of drugs that affect the brain and conditions such as addiction, anxiety, and sleep.

The Vision 2020 events are financed with Post - SUK money from the MNF/UZH.

Retreat of the Bio Med PhD Program

February 8 +9, 2021: First BioMed Retreat 2021 virtually via Zoom: Plenary Lectures I-IV by different PI's, student sessions I-VII, keynote lecture by Prof. Lluis Fajas Coll (invited guest speaker UNIL), Career panel, Pizza Mixer

The retreat was supported by the SUK program "Doktoratsprogramme"

Events PhD Program BioMed

September 6, 2021: BioMed Get-together Campus Irchel, poster session with prizes for the best posters, get-together, networking and aperitif

October 22, 2021: PhD event with doctoral students from Campus Schlieren (from different programs) student presentations round I-II, presentation by Daniela Gunz (guest speaker, Career Services UZH), aperitif with meet and greet

October 25-29, 2021: Course Genomic Medicine (one week, for PhD students from different programs) offered by Daniel Stekhoven and Niko Beerenwinkel, Nexus/ETHZ. The course ended with an aperitif.

November 24, 2021: BioMed Chlouseträff - Christmas event, Stürmeierhuus, Schlieren, presentations of single slides of a collection of different scientific methods followed by a Christmas aperitif

The events were supported by the SUK program "Doktoratsprogramme".

imMed Alumni

We prioritized to organize events for the current doctoral students. Numerous doctoral students have started their PhD during the pandemic. We wanted to give them the opportunity to get in contact with other students and PIs. The possibilities to network and socializing was highly appreciated.

The next Alumni event is planned for 2022.

New PI members of BioMed

As of end of 2021, 92 PIs are members of BioMed. 7 new BioMed PIs were accepted by the BioMed commission.

Modification of the BioMed regulations regarding mentorship

The assignments of the role as mentor were quite well accepted in 2020. However, it has also become obvious that with an increasing number of BioMed doctoral students it is going to be difficult to appoint independent mentors and distribute the duties evenly and fairly among the PI's. The mentor often needed also have the right to promote at the MNF to comply with the MNF regulation that at least two members of the PhD thesis committee must have the right to award doctorates at the MNF, which made appointing mentors even more challenging.

In their meeting on April 7, 2021 the members of the BioMed commission decided:

The BioMed program does no longer assign a mentor to each committee. Instead, the program lists on its website several PIs and students as "mentors" as well as advisory services that can be contacted by BioMed PhD students and PIs in case of problems.

The regulations of BioMed UZH and ETHZ were adapted and approved (Version June 3, 2021).

Outlook

Following topics will be discussed in the BioMed Commission in the next few months:

- Evaluation of the applications for travel grants 2022

- Application procedure Track II and Track I (Track I only review process)

- New ETHZ regulations

- Follow-up financing option after Post-SUK expired in 2024

- Pursue the idea of an interactive platform/catalogue of specific analyses, techniques, which support doctoral students to learn new methods (scientific part: Chlouseträff)

Biomolecular Structure and Mechanism

The program in figures and numbers

Program statistics	as of December 31
Program students	78
Track I students	39
Track II students	39
Female students	36
Male students	42
International students	60
Swiss students	18
Program drop-outs	2
Completed PhD	17
Program Alumni	151
Faculty members	26

Recruitment

Recruiting statistics	December 1	July 1
Complete applications	58	79
Invited candidates	11	7
Drop-outs before interview	2	2
Free slots (XX priority program)	5	5
Matches	2	4
Candidates without matches	5	4
Decision against program	0	0
Rejected candidates	1	0
Change to other LSZGS programs	0	0
Gained from LSZGS programs	0	1

Finances

	Income	Expenses
Balance January 1		
Income	34’328.00	
ETHZ		
UZH		
Fees		
Other		
Expenses		24’557.60
Salaries program		
Social benefits		
Recruitment December 1		633.60
Recruitment July 1		973.40
Program activities (retreat, symposia, etc.)		14’153.62
Overhead		
Total	34’328.00	40’318.20
Balance as of December 31		-5’990.22

Program Activities

Retreat 2021

Mattli Antoniushaus, Morschach 29 - 31.08.2021

Structural biology course – online

Current topics in structural biology – online

Scientific writing course –

16. November, 2021 15:00 – 18:00

18. November, 2021 15:00 – 18:00

23. November, 2021 15:00 – 18:00

25. November, 2021 15:00 – 18:00

Annual meeting - online

Cancer Biology

The program in figures and numbers

Program statistics	as of December 31
Program students	136
UZH affiliation	123
ETH affiliation	13
Other institute (please specify)	
Track I students	90
Track II students	46 (incl. MD PhDs)
Female students	93
Male students	43
International students	95
Swiss students	41
Program drop-outs	2
Completed PhD	25
Program Alumni	318
Faculty members	77

Recruitment

Recruiting statistics	December 1	July 1
Complete applications	194	147
Invited candidates	27	21
Drop-outs before interview	4	6
Free slots (CB priority program)	11	11
Matches	12	8
Candidates without matches	8	3
Decision against program	1	-
Rejected candidates	-	-
Change to other LSZGS programs	0	2
Gained from LSZGS programs	7	0

Finances

	Income	Expenses
Balance as of January 1	63'590.67	
Income		
ETHZ	14’000.00	
UZH	32’340.00	
Fees	32’000.00	
SUK UZH	8’000.00	
CRC	49’647.10	
Other		
Total income	199'577.77	0
Expenses		
Salaries program		70’259.00
Social benefits		15’342.60
Recruitment December 1		3'228.00
Recruitment July 1		3'787.80
Program activities (retreat, symposia, etc.)		38'468.80
Overhead		
Total expenses	0	131'085.40
Balance as of December 31	68’492.37	0

Program Organization

Director:
Prof. Maries van den Broek (UZH)

Steering Committee:
Prof. Beat Schäfer, Oncology Department, Kispi
Prof. Anne Müller, Institute of Molecular Cancer Research, UZH
Prof. César Nombela Arrieta, Department of Oncology and Hematology, USZ
Prof. Roger Schibli, PSI and Department of Pharmaceutical Sciences, ETHZ

Student representatives:
Ulf Gündisch, Institute of Anatomy, UZH (step down Dec 2021)
Ekaterina Katchatourova, Institute of Anatomy, UZH (step down Dec 2021)

New student representatives since Nov 2021:
Simran Asawa, Institute of Molecular Health Sciences, ETHZ
Nina Desboeufs, Institute of Molecular Cancer Research, UZH
Harini Lakshminarayana, Institute of Pathology and Molecular Pathology, USZ
Laura Leuenberger, Department of Medical Oncology and Hematology, USZ
Milica Zecevic, Oncology, University Children's Hospital Zurich

Program coordinator:
Bettina Rausch-Malina, c/o Institute of Molecular Cancer Research, UZH

Review/Admission Committee:

Dec/Feb:
Prof. Nicola Aceto, Institute of Molecular Health Sciences, ETHZ
Prof. Lubor Borsig, Institute of Physiology, UZH
Dr. Ralph Fritsch, Department of Oncology and Hematology, USZ
Prof. Chiara Magnani, Department of Oncology and Hematology, USZ
Prof. Anne Müller, Institute of Molecular Cancer Research, UZH
Prof. Beat Schäfer, Oncology Department, Kispi
Prof. Didier Surdez, Pediatric Oncology, Balgrist
Prof. Thorsten Zenz, Department of Oncology and Hematology, USZ

July/Sep:
Prof. Isabelle Arnold, Institute of Experimental Immunology, UZH
Prof. Maries van den Broek, Institute of Experimental Immunology, UZH
Prof. Anne Müller, Institute of Molecular Cancer Research, USZ
Prof. César Nombela Arrieta, Department of Oncology and Hematology, USZ
Prof. Patrick Roth, Department of Neurology, USZ
Prof. Alessandro Sartori, Institute of Molecular Cancer Research, USZ
Prof. Peter Schraml, Institute of Pathology and Molecular Pathology, USZ
Prof. Sonia Tugues, Institute of Experimental Immunology, UZH
PD Dr. Hans-Georg Wirsching, Department of Neurology, USZ
Prof. Thorsten Zenz, Department of Oncology and Hematology, USZ

Program Activities

The ***mandatory module courses*** of the program took place as follows:

Course days / lecturers:
Module B – **Tumors and the immune system** – *online course*

Introduction to the immune system / Maries van den Broek, Christian Münz / 09.04.2021

Hematologic malignancies / Jean-Pierre Bourquin, Stefan Balabanov, Thorsten Zenz, Beat Schäfer / 13.04.2021

Tumor immunology (basics and therapy) / Onur Boyman, Alessandra Curioni, Reinhard Dummer, Patrick Roth / 14.04.2021

High dimensional spatial profiling of tumour microenvironment / Karina Silina, Ruben Casanova / 15.04.2021

Infection-induced cancers / Anne Müller, Roberto Speck, Achim Weber / 16.04.2021

Module C – **Mechanisms of cancer induction and progression** – primarily on-site

Genome instability / Matthias Altmeyer, Antonio Porro, Manuel Stucki / 21.06.2021

Oncogenes and tumor suppressor genes / Beat Schäfer, Martin Baumgartner, Michele Bernasconi, Beat Bornhauser, Marco Wachtel / 22.06.2021

Metastasis / Lubor Borsig, Maries van den Broek / 23.06.2021

Cell signalling molecules as therapeutic targets / Philipp Berger, Martin Béhé / 24.06.2021

Tumor angiogenesis and lymphangiogenesis / Lothar Dieterich, Steven Proulx / 25.06.2021

Module D – **Cancer treatments** – primarily on-site

Cancer chemotherapy / Bernhard Pestalozzi, Manuel Stucki / 27.09.2021

Cancer surgery / Kuno Lehmann, Anurag Gupta / 28.09.2021

Cancer radiotherapy / Martin Pruschy / 20.09.2021

Tumor pathology / Hella Bolck, Peter Schraml, Achim Weber / 30.09.2021

Antibody phage technology and therapeutic antibodies / Dario Neri / 01.10.2021

Module A – **Cancer biology** – online

Modes of cell death / Christian Münz, Martin Pruschy, Lynn Wong / 01.11.2021

Colon cancer: inflammation and epigenetics / Giancarlo Marra, Gerhard Rogler, Stephan Vavricka / 02.11.2021

Functional genomics / FGCZ Ralph Schlapbach / 03.11.2021

Cell biology / Jana Krietsch, Jan Krützfeld, Roland Wenger / 04.11.2021

Model systems for cancer research / Martin Baumgartner, Maries van den Broek, Mitch Levesques, Anne Müller / 05.11.2021

Scientific Writing Course
Proposal and Grant Writing, Pavel Janscak, 05.02. + 05.07.2021
Paper Writing, Isabelle Arnold, 04.02. + 22.07.2021

Science Ethics Courses – *online*
Dr. Verena Lütschg, About Tomorrow Consulting, 17.-19.02.+02.03.2021 + 20./22./22.09.+06.10.2021
Dr. Jacky Leach Scully, Professor of Bioethics and Director, Disability Innovation Institute, UNSW, Australia, 28.06.-30.06.2021 + 29.11.-01.12.2021

Statistical Methods in Biology
Dr. Hubert Rehrauer 24.-26.11.2021
Introduction to R
10 places 17.-18.06.2021
5 places 9-10.09.2021
R4All: An introduction to the basics of R –

10 places 7-8. October, 2021

8th Student retreat of the Cancer Biology PhD Program, 01.06. – 02.06.2021
Online retreat using the platform fourwaves.
Keynote speakers:
Prof. Nicola Aceto, Institute of Molecular Health Sciences, ETH Zurich
Prof. Ellen Heitzer, Institute of Human Genetics, Medical University Graz, Austria
Prof. Jennifer Spangle, Winship Cancer Institute, Emory University, Atlanta, USA
Panel discussion - career building:
Prof. Isabelle Arnold, Institute of Experimental Immunology, University of Zurich
Dr. Vladimir Cmijianovic, Swiss Rockets, Basel
Dr. Dominik Schelshorn, Campus Biotech, Addex Therapeutics, Geneva

Travel Grants: travel expenses for congresses, meetings, symposia, workshops and courses. Deadlines for applications: 15.1. and 1.5. and 1.9.2021
No travel grants could be awarded due to the pandemic.

Social Activities
* Summer event had to be cancelled.
* X-Mas Event on 9.12.2021: ice skating at the Dolder sports

Outlook 2022

Courses:
NEW Module E – **Translational Cancer Biology** – 31.01.-04.02.2022
Module B – **Tumors and the immune system** – 04.04.-08.04.2022
Module C – **Mechanisms of cancer induction and progression** – 20.06.-24.06.2022
Module D – **Cancer treatments** – 26.09.-30.09.2022
Module A – **Cancer biology** – 31.10.-04.11.2022

Statistical Methods in Biology – November 2022
Scientific Writing Course – January and June 2022
Science Ethics Course – February, June, July and November 2022

9th Cancer Biology PhD Students Retreat
Interlaken, Hotel Unspunnen, June 2022

Travel Reimbursement Grants: travel expenses for congresses, meetings, workshops and courses. Deadlines: 15.1. and 1.5. and 1.9.2022

Social Activities:
Virtual round tables in February and September
Summer BBQ in August
X-Mas event in December

Clinical Science

The program in figures and numbers

Program statistics	as of December 31, 2021
26	46
Track I students	5
Track II students	41
Female students	30
Male students	16
International students	26
Swiss students	20
Program drop-outs	5
Completed PhD	12
Program Alumni	12
Faculty members	35

Recruitment

Recruiting statistics	December 1, 2020	July 1, 2021
Complete applications (*Track II*, *Track I*)	9 | 16	9 | 18
Invited candidates	9 | 0	8 | 6
Drop-outs before interview	0	1 | 1
Free slots (XX priority program)	1 | 1	1 | 2
Matches	7 | 0	7 | 2
Candidates without matches	0	0 | 1
Decision against program	0	0
Rejected candidates	2 | 16	1 | 2
Change to other LSZGS programs	0	0
Gained from LSZGS programs	0	0

Finances

	Income	Expenses
Balance January 1		
Income		
ETHZ		
UZH	51’595 (real and virtual money	
Fees		
Other	14’965	
Expenses		
Salaries program		28’880
Social benefits		
Recruitment December 1		
Recruitment July 1		
Program activities (retreat, symposia, etc.)		20’046
Overhead		22’715
Total	66’560	71’641
Balance as of December 31	-5’081	

Program Activities

Retreat on September 10, 2021

Curriculum Discussion on September 21, 2021

Annual Members Meeting on October 1, 2021

Outlook

Retreat on September 9, 2022

Annual Members Meeting on October 28 or November 4, 2022

Drug Discovery

The program in figures and numbers

Program statistics	as of December 31
Program students	20
Track I students	8
Track II students	12
Female students	11
Male students	9
International students	15
Swiss students	5
Program drop-outs	1
Completed PhD	2
Program Alumni	6
Faculty members	13

Recruitment

Recruiting statistics	December 1, 2020	July 1, 2021
Complete applications	84	58
Invited candidates	1	
Drop-outs before interview	3	
Free slots (XX priority program)		
Matches		
Candidates without matches	1	
Decision against program		
Rejected candidates		
Change to other LSZGS programs		
Gained from LSZGS programs		

Finances

	Income	Expenses
Balance January 1		
Income		
ETHZ		
UZH		
Fees		
Other		
Expenses		
Salaries program		
Social benefits		
Recruitment December 1		
Recruitment July 1		
Program activities (retreat, symposia, etc.)		
Overhead		
Total		
Balance as of December 31		23’041.95

Program Activities

Outlook

Ecology

The program in figures and numbers

Program statistics	as of December 31
Program students	85
Track I students	9
Track II students	76
Female students	54
Male students	31
International students	63
Swiss students	22
Program drop-outs	2
Completed PhD	5
Program Alumni	207
Faculty members	62

Recruitment

Recruiting statistics	December 1	July 1
Complete applications	51	80
Invited candidates	0	0
Drop-outs before interview	0	0
Free slots (XX priority program)	0	0
Matches	0	0
Candidates without matches	0	0
Decision against program	0	0
Rejected candidates	16	32
Change to other LSZGS programs	0	0
Gained from LSZGS programs	0	0

Finances

	Income	Expenses
Balance January 1 2021		
Balance of SUK Funding brought forward	20506	
Balance of Stärkung der "Digital skills" brought forward	5931	
Income		
ETHZ		
UZH	33096	
Fees	14260	
Other, Post SUK funding UZH	12000	
Expenses		
Salaries program		
UZH		33640
SUK		16398
Social benefits		
UZH		6971
SUK		1334
Recruitment December 1		0
Recruitment July 1		
Program activities (retreat, symposia, etc.)		16421.50
Overhead		854.49
Total		75618.84
Balance as of December 31		10946.16*

** The positive balance is an artefact of COVID, external lecturers could not travel to Switzerland, courses could not be held in person and program events were cancelled.*

Program Activities

Student meet-up activities were again limited in 2021 as a result of the COVID restrictions. In September we organised a student lunch meet-up outdoors such that the BAG recommendations for social distancing could be observed. We continued

with the biannual newsletter which is sent to students and principal investigators with a 'Featured PhD project' which is added to the first page of our website.

The student membership of the PhD Program in Ecology welcomed 18 new student and four new affiliated research groups.

Teaching

In 2021 the PhD Program in Ecology organized the following courses:

Subject-specific matters –

ECO 339 Ecological Theories,

ECO 338 Ecological Controversies: Humans and Nature Summer School,

ECO 343 Spatial Dimension in Animal Management and Conservation

ECO 344 The role of microbiomes in adaptation to environmental change

ECO 397 Cutting Edge Research Club,

ECO 398 Interdisciplinary research in global change and biodiversity.

Methods –
ECO 331 General linear and linear mixed models in R,

ECO 336 Gardening Techniques & Field Equipment,

ECO 351 Bayesian Thinking and Ecology Workshop,

ECO 353 Introduction to Structural Equation Modeling (SEM).

Transferable Skills –
ECO 303 Teaching Science at University.

Students were reserved places on the following course:
UWW 252 Spatial Ecology and Remote Sensing
UWW 271 Contemporary analysis for ecology.

Outreach

The Program Manager and Director did not have much opportunity to promote the program in 2021. Most conferences and events were online and such events provide little opportunity to network and promote the program.

Outlook

The planned biennial meeting in 2021 was postponed once again as a result of COVID. We are planning this event for 12 October 2022 which will feature oral presentations by an external speaker with poster presentations of all PhD students.

The purpose of such a meeting is to foster and strengthen the ecology network in Zurich.

The biannual PhD student lunch meet-up did not take place in February but we are planning to organise this event later in spring. In fall we will combine the lunch meet-up event with the biennial meeting on 12 October 2022.

The PhD Program in Ecology will offer the following courses in 2022:

Ecological Theories 2,

Ecological Theories 3,

Landscape genetics,

Cutting Edge Research Club,

Interdisciplinary Research in Global Change and Biodiversity,

Introduction to Structural Equation Modeling,

General Linear and Linear Mixed Models in R,

Teaching Science at University,

Scientific writing for ecologists,

Ecological Controversies – Humans and Nature.

Some of the courses we offer our students are organized through collaborators:

UWW 252 Spatial Ecology and Remote Sensing,
UWW 271 Contemporary analysis for ecology and Ethics in Biological Research,

Reporting using R Markdown & Shiny,

Advanced Data Management and Manipulation using R,

Statistical modelling.

Released by: Professor Dr Anna-Liisa Laine

Prepared and distributed by: Dr. Debra Zuppinger-Dingley

Epidemiology and Biostatistics

The program in figures and numbers

Program statistics	as of December 31
Program students	53
Track I students	18
Track II students	35
Female students	34
Male students	19
International students	36
Swiss students	17
Program drop-outs	0
Completed PhD in 2021	10
Program Alumni	60
MNF faculty members	7
PIs with the right to confer a PhD at MNF	15

Recruitment

Recruiting statistics	December 1	July 1
Complete applications	55	61
Invited candidates	0	10
Drop-outs before interview	na	4
Free slots (first priority program)	0	5
Matches	na	3+1*
Candidates without matches	na	5
Decision against program	na	1
Rejected candidates	na	1
Change to other LSZGS programs	na	0
*Gained from LSZGS programs	na	1

Finances

	Income	Expenses
Balance January 1	5’423*	
*5'423 SBFI Mittel auf 2021 übertragen (10'524 CHF Eigenleistung excl. coordinator salary)		
Income		
UZH	28’784	
Swiss Universities Saldo 2020	5’423*	
GC quality assurance grant	3’163	
Expenses		
Salaries program		15’000
Recruitment December 1	0	0
Recruitment July 1	0	0
Program activities (Retreat, Retreat Annulation, Career Development Program)		22’530
Total	37’370	37’530
Balance as of December 31	-160§	

§Von den 160CHF Negativsaldo sind 14CHF Negativsaldo der Swissuniversities Gelder und 146CHF Negativsaldo der UZH Gelder.

Program Activities

Based on the students' wishes and inputs, since 2019 we have also supported events that show other perspectives in addition to the traditional academic path. These events were also organized and carried out independently by the students in 2021 as far as the situation allowed. The buddy system introduced in 2019 is working very well and most PhDs who started the PhD made use of it also in 2021. Thus, upon request, each new student was assigned an experienced PhD as a buddy to assist her/him with advice and support, especially in the early days.

Highlight in 2021 was our retreat in September. The 1-day retreat at Schloss Au, was the first in-person meeting since the beginning of the pandemic. It was all the more appreciated by our students. Because with the outbreak of the pandemic, we unfortunately had to postpone some of our planned events or hold them virtually. Together with our Student Representatives, we also launched different offers in 2021:

- Online Kurs “I got the grant – now what? mit Jenny Crawford und Dominik Menges (11. März, 2021)
- EBPI Colloquium Corona Immunitas in Ticino with Dr. Rebecca Amati (23. März 2021)
- EBPI Colloquium Corona Immunitas in Vaud with Dr. Murielle Bochud (13. April 2021)
- Online Kurs: “Scientific writing training” mit Jürgen Barth (16./23. April 2021)
- EBPI Colloquium Prospective COVID-19 surveillance with Dr. Christian Kahlert (10. Mai 2021)

- Online Kurs: “Proposal preparation – from idea to submission” with Jenny Crawford, Kelly Turner (20. Mai 2021)
- Online Kurs: SNSF Mobility application with Kelly Turner (27. Mai 2021)
- EBPhD early career researcher’s symposium on COVID-19 (14. Juli 2021)
- In-Person Kurs: “How to moderate a discussion” mit Kelly Turner, Antonia Banti (31. August 2021)
- In-person Kurs: “How to present my research” mit Kelly Turner, Antonia Banti (2. September 2021)
- EBPhD Retreat im Schloss Au: research in progress talks, led discussions, and social events (14. September 2021)
- EBPhD Picnic organized by student representatives (15. Oktober 2021)
- EBPI Colloquium Epidemiology in Team Science Research on Cancer with Dr. Elizabeth Platz (26. Oktober 2021)
- Online Kurs: “Rock your Talk” mit Ric Oquita (29. Oktober 2021)
- Cultural Zurich: Besuch der Ausstellung «Earth Beats» organized by student representatives (11. November 2021)
- Online Kurs: SNSF Mobility application with Kelly Turner (12. November 2021)
- EBPI Colloquium cancer epidemiology with Prof. Esther Bastiaannet (23. November 2021)
- Online Kurs: “Project Management” mit Sandra Dierig (3. Dezember 2021)
- EBPI Colloquium lung cancer screening with Dr. Kevin ten Haaf (7. Dezember 2021)
- Virtual Christmas Event organized by student representatives (16. Dezember 2021)
- Health services research & methods journal club: 20.4./11.5./1.6./29.6./4.10.2020
- CRS hosted ReproducibiliTea Journal Clubs
    - Problems with evidence assemssment in COVID-19 (25. Februar 2021)
    - P-hacking in clinical trials (11. März 2021)
    - Tools and techniques for computational reproducibility (25. März 2021)
    - Zebrafish prrx1 a mutants have normal hearts (22. April 2021)
    - Lessons learned from COVID-19 trials (6. Mai 2021)
    - Open science caves lives: lessons learned from COVID-19 (20. Mai 2021)
    - Variability in analyzing a single neuroimaging dataset by many teams (30. September 2021)
    - Excess of positive results (14. Oktober 2021)
    - The seven deadly sins of psychology (28. Oktober 2021)
    - An open science pathway for drug marketing authorization (11. November 2021)
    - Grant peer review in the health sciences (25. November 2021)

In addition, we regularly informed our PhDs about the Graduate Campus offerings: Well-being in Academia webinars, Virtual Mental Health drop-in, online yoga, GRC Writing Labs, Individual coaching services.

The growing alumni community has also newly organized monthly EBPhD Postdoc peer mentoring meetings in 2021. These will be held every 4 weeks from 5pm-6pm on a Thursday of the month.

Outlook

- Research & Methods: a journal club for health services research and beyond
- Scientific Writing Training with Jürgen Barth (14.1.22)
- Post-award Grant Management with Antonia Banti & Dominik Menges (10.3.22)
- Cup of coffee event with Prof. Aletta Bonn (28.3.22)
- Applicants’s Meeting: SNSF Mobility Grant (20.5.22)
- EBPI Spring colloquium series:
    - The contribution of “One Health” to the prevention of future pandemics, Prof. Dr. Jakob Zinsstag (22.2.22)
    - Biomedical ethics and history, Prof. Dr. Flurin Condrau (22.3.22)

    - Learning form the past – how to prepare for future challenges, Dr. Kaspar Staub (3.5.22)
- students-initiated events “EBPhD Science & Social”
- Epidemiology and Biostatistics Methods Seminar, spring “Personalized Medicine” and fall semester “Mixed Methods” 2022
- CRS hosted ReproducibiliTea Journal Clubs
    - Investigation the replicability of preclinical cancer (24.2.22)
    - Experiments from unfinished registered (10.3.22)
    - Topic to be defined (24.3.22)
    - Protecting against researcher bias (7.4.22)
    - Topic to be defined (21.4.22)
    - leveraging doctoral requirements (5.5.22)
    - Topic to be defined (19.5.22)
- Research in Progress talks spring/fall semester 2022
- EBPI open door day with public presentation of EBPhDs

Evolutionary Biology

The program in figures and numbers

Program statistics	as of December 31
Program students	76
Track I students	5
Track II students	71
Female students	38
Male students	38
International students	50
Swiss students	26
Program drop-outs	5
Completed PhD	20
Program Alumni	154
Faculty members	34

Recruitment

Recruiting statistics	December 1	July 1
Complete applications	23	7
Invited candidates	2	1
Drop-outs before interview	0	0
Free slots (priority program)	1	0
Matches	0	0
Candidates without matches	2	1
Decision against program	0	0
Rejected candidates	0	0
Change to other LSZGS programs	0	0
Gained from LSZGS programs	0	0

Finances

	Income	Expenses
Balance as of January 1		0.00
Income		
ETHZ and ETH	35’252.00	
Member Fees	13’200.00	
URPP Evolution in Action	2’000.00	
Total income	50’452.00	
Expenses		
Salaries program		35’000.00
Annual Retreat		15235.53
IT-Material		269.70
Total expenses		50’505.23
Balance as of December 31		-53.23

Program Activities

-Annual Retreat in Richisau, Klöntal (GL) October 20-222

-BIO555 Scientific Writing and a Research (in cooperation with URPP Evolution in Action)

-BIO609 Introduction to UNIX/Linux and Bash Scripting (in cooperation with URPP Evolution in Action)

-BIO610 Next-Generation Sequencing for Model and Non-Model Species (in cooperation with URPP Evolution in Action)

-BIO634 Next-Generation Sequencing 2 - Continuation Course: Transcriptomes, Variant Calling and Biological Interpretation (in cooperation with URPP Evolution in Action)

-BIO395 Concepts in Evolutionary Biology (held by PIs of the URPP Evolution in Action)

Outlook

-Annual Retreat in June

-EvoBio visit of the Botanical Gardens and Institute in May

-Teaching Science at University (together with Ecology PhD Program)

-BIO395 Concepts in Evolutionary Biology (held by PIs of the URPP Evolution in Action)

-BIO554 Survey Course: Topics in Evolutionary Biology

-BIO555 Scientific Writing and a Research (in cooperation with URPP Evolution in Action)

-BIO609 Introduction to UNIX/Linux and Bash Scripting (in cooperation with URPP Evolution in Action)

-BIO610 Next-Generation Sequencing for Model and Non-Model Species (in cooperation with URPP Evolution in Action)

-BIO634 Next-Generation Sequencing 2 - Continuation Course: Transcriptomes, Variant Calling and Biological Interpretation (in cooperation with URPP Evolution in Action)

-BIO624 Human Genetic, Demographic and Cultural Diversity (in cooperation with URPP Evolution in Action)

-BIO692 Introduction to Genome-Wide Association Studies (in cooperation with URPP Evolution in Action)

Microbiology and Immunology

The program in figures and numbers

Program statistics	as of December 31
Program students	249
Track I students	89
Track II students	160
Female students	161
Male students	88
International students	160
Swiss students	89
Program drop-outs	6
Completed PhD	39
Program Alumni	405
Faculty members	100

Recruitment

Recruiting statistics	December 1	July 1
Complete applications	95	134
Invited candidates	22	15
Drop-outs before interview	9	4
Free slots (MIM priority program)	13	10
Matches	5	4
Candidates without matches	7	4
Decision against program	0	1
Rejected candidates	0	0
Change to other LSZGS programs	1	2
Gained from other LSZGS programs	1	2

Finances

	Income	Expenses
Balance January 1		
Income		
ETHZ	71596	
UZH		
Fees	56120	
Other	43430	
Expenses		
Salaries program, including social benefits		90730
Recruitment December 1		5315
Recruitment July 1		643
Program activities (retreat, symposia, etc.)		36725
Overhead		
Total	171146	133413
Balance as of December 31	37733	

Organization of the Program

The MIM Program is headed by two directors, Prof. Jörn Piel from ETHZ and Prof. Rolf Kümmerli from UZH, who co-chair the Program. The steering committee consists of the two directors and two additional members of the MIM Program, Prof. Salomé LeibundGut and Dr. Roman Spörri. The General Assembly, including all PIs of the Program, meets on an annual basis and decides about the admission of new members and changes of the regulations. The duties of the admission committee members are to evaluate the applications, to lead the interviews and to decide on the admission to the MIM Program. Admission committee members are

- Prof. Cornel Fraefel (UZH)
- Prof. Urs Greber (UZH)
- Prof. Wolf-Dietrich Hardt (ETH)
- Prof. Nicole Joller (UZH)
- Prof. Markus Künzler (ETH) until July 2021
- Dr. Silvia Monticelli (IRB)
- Prof. Christian Münz (UZH)
- Dr. Gabriella Pessi (UZH) from July 2021 on
- Prof. Emma Slack (ETH)
- Prof. Silke Stertz (UZH)
- Prof. Alexandra Trkola (UZH)

Two MIM PhD students (Corina Hadjicharalambous (ETH) and Daniel Kirchmeier (UZH) represent the students' interest towards the MIM PhD Program by participating in the Steering Committee and the General Assembly. Corina Hadjicharalambous has taking over the vacant seat from Susanne Meile (ETH) in the middle of the year.

Program Activities

Program-specific courses for doctoral students

15th Microbiology and Immunology Introductory Course
January 13-15, 2021
remotely

In this yearly-offered three-day workshop, MIM PIs introduce their fields of expertise, their basic research questions, and the methodologies applied to answer them. Students of the MIM PhD program present their own research projects. Participants become acquainted with the research performed at the different microbiological and immunological laboratories of the MIM consortium, facilitating contact with those labs whose expertise could contribute to their own research work.

The scientific program of the 15th MIM Introductory Course included 20 oral presentations of PIs and 63 of PhD students, covering the fields of general and medicinal Microbiology, Virology and Immunology, additionally Dr. Claudia Dumrese (Cytometry Facility), Dr. Ralph Schlapbach (FGCZ), and Dr. Urs Ziegler (ZMB) gave an insight talk about the methods and services of the facilities. Prof. Emma Slack and Prof. Christoph Schneider held an interactive workshop on Scientific Integrity. Representatives of AVETH (Association of Scientific Staff at ETH) and

VAUZ (Association of Junior Researchers at UZH) have presented their activities and services in short talks.
Responsible for the organization of the course were Dr. Anna Vagstad and Judith Zingg.

14th MIM Student Retreat
September 1-3, 2021
Locarno

The MIM Student Retreat was carried out as a real, non-virtual event despite the COVID-19 pandemic and in line with the measures announced by the Federal Council. Highlights were the talks by 12 PhD students and by the guest speakers Prof. Christian Münz and Prof. Wolf-Dietrich Hardt (both are MIM PIs), Prof. Akiko Iwasaki (Yale School of Medicine) and Prof. Michael Berney (Albert Einstein School of Medicine). A Career Talk by Nina Wolfrum (Career Services UZH / ETH) and a panel discussion on different career path rounded out the programme.

The MIM Student Retreat is an opportunity to exchange ideas and get to know colleagues of the MIM PhD Program as well as some excellent guest speakers. It offered the students a chance to increase their presentation skills in a friendly atmosphere and to discuss the research projects with fellow PhD students.

General Principles of Scientific Writing
September 14 & 15, 2021
by Prof. Shinichi Sunagawa

10 participants

Research Data Management: Basics and how to apply them
October 13, 20, 27, November 3, 2021
in collaboration with Scientific IT Services & ETH Library
9 participants

Mindfulness & Meditation
November 16&26, 2021
by Dr. Annika Martin
14 participants

Basic Scientific Presentation Skills Course
December 2&3, 2021
by Prof. Emmanuella Guenova, Prof. Nicole Borel, Dr. Cory Leonard
12 participants

Webinars (2 hours each) offered by ETH Library

Writing scientific papers and thesis by Ulrich Fischer, June 3, 2021

Endnote by Andrea Müller, October 10, 2021

Screen, scan, search by Christine Bärtsch, October 28, 2021

Bibliometric Analyses by Teresa Kubacka, November 8, 2021

Mendeley by Andreas Müller, November 10, 2021

Program-specific offerings for Principal Investigators

Welcome event for new MIM PIs
12.1.2021

(Team) Coaching
Team or individual coaching sessions were offered to MIM PIs thanks to funding provided by the Graduate Campus of UZH (funding for quality assurance and development at the doctoral level).

MIM career events and other activities

In 2021, a series of events was offered for current students & alumni on various topics, organized by MIM student representatives:

11.2.2021	LSZGS recruitment round / Get-together with new candidates (remotely)
14.4.2021	*MIM Career Event (remotely)*
	Career opportunities for life scientists outside academia
	Host: Susanne Meile
	Guest speakers: Mario Hupfeld, Gustavo Gers-Huber, Benjamin Peschke
27.6.2021	*MIM social event*
	BBQ at Irchelbar, UZH
9.9.2021	LSZGS recruitment round / Get-together with new candidates (remotely)
23.9.2021	*MIM social event*
	Farewell event for leaving student representative
4.11.2021	*MIM social event*
	Karaoke night
12.10.2021	Self help group "mental health"
20.12.2021	*MIM social event*
	Glühwein at Christmas market

The events could be carried out thanks to funding from UZH (Post SUK financing) and carryovers from SHK funding from recent years.

Advisory Services

Mentoring Program

The demand for getting a mentor (senior PhD or Alumnus/a) was high, and 14 doctoral students can newly benefit of being assigned to a mentor. We are committed to sustain and improve our one-to-one mentorship program. Therefore, coaching supervision by Dr. Monika Clausen have been offered to the mentors on 18.3.2021 and 2.12.2021. The latter was co-led by Dr. Monika Clausen and Prof. Sophia Johler. The new mentors could additionally profit from a kickoff event, which took place February 2, 2021.

Ombudsperson

Various members of the program got in contact with Prof. em. Hauke Hennecke (MIM Ombudsperson), the MIM coordination office or / and the co-directors of the MIM PhD Program. The special circumstances caused by the COVID-19 pandemic has made many doctoral students uncertain and vulnerable and the demand for consultations has reached a new maximum in 2021.

Travel Grants

Due to the COVID-19 pandemic, the travel activities of the doctoral students were very limited and only one application for a travel grant has been submitted by Daniel Hoces Burga for participation at the British Society for Immunology Congress 2021.

Outlook

The MIM activities, including career and social events and the program's core activities (MIM PhD student retreat, MIM Introductory Course) were well-attended and will therefore be continued in 2022.

There has been an increase in the number of MIM PhD students again (2020 and 2021 by 12% each). Associated therewith, additional administrative work arises, and it will be challenging for the Program to handle all the tasks satisfactorily.

Since the financial situation is becoming increasingly difficult and uncertain with the expiration of the SHK funding by the end of 2020, one key task of the Steering Committee is hence to find alternative funding strategies, especially for the period starting in 2024, when also the UZH Post SUK funding will not be available anymore.

It is planned to internally evaluate the MIM PhD Program in 2022 to get an idea of member satisfaction and ideas for improvement.

At ETH Zurich, new regulations apply to doctoral students since January 2022. The newly implemented legal basis for a doctorate at ETH must be compared with the MIM regulations and in case of contradictory requirements, amendments must be worked out.

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Zurich Ph.D Program in
Molecular Life Sciences

Program Motivation

The Molecular Life Sciences Ph.D. program is a 4-5 year Ph.D. program with the aim to recruit and train outstanding young scientists in biochemistry, genetics, microbiology, as well as cell, computational, developmental, molecular, structural, and systems biology. The MLS program recruits internationally and strives to bring the very best students interested in aspects of molecular life sciences to Zurich. Through its activities, the program aims at strengthening Zurich as a center of excellence in graduate education and cutting-edge research in life sciences.

Overview

Founded in 2003, the MLS program has currently 91 faculty members (the number remained unchanged compared to 2020), who are associated with over a dozen different departments/institutes at the ETH Zurich (ETH) and the University of Zurich (UZH). 183 graduate students were enrolled in the MLS program by the end of 2021 compared to 187 students at the end of 2020. 110 (60%) of our students are women and 73 men. 30 MLS students graduated in 2021. The program has now 543 alumni in total. The average time to successfully complete a Ph.D. thesis in the MLS program remains with 4 years and 7 months unchanged.

The program in figures and numbers 2021

Program statistics	as of December 31
Program students	183
UZH affiliation	102
ETH affiliation	81
Other institute (please specify)	
Track I students	120
Track II students	63
Female students	110
Male students	73
International students	146
Swiss students	37
Program drop-outs	3
Completed PhD	30
Program Alumni	543
Faculty members	91

Student Body

Of the 183 students, 102 are enrolled at the UZH and 81 at ETH. German students (40) and Swiss (37) account for a bit less than half of all students. The next larger groups are the Italians (11), Chinese (10) and Austrians (10), followed by the Indians (8), British (6), Greeks (5) and Polish (5). Four students come from Russia, three students from the Netherlands, Portugal and Spain. Two students come from America, Belgium, Brazil, Estonia, Hungary, Iceland, Japan, Sweden, Taiwan and Turkey. In addition, we have one student each from Belarus, Croatia, Cyprus, Czech Republic, Egypt, Finland, France, Grenada, Latvia, Lebanon, Malaysia, Peru, Serbia, Slovakia, Slovenia, Sri Lanka, Venezuela and Vietnam in the MLS program.

Recruitment 2021

Recruiting statistics	December 1, 2020	July 1, 2021
Complete applications	189	125
Invited candidates	39	33
Drop-outs before interview	8	2
Free slots (MLS priority program)	14	14
Matches	13	8
Candidates without matches	13	15
Decision against program/ no list	0/3	0/1
Rejected candidates	0	0
Change to other LSZGS programs	6	7
Gained from LSZGS programs	5	2

Program Organization

The program is led by an elected Steering Committee (SC) with executive power. Since November 2006 the steering committee is formed of 7 faculty representatives and two student representatives (one of an institute from UZH, and one of an institute from ETH):

SC Members
Prof. Yves Barral (ETH – vice chair)

Prof. Konrad Basler (UZH)

Prof. Stefanie Jonas (ETH)

Prof. Ohad Medalia (UZH – chair)

Prof. Francesca Peri (UZH)

PD Dr. Raffaella Santoro (UZH)

Prof. Anton Wutz (ETH)

Claudia Gafko (ETH – student representative, until August 2021)

Kim Marquart (UZH/ETH – student representative, until August 2021)

Moritz Schlapansky (ETH – student representative, since August 2021)

Merula Stout (UZH- student representative, since August 2021)

In 2021, the SC met 3 times to discuss and decide on various program activities. All reunions were held online.

The MLS program faculty consists of principal investigators (PIs) from several different institutes of the UZH and the ETH. Since Fall 2005 all group leaders who want to become member of the MLS faculty, have to submit their application to the SC, irrespective of their affiliation. Two new faculty members joined the MLS program in 2021. MLS program faculty members support the program by serving on admission or travel grant committees as well as by teaching course modules or tutorials.

PIs leaving:
Tuncay Baubec, Department of Molecular Mechanisms of Disease, UZH

Ernst Hafen, Institute of Molecular Systems Biology, ETH

Monica Zwicky, Department of Molecular Life Sciences, UZH

New PIs:
Alexander Leitner, Institute of Molecular Systems Biology, ETH

Christoph Schneider, Institute of Physiology, UZH

A program coordinator oversees the day-to-day program matters. The program coordinator monitors the students' progress, schedules the interviews and lab visits, organizes meetings and admission sessions and manages the finances of the program. The employment of the MLS program coordinator is currently 35%. Dr. Susanna Bachmann, who joined the MLS program as program coordinator in the fall of 2003, continued in this function in 2021.

Finances 2021 (in CHF)

		Income	Expenses
Balance as of January 1			
Carry-over SUK ETH		67’874	
Carry-over SUK UZH		48’250	
Income			
ETH		50’000	
UZH		11’432	
Fees		11’500	
Sponsoring Retreat		3’676	
Total income		192’732	0
Expenses			
Salaries program (with social benefits)			50’197
Recruitment September 2020			1’421
Recruitment February 2021			3’561
Program activities:	Retreat		24’634
	Symposium		5’986
	Grants (travel/ online events)		3’007
	Christmas Party		3’391
	Alumni (1 Career Event)		665
Program Teaching			55’595
Database Recruitment			24’500
Overhead			50
Total expenses		0	173’007
Balance as of December 31		19’725	

Program Activities

Teaching

Module	Length	Dates	Participants	Facilitator/Remarks
Visual Communication of Science	2x 1 day	21 & 22 Jan	20 students	Jernej Zupanc
Speaking with Confidence	3x ½ day	2 - 4 Feb	9 students	Millie Baker
The Impact of Ethics on Doing Science	2x 1 day	9 & 16 Feb	20 students	George Hausmann & Anna Deplazes
Module	Length	Dates	Participants	Facilitator/Remarks
Scientific Writing – Effective Communication	4x ½ day	25 Feb, 2, 4 & 9 Mar	20 students	George Hausmann
Logic and Reasoning for Scientists	2x 1 day	25 & 26 Mar	15 students	Malte Engel
Navigating Social Media for Scientists	3x ½ day	20 - 22 Apr	15 students	Peter Kronenberg
Poster Presentation	5x ½ day	17-21 May	11 students	Philipp Gramlich
1st-year-Presentations	4x ½ day	20 & 27 Mai, 3 & 10 Jun	20 students & 4 moderators	Susanna Bachmann
Self-marketing	2x 1 day	8 & 9 Jun		Monika Clausen
MLS Symposium	2x 1 day	17 & 18 Jun	27 students	3 organizers
MLS Retreat	2x 1 day	12-14 Aug	38 students	8 organizers
Scientific Writing – Effective Communication	4x ½ day	19, 24, 26 & 31 Aug	19 students	George Hausmann
Impact of Ethics on Doing Science	2x 1 day	16 & 17 Sep	17 students	Anna Deplazes & George Hausmann
1st-year-Presentations	4x ½ day	4, 8. 15 & 22 Oct	11 students & 3 moderators	Susanna Bachmann
The 3Rs and the Ethics of Animal Research	2x 1 day	14 & 15 Oct	15 students	Matthias Eggel & Paulin Jirkof

Storytelling and Storyboarding Science	3x 1 day	27-29 Oct	11 students	Samer Angelone
Career & Networking Event	Evening	27 Oct		
Ethical Issues in Human Genetics and Genomics	2x 1 day	4 & 11 Nov	13 students	Anna Deplazes
The postdoc workshop: finding the right lab, getting funded, and understanding the academic job market	2x 1 day	11 & 12 Nov	14 students	Jacopo Marino
MLS Christmas Party	Evening	26 Nov		
Introduction to R: Orientation to R studio software and R language	5 x ½ day	29 Nov -3 Dec	16 students	Transmitting Science

The Covid-19 pandemic unfortunately still had a great impact on the program's activities in 2021. From the beginning of the year until the end of May no in person events were allowed. For this reason, all events were carried out virtually. Only as of June 2021 we could switch back to in-person courses and activities. While courses with local trainers were again held on-site, most of the courses with trainers from outside Switzerland were taught remotely, mainly because of continuously changing travel restrictions and certificate requirements.

Tutorials

Also in 2021, several tutorials were offered by faculty members of the MLS program and external trainers to a small group of students (usually not more than 6 participants). The workload for the students is approx. 25-30 hours. The tutor and the participants decide when and how often they meet. A minimum of 6 contact hours with the tutor is required per tutorial by the MLS program.

Topic	Tutor
Tutorial on Mammalian Gene regulation	Tuncay Baubec & Stefan Butz
Tutorial on Gene Editing Mechanism of CRISPR-Ca	Jacob Corn
Tutorial on Life beyond the PhD, sneak peek into different career pathways	Adrián Cortés Sanchón

Tutorial on Scientific Writing	Natalie de Souza & James Moore
Tutorial on Practical microinjection tutorial	Eline Jongsma
Tutorial on Origin of the eukaryotic nucleus	Ruth Kroschewski & Laura Schenkel
Tutorial on Project Management and Project Reporting in Clinical Research	Dmitry Linde
Tutorial on Nuclear size control	Gabriel Neurohr
Tutorial on A Practical guide to lipidomics	Alaa Othman & Sabine van Schie
Tutorial on Why are there so many ways for a cell to die	Lynn Wong & Stefanie Rufli
Tutorial on Life beyond the PhD - sneak peek into different career pathways	Greta Ebnicher

To our satisfaction the new tutorial platform is running smoothly and it has proven to be very user-friendly and easy to handle. Depending on the prevalent pandemic restrictions, the tutorials were either held in-person or virtually. Very often the tutors also switched to a hybrid format.

Symposium & Retreat

The 17th MLS retreat had been postponed from October 2020 to Spring 2021, however, bigger social gatherings were still prohibited at that time therefore the program was forced to postpone it one more time. As it was unclear until late Spring whether reunions and activities with more than 10 persons would be allowed later in the year, the program administration and the student representatives decided to organize an online symposium. Big thanks go to the three student organizers, Argyro Lamprou, Anna Marzelliusardottir and Laurence Pirenne, who did a tremendous job in programming a multifaceted venue in gather town. Furthermore, they invited the faculty members Francesca Peri, Gabriel Neurohr, Sabine Werner and Steven Brown to give a keynote lecture and asked their fellow students for flash talk or poster contributions. In addition, they also handed out an e-booklet and included some games and leisure activities to facilitate social interaction of the audience. 27 program students participated on 17 and 18 June actively in the symposium by giving a flash talk or presenting a poster and some additional students and principal investigators attended the poster and lecture sessions.

When the symposium took place, it had already become certain that the program could also carry out the long-planned retreat in Kandersteg. Although the maximum number of attendees was still limited, 38 program students met from 12-14 August for scientific exchange and vivid discussions in the Hotel Victoria. They were joined by the keynote speakers Claudio Cantù (University of Linköping), Kai Dallmaier (KU Leuven) as well as Maria Hondele (Biozentrum Basel University) and - not to forget - the entire Retreat Organizing Committee (ROC)

consisting of Salome Brütsch, Claudia Gafko, Selina Gurri, Lisa Koch, Kim Marquart, Tanja Rothgangl, Anna Stier, Till Wüstemann, who eventually could experience their event become real after two long years of planning and rescheduling.

Lecture Series

Much to our regret the lecture series did not come back to life in 2021 and at this timepoint it is unclear, whether the committee will reassume inviting speakers for guest lectures in the coming year.

Awarded Travel Grants 2021

With all conferences and symposia being cancelled because of the pandemic, the MLS program decided in 2020 to support also the attendance of online events such as congresses and meetings but also webinars and virtual courses. Nevertheless, only few students availed themselves of this opportunity in 2021. On the one hand travelling to in person conferences was still restricted in many countries. On the other hand, the students experienced a certain online fatigue, which kept their enthusiasm to attend virtual courses within a limit.

The deadlines for application were 1 March and thereafter always the 1st day of every month

Student	Attended conference/summer school/ course/ workshop
Max Brambach	Quantitative Imaging: From Acquisition to Analysis
Zyanya Diaz Hirashi	BioBusiness Winter School
Tanja Eberhart	eSymposia: Tumor Metabolism and the Microenvironment
Zeynep Kabakci	Introduction to Python for Biology

Travel grant committee: Martin Müller (PI, UZH), Madhav Jagannathan (PI, ETH), Laura Schenkel (MLS student). In total, the program awarded CHF 2'007 as travel grants.

Social and Other Activities

Newsletter: We dispatched two newsletters on 9 June and on 13 December 2021. Among other items the newsletter contains a presentation of a faculty member or a member of the steering committee, information about past and forthcoming events, feedback about one or several tutorials from the organizing PI (tutor) and/or the participants and an overview which students have started in the program and left it in the past six months. The letter is sent out to current and former program students as well as to all faculty members. It is planned to issue the MLS newsletter also in 2022 twice per year.

Students in charge in 2021: Eleonora Ioannidi, Stephanie Lüthi, Alexandra Noble, Abigaëlle Pelletier.

Career and Networking event 2021: Because of the pandemic the event only took place once, but luckily it could again take place in person. Nevertheless, the turnout was very moderate despite having promoted the event several times by email. The discussion in the small group was very animated and beneficial for the few attending doctoral students. On 27 October the following 3 alumni provided insights in their current job or depicted their career steps after they had finished their PhD:

Martin Kretz, Regulatory Affairs Director, Vifor Pharma

Nicole Steinbach, Commercial Lead Cell and Gene Therapy, Novartis

Daniela Suter, Chief Communications & Collaboration Officer Mindfire, and CEO Gen Suisse

With the Christmas Party another “traditional” event could again take place in 2021. It was celebrated on 26 November in the Hotel Rivington & Sons in the Prime Tower.

Outlook

While Covid-19 vaccines and better therapies greatly enhance the chances to return to social gatherings, in person events and conference attendances, the pandemic might still have some impact on the program activities in 2022, as soaring infection rates in winter and new virus mutations suggest. The program counts on having an in person retreat in summer and planning is already under way. We also expect that the further easing of travel restrictions will animate our doctoral students to again apply for grants to participate in conferences and symposia. At the same time, it is to expect that carbon reduction polices of the universities will rather sooner than later have a lasting effect on the mobility of faculty members and the student body. In regard to these efforts the Life Science Zurich Graduate School has already decided that it will keep in place its two-step recruitment process with a first virtual round of interviews. Although this form of recruiting PhD students worked pretty well under the pandemic restrictions, the whole process stretches now over several months and has become a continuous course of students visiting labs. Whether sticking to two yearly deadlines for application makes sense, if the hiring of students has become a constant state of flux has still to be evaluated.

As it was to expect but still much to our regret, the financial outlook has also not profoundly brightened up in 2021. With many restrictions in place for the first half year, the remaining funds of the swissuniversities’ support were more than sufficient to foot all the bills. However, the MLS and the other LSZGS programs still have not found any long-term solution to make up for the impending financial gap. The Schulleitung of UZH kept is promises to stand in with some extra funding for the PhD programs for a few years. Though the share the Faculty of Science obtained for its programs is most welcome, it is not substantial enough to fill all the budget holes we expect to open up in the coming years. The only ray of hope to detect at the moment are longsome negotiations the director of the Cancer Biology program is carrying out with the faculties of Medicine, Science and the VetSuisse. The aim of these proceedings is to convince the faculties to take over the coordinators’ salaries, which usually eat up a substantial amount of the programs’ budgets. Should an agreement be achieved, it will bring a respectable financial relief for the program’s budget. Unfortunately, it is still written in the stars whether these extensive negotiations are going to be successful.

Molecular Translational Bioscience

Mission Statement

The Ph.D. program “Molecular and Translational Biomedicine” (MTB) of the Competence Center for Personalized Medicine (CC-PM) imparts knowledge, concepts and modern technologies in basic and applied biomedical research. Ph.D. students have the opportunity to work on a broad spectrum of topics including energy homeostasis, metabolism, aging, cell growth and differentiation, stem cells, inflammation and cell signaling pathways. In their projects they will apply modern approaches in (epi)genetics, genomics, systems- and molecular cell biology. The Ph.D. program provides a modern teaching curriculum and an international research environment to advance our molecular knowledge in cell, tissue and organ function in physiological and disease states with the goal to improve genomic-based patient care.

The program in figures and numbers

Program statistics	as of December 31
Program students	18
UZH affiliation	10
ETH affiliation	8
Other institute (please specify)	-
Track I students	8
Track II students	10
Female students	13
Male students	5
International students	13
Swiss students	5
Program drop-outs	0
Completed PhD	14
Program Alumni	78
Faculty members	48

Recruitment

As the program is phasing out, there are no further students recruited anymore.

Finances

	Income	Expenses
Carryover SUK UZH	1’105	
Carryover SUK ETH	103’770	
Carryover ETH	138’316	
Income		
Total income/carryover	243’191	0
Expenses		
Salaries program (including social benefits)		43’706
Program activities (virtual & in person courses)		85’366
Travel Grant		47
Back-payment SUK ETH		4’395
Back-payment SUK UZH		1’105
Total expenses	243’191	134’619
Balance as of December 31	108’572	0

Program Activities

Due to the Corona pandemic several events that had been planned had to be cancelled or postponed for an undefined lapse of time. A joint retreat for the students of the imMed, BioMed and MTB program was held online on 8 and 9 February 2021. In order to give the MTB students the chance to further educate themselves, the program offered many transferable skills courses most of them online because gatherings of bigger groups were still prohibited until summer. If not all seats were taken by MTB students, the courses were opened up for the other PhD programs of the Life Science Zurich Graduate School.

- Patenting in Life Sciences & Chemistry, Organizer: LS2, 11 & 12 October
- Time & Career Management, Karin Bodewits, sessions between 21 September - 19 October
- Competence Awareness, Monika Clausen, 1 & 2 September
- Scientific Writing and Publication, Martina Michalikova, 2, 9, 16 & 23 November
- Science Events Planning & Management, Samer Angelone, 15 October & 26 – 28 November
- Scientific Writing Fellow Training, Language Center UZH & ETH, 23 February, 2 & 23 March, 6 & 20 April, 30 November
- Scientific Writing Fellow Coaching, Language Center UZH & ETH, free dates
- NGS BioInfo Training course, Babraham Institute, several courses in 2021

Jointly organized courses with MLS PhD Program:

- Visual Communication, Jernej Zupanc, 21 & 22 January
- Speaking with Confidence, Millie Baker, 2 – 4 February
- Logic and Reasoning for Scientist, Malte Engel, 25 & 26 March
- Navigating Social Media, Peter Kronenberg, 20 - 22 April
- Poster Presentation, Philipp Gramlich, 17 – 21 May
- Unfolding your Self-Confidence, Monika Clausen, 8 & 9 June
- Storytelling and Storyboarding, Samer Angelone, 27 - 29 September

Outlook

In 2019, the PhD programs in Integrative Molecular Medicine and the Molecular and Translational Biomedicine decided to fuse to a new program called Biomedicine (BioMed). This program started in Fall 2019 and since that moment no more students are accepted into the MTB program. For the coming years courses and retreats will be run commonly among the three programs to make sure that there is a critical mass of students. Thus the MTB program is slowly going to phase out and will be closed down as soon as the last doctoral student has obtained his or her PhD degree.

Neuroscience

The program in figures and numbers

Program statistics	as of December 31
Program students	307
Track I students	48
Track II students	259
Female students	174
Male students	133
International students	220
Swiss students	87
Program drop-outs	32
Completed PhD	121 (Alumni 2017-2021)
Program Alumni	697 (since 2001)
Faculty members	161

Recruitment

Recruiting statistics	Interviews Feb. 21	Interviews Sept. 21
Complete applications	n.a.	n.a.
Invited candidates	11	6
Drop-outs before interview	5	1
Free slots (XX priority program)	4	3 (originally only 2, one position added later)
Matches	3	3
Candidates without matches	3	1
Decision against program	-	-
Rejected candidates	-	-
Change to other LSZGS programs	-	1
Gained from LSZGS programs	-	-

Finances

	Income	Expenses
Balance January 1		
Income		
ETHZ	41’342	
UZH	41’342	
Fees	-	
Other	-	
Expenses		
Salaries program		21’972
Social benefits		
Recruitment December 1		1’070
Recruitment July 1		618
Program activities (retreat, symposia, etc.)		59’024
Overhead		
Total	82’684	82’684
Balance as of December 31		0

Program Activities

1) Courses

- Introductory Course in Neuroscience I (Fall term 2021)
- Introductory Course in Neuroscience II (Spring term 2021)
- Neuroimaging Blockkurs (twice: 3-4 May 2021. And 25 October &1st November 2021)
- Course in Science Ethics for Cancer Biologists and Neuroscientists, (Twice: 28-30 June 2021 and in addition 29 Nov-1 Dec 2021)
- Crash Course in Statistics for Neuroscientists (Twice - Course 1: 5-7, 12-20 July 2021. Course 2: 23 – 27 August 2021)
- Writing Neuroscience Research Papers (7, 10, 14, 17, 21 and 24 June *2021*)
- New Advanced Course: “My thesis and beyond: Developing an Interdisciplinary Research Idea*”, 16 February - 17 June 2021*

2) Symposia, conferences and other scientific activities

- ZNZ PhD Retreat, 8-9 July 2021
- ZNZ Symposium and Best PhD Thesis Award (16 September 2021)

3) Outlook 2022

If the pandemic situation allows, a second PhD Retreat is planned for the fall on the premises of Roche in Basel including Roche scientists.

Plant Sciences

The program in figures and numbers

Program statistics	as of December 31
Program students	123
UZH affiliation	49
ETH affiliation	62
Uni Basel affiliation	10
Other institutions	2
Track I students	16
Track II students	106
Female students	74
Male students	48
International students	92
Swiss students	32
Program drop-outs	28
Completed PhD	17
Program Alumni	110
Faculty members	17

Recruitment

Recruiting statistics	December 1	July 1
Complete applications	51	70
Invited candidates	0	0
Drop-outs before interview	50	0
Free slots (1 priority program)	0	2
Matches	0	0
Candidates without matches	1	0
Decision against program	0	0
Rejected candidates	0	0
Change to other LSZGS programs	0	0
Gained from LSZGS programs	0	0

Finances

	Income	Expenses
Balance January 1	37’345	
Income	40'796	
ETHZ		
UZH		
Fees	-	
Other	Suk and further third party contribution is reported elsewhere	
Expenses		
Salaries program		9’753
Social benefits		
Recruitment December 1		
Recruitment July 1		
Program activities (retreat, symposia, etc.)		7’573
Overhead (to LSZGS)		reported elsewhere
Total		17’326
Balance as of December 31		60’815

Program Activities

The PSC has core infrastructure and personal resources to carry out and manage training for 500+ participants per year. Established training formats range from workshops, colloquia and lectures to summer schools, and face-to-face events to blended learning and e-learning formats that make our education highly scalable in number of participants. Didactical formats include case-study work, cognitive

apprenticeship models, role play scenarios, simulations but also hands-on training in tools and methodology and experimentation that make our education highly successful in targeting learning objectives to the different target groups and demands of a multi-faceted academic education.

The PSC educational programs are embedded in several educational platforms that operate nationally and internationally and make the course offer of the PSC and of corresponding programs fully transferable: Life Science Zurich (www.lifesciences.ch), an international graduate school in life sciences, Swiss Plant Science Web (www.swissplantsciencwweb.ch), housing 9 national PhD programs in Plant Sciences, Graduate Campus University of Zurich (www.grc.uzh.ch), bringing together all PhD students of the University of Zurich.

Students registered in the program in the reporting period, as of Dec 31

Year	TOTAL	University of Zürich	ETHZ	University of Basel	Other	Female	Male	National	International
2021	123	49	62	10	2	74	48	32	92

Program Curriculum for the PSC PhD Program in "Plant Sciences"

Since 2003 The PSC has offered the PhD Program in Plant Sciences with 20 – 30 ECTS per year of methodological training in several areas of plant sciences and following the international accepted frameworks of joint skills statement, 2001 and Vitae, 2010 for transferable skill training in:

- Understanding of the research environment and scientific community (e.g. understanding standards of good research practice and ethical standards, funding and publication practices in research)
- Research management (e.g. project management in research)
- Training of communication skills (e.g. scientific writing, scientific presentation, scientific communication practice)
- Networking and teamwork
- Career management

Module	**ECTS**
Compulsory Activity: Colloquium "Challenges in Plant Sciences"	2
Elective Activities: Remainder of 12 ECTS may be chosen from*: • Technical Courses (in all areas of Plant Sciences): Intensive workshops on skills, methods and techniques • Courses on Statistical Methods • Transferable Skill Courses	4-10

• Participation in international scientific symposium with own scientific contribution (oral or poster presentation) (max. 1 ECTS) • Organization of PSC PhD Symposium (max. 3 ECTS) • ECTS from the offer of the program of technical and scientific courses and Transferable skill courses. Transferable skill course can also be visited at GRACE and other continuing education offers at University of Basel.	
	12

* with approval from principal investigator or thesis committee

Recruitment & interviews:

The PSC offers a fully implemented Track I admission channel (recruitment via Life Science Zurich Graduate School, LSZGS) following LSZGS guidelines that was used for 2 of the 30 PhD students recruited to the program in 2021.

For Track II admission channel (direct application to principal investigator, PI): We now request formal admission interview with future PhD students to be organized by PI. The interview should be conducted in presence of at least one other principal investigator or faculty member and is confirmed with signed PhD Program interview protocol. This admission channel is used for 28 of the 30 PhD student recruited to the program in 2021.

Supervision:

The supervision is following the regulation of the partner universities and includes: doctoral agreement between supervisor and PhD students is set up 6 months after arrival of student. Set up of a research plan, establishing of thesis committee with internal and external experts, thesis committee meeting all 12 month and documentation of the meeting and the feedback in the thesis committee meeting protocol. The protocol is part of the documentation that is sent to the doctoral program coordination. The coordination is communicating to the universities' management (dean of faculties) if thesis committee meetings are not carried out regular.

PSC Trainings and Certifications

The PSC PhD Program "Plant Sciences" is finished with a **PhD Program certification**. The certification is part of the diploma supplement of the doctoral certificate that is awarded by the University of Zurich, ETH Zurich or University of Basel. The certification includes a transcript of record of all PhD courses work carried out by the PhD student.

PSC PhD Symposium 2021 – Patterns in nature and plant science,

Dec 8, 2021, online with 180 registrated participants

Topic: Advances in computational models, automation, and high-throughput experimentation have shown the potential to rapidly accelerate the discovery of patterns. The symposium highlighted advances in plant (data) research from the micro- to macroscale. Answering key questions such as: How to find patterns in data? How to find patterns in nature? And most important, what do they reveal? Scales reach from genetic patterns, geometries of plant growth, patterns of differentiation up to patterns of global biodiversity, land use and agri-food systems – providing an integrated view of planetary function.

Invited speakers: Prof. Markus Stetter, Crop Evolution and Adaptation, Institute for Plant Sciences, University of Cologne, DE; Prof. Nico von Wirén, Molecular Plant Nutrition, Leibniz Institut für Pflanzengenetik und Kulturpflanzenforschung, Gatersleben, DE; Prof. Claude Becker, Genetics, Biocenter, Ludwig-Maximilian University Munich, DE; Prof. Siobhan Braybrook, Molecular Cell and Developmental Biology, UCLA, USA; Prof. Edwige Moyroud, Flower Development, The Sainsbury Laboratory, University of Cambridge, UK; Prof. Zoran Nikoloski, University of Potsdam & Max Planck Institute of Molecular Plant Physiology Potsdam, DE; Prof. Max Rietkerk, Copernicus Institute of Sustainable Development, Utrecht University, NL; Prof. Loïc Pellissier, Landscape Ecology, Institute of Terrestrial Ecosystems, ETH Zurich, PSC; Prof. Caroline Farrior, Integrative Biology, University of Texas at Austin, USA; Prof. Rachael Garrett, Environmental Policy, Institute of Environmental Decisions, ETH Zurich, PSC

Selected Flash talks: Dr. Reiko Akiyamas, Dept Evolutionary Biology and Environmental Studies, UZH; Arvid Heutinck, Dept Biology, ETHZ; Cheng Li, Dept Geography, UZH; Dr. Rebecca Stubbs, Dept Systematic and Evolutionary Botany, UZH

Organizing Committee: PD Dr. Rie Inatsugi-Shimizu (UZH), Prof. Anne Roulin (UZH), Prof. Klaus Schläppi, (UBasel), Prof. Benjamin Stocker (ETHZ), Prof. Cyril Zipfel (UZH), PSC: Dr. Manuela Dahinden, Sylvia Martinez, Romy Kohlmann.

27 Poster presentations:
https://www.plantsciences.uzh.ch/en/outreach/conferences/patterns/posters2021symposium.html

Poster awards: Marie-Louise Schärer (UBasel), Title: Soil nutrient processes and not plant physiological properties are the main drivers of post-drought yield outperformance in *L. perenne*; Danli Fei (UZH), Title: Plant reproduction: chromatin-based controls in the reproductive lineage; Zoe Bernasconi (UZH), Title: Unravelling the molecular basis of wheat powdery mildew's virulence patterns through ultraviolet mutagenesis

Recordings of the talks:
https://video.ethz.ch/events/psc/veranstaltungen/symposium.html

Booklet of abstracts: https://www.plantsciences.uzh.ch/dam/jcr:723eb965-ea12-4698-acaa-9db67db01347/PSC%20Symposium%202021_Abstracts_Online.pdf

Frontiers in Plant Science Courses Series:

Between 2015 and 2021 the PSC received funding for a series of workshops at the frontiers in plant sciences by the SUK “Interuniversity Program” through University of Zurich, ETH Zurich and University of Basel. These workshops are dedicated to applications: i.e. concepts but also tools in these advanced areas

- **Microbiomics I: The microbiome of the plant-soil system:** Dr. Martin Hartman (ETHZ), ETHZ Vorlesungsverzeichnis: 751-5127-00L. Participants: 6
- **Microbiomics II: Metabarcoding - from bioinformatics to statistics:** Dr. Martin Hartman (ETHZ), Participants: 12

Due to Coronavirus pandemic, the course “Advanced course on 3D microscopy imaging of plant tissues and image processing” (PD Celia Baroux (UZH), Prof. Alexis Maizel (Uni Heidelberg)) had to be rescheduled to spring term 2022.

Courses carried out in the reporting period

In the reporting period, the PSC organized / co-organized 29 courses. We report 334 course visits of PhD students.

Table 1: Number of courses carried out and number of course participations. Participants per University are summarized over all courses.

Year	Total Course Nr	Part. University of Zurich	Part. ETH Zurich	Part. University of Basel	Part. Other	Course Participations
2021	29	110	187	32	5	345

Table 2: Courses in the PhD Program in Plant Sciences and number of participants.

Course	**Speakers / case study supervisors**	**Participants**
Introduction to R	Jan Wunder	ETH (4) UZH (14)
The Microbiome of the Plant-Soil System: Part I (Theory, methods and case studies)	Hartmann Martin, Institute of Agricultural Sciences, ETH Zurich	ETH (1) UZH (3) UNIBAS (2)
Project Management for Research	Dr. Andrea Degen-Iseli (EUrelations)	ETH (10) UZH (2) UNIBAS (2) OTHER (1)
Responsible Conduct in Research	Prof. Nina Buchmann & Dr.	ETH (7)

	Melanie Paschke	UZH (2)
Scientific Presentation Practice	Dr. Barbara Hellermann, PhD	ETH (7) UZH (5) UNIBAS (1) OTHER (2)
Introduction to UNIX/Linux and Bash Scripting (BIO609)	Dr. Gregor Rot, Dr. Carla Bello Cabrera	ETH (5) UZH (5) UNIBAS (1)
Next-Generation Sequencing for Model and Non-Model Species (BIO610)	Prof. Kentaro Shimizu, Prof. Jun Sese, Dr. Rie Inatsugi, Dr. Masaomi Hatakeyama, Dr. Jianqiang Sun, Dr. Tatsuma Shoji	ETH (4) UZH (3)
Research with biological material from abroad – International regulations and due diligence in research	Dr. Susette Biber-Klemm, Syntrans Basel Sylvia Martínez M.Sc., Basel Univ. & Zurich-Basel Plant Science Center Dr. Franziska Bosshard, Federal Office for Environment Dr. Mathias Lörtscher, Federal Veterinary Office Dr. François Pythoud, Federal Office for Agriculture	ETH (6) UZH (4)
Get going with statistics in functional genomics	Prof. Anne Roulin (UZH), Dr. Jean-Claude Walser (GDC, ETHZ)	ETH (7) UZH (4) UNIBAS (1)
QTL Analysis	Prof. Tom Jünger (University of Texas), Prof. Ueli Grossniklaus (UZH)	ETH (8) UZH (4)
Scientific Writing Practice II	Dr. Jacopo Marino (Paul Scherrer Institute, Villigen)	ETH (9) UZH (4)
Next-generation Sequencing 2 - Continuation Course: Transcriptomes, Variant Calling and Biological Interpretation (BIO634)	Dr. Carla Bello, Dr. Gregor Rot	ETH (4) UZH (2)
Taming the Beast	Professor Tanja Stadler (ETH Zürich, D-BSSE), Dr. Timothy Vaughan (ETH Zürich, D-BSSE)	ETH (1)
Managing your Publication Workflow and your Open Data	Dr. Philipp Mayer, André Hoffman, M.A., Stefanie Strebel, Dr. Melanie Paschke	ETH (11) UZH (4)
The Microbiome of the Plant-Soil System: Part II (Processing next-generation sequencing data to ...)	Hartmann Martin, Institute of Agricultural Sciences, ETH Zurich	ETH (6) UZH (1) UNIBAS (5)
Basic Plant Disease Diagnostics	Dr. Monika Maurhofer Bringolf	ETH (10) UZH (3)
Genetic Diversity: Analysis	Dr. Jean-Claude Walser, Dr. Niklaus Zemp	ETH (3) UNIBAS (1)
Advanced Data Management and Manipulation using R	Dr. Jan Wunder	ETH (6) UZH (12) UNIBAS (3)
Alpine Plant Ecology - International	Dr. Erika Hiltbrunner (Univ. Basel),	ETH (4)

Summer School	Prof. Christian Körner (Univ. Basel), Prof. Jake Alexander (Univ. Lausanne)	OTHER (1)
Filmmaking for Scientists	Dr. Samer Angelone	ETH (8) UNIBAS (4)
RESPONSE Summer School	Dr. Melanie Paschke	ETH (12) UZH (7)
Challenges in Plant Sciences - PSC Colloquium	Cécile Lorraine, Sebastian Pfeilmeier, Barbara Pfister, Thomas Boller (UniBas), Sylvia Martínez (PSC)	ETH (14) UZH (5) UNIBAS (4)
Scientific Writing I	Dr. Patrick Turko	ETHZ (10) UZH (7) UNIBAS (1)
Seminar “Sustainable Plant Systems” (ETHZ: 51-0209-00L) as part of “Integrative Plant Sciences”	Dr. G. Singh Bhullar (FIBL); Dr. Frank Liebisch (ETHZ); Prof. Marcel van der Heijden (Agroscope), Dr. Melanie Paschke (ETHZ)	ETH (8) UNIBAS (7)
Concepts in Evolutionary Biology (BIO395)	Prof. Kentaro Shimizu, Prof. Dr. Wolf Blankenhorn, Prof. Dr. Barbara König, Prof. Dr. Michael Krützen, Prof. Dr. Fred Guillaume, PD Dr. Anna Lindholm, Dr. Michael Matschiner, Dr. Simon Aeschbacher	ETH (4) UZH (5)
Writing a Post-Doctoral Grant	Dr. Andrea Degen, Eurelations AG, Dr. Melanie Paschke, PSC	ETH (7) UZH (5)
Genetic Diversity: Techniques	Dr. Aria Minder, Genetic Diversity Center, ETH Zürich	ETH (3) UZH (1)
Introduction to Light Microscopy and Image Processing	Dr. Gábor Csúcs	ETH (4) UZH (2)
Scientific Visualisation in R	Dr. Jan Wunder	ETH (11) UZH (6)

From 01.01.2021 to 31.12.2021, the evaluation of 34 of 35 courses was completed by the PSC directly: Participants rated these courses between 3 to 4 (= fully agree) in “I learned & benefited from this course” and several other aspects. Note: In the last column “The instructor moved at an appropriate pace” a different scale was used.

Table 3: Course Evaluation 2021: 4 = fully agree, 1 = fully disagree

Course	Number of questionnaires	The course was well organized?	The topics covered met my expectations?	The instructor explained clearly?	Manual was helpful & useful also for future?	Good balance between theoretical & practical?	level of course was according to my needs?	working atmosphere was good?	I learnded & benefited from this course?	The instructor moved at an appropriate pace? 1 = too slow/too fast, 2 = just right
Alpine Plant Ecology - International Summer School 2021	2	3.50	3.00	4.00	3.50	3.50	3.50	4.00	4.00	2.00
Advanced Data Management and Manipulation using R	8	4.00	3.63	3.88	3.75	3.88	3.50	3.63	3.88	2.00
Basic Plant Diagnostics	8	4.00	4.00	3.88	3.75	4.00	3.75	3.88	3.88	2.00
Concepts in Evolutionary Biology (BIO395)	36	3.39	3.17	3.28	3.50	3.39	3.08	3.72	3.28	1.91
Filmmaking for Scientists	5	4.00	4.00	4.00	3.60	3.80	3.80	4.00	4.00	2.00
Genetic Diversity: Analysis	2	4.00	3.00	3.50	4.00	3.50	3.50	4.00	4.00	2.00
Genetic Diversity: Techniques	4	4.00	3.75	4.00	3.50	4.00	3.50	4.00	3.75	2.00
Get going with statistics in functional genomics	3	3.00	2.67	3.33	3.33	3.00	3.00	3.00	3.00	1.67
Introduction to Light Microscopy Imaging of Plant Tissues and Image Processing	4	4.00	4.00	3.75	4.00	3.75	3.75	4.00	4.00	1.75
Introduction to R (2021)	7	4.00	3.57	3.71	3.86	3.86	3.57	3.71	3.86	1.86
Introduction to UNIX/Linux and Bash Scripting (BIO609)	7	3.29	3.43	3.29	3.29	3.29	2.86	3.29	3.43	1.57
Next-Generation Sequencing for Model and Non-Model Species (BIO610)	5	3.80	3.40	3.40	3.20	3.20	3.40	3.40	3.60	2.00

Next-generation Sequencing 2 - Continuation Course: Transcriptomes, Variant Calling and Biological Interpretation (BIO634)	6	3.67	3.33	3.67	3.83	3.50	3.33	3.50	3.50	1.83
Managing your Publication Workflow	5	4.00	4.00	3.80	3.80	3.40	4.00	3.40	4.00	2.00
Project Management for Research	3	3.00	2.33	3.33	2.67	3.33	2.67	3.33	2.67	1.67
PSC Colloquium «Challenges in Plant Sciences»	20	3.75	3.32	3.65	3.40	3.50	3.45	3.72	3.21	2.00
QTL Analysis	11	3.27	3.73	3.64	3.45	3.27	3.45	3.91	3.73	1.82
Research with biological material from abroad – International regulations and due diligence in research	2	3.50	4.00	3.08	4.00	3.50	3.50	3.50	4.00	1.50
RESPONSE Summer School: Responsible Research…	9	3.78	3.56	3.67	3.67	3.89	3.67	3.89	3.44	2.00
Responsible Conduct in Research	2	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	2.00
Scientific Presentation Practice	4	4.00	4.00	3.75	4.00	4.00	3.75	3.75	3.75	2.00
Scientific Writing I	5	3.80	3.20	3.80	3.60	3.20	3.20	3.80	3.60	1.80
Scientific Writing Practice II	13	3.69	3.46	3.85	3.54	3.77	3.50	3.69	3.62	2.00
Scientific Visualisation in R	5	3.80	3.60	3.60	3.80	3.80	3.60	3.60	3.80	2.00
Seminar “Sustainable Plant Systems” (ETHZ: 51-0209-00L) as part of “Integrative Plant Sciences”	1	4.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
Taming the Beast	1	3.00	3.00	3.00	3.00	4.00	3.00	3.00	3.00	2.00
The Microbiome of the Plant-Soil System I	4	4.00	3.75	4.00	3.75	3.75	3.50	4.00	4.00	2.00
The Microbiome of the Plant-Soil System II	8	4.00	3.75	3.88	4.00	3.88	3.63	4.00	4.00	2.00

Writing a Post-Doctoral Grant	10	3.70	3.80	3.80	3.50	3.80	3.90	4.00	3.90	2.00

Outlook

The PSC PhD Program in Plant Science remains one of the largest in its field, offering students access to (a) transferable skills and competencies courses to enhance employability and career perspectives, as agreed in the Lisbon strategy and following the Research Development Framework (Vitae) competency matrix as well as (b) multidisciplinary courses on research topics, from molecular biology to ecosystem research.

RNA Biology

The program in figures and numbers

Program statistics	as of December 31
Program students	33
Track I students	15
Track II students	18
Female students	17
Male students	16
International students	27
Swiss students	6
Program drop-outs	3
Completed PhD	23
Program Alumni	23
Faculty members	88

Recruitment

Recruiting statistics	December 1 2020	July 1 2021*
Complete applications	26	11
Invited candidates	9	4
Drop-outs before interview	1	1
Free slots (RNA Biol priority program)	4	2
Matches	3	1
Candidates without matches	1	2
Decision against program	4	1
Rejected candidates	0	0
Change to other LSZGS programs	1	0
Gained from LSZGS programs	1	0

*PhD applications only, not considering PreDoc applicants

Finances

	Income	Expenses
Balance January 1	42’317.55	
Income		
ETHZ		
UZH	7’084.00	
Fees		
Other		
Expenses		
Salaries program		
Social benefits		
Recruitment December 1		1’108.20
Recruitment July 1		
Program activities (retreat, symposia, etc.)		
Overhead		
Total		
Balance as of December 31	48,293.35	

Program Activities

- **NCCR RNA & Disease Seminar Series 2021**
  When Speakers are onsite – there is a PhD Luncheon with the speakers at the day of the Seminar

  January 2021, on zoom: Roy Parker - University of Colorado, Boulder, USA

  "Alterations in RNA physiology affecting tauopathies and viral infections"

  February 2021, on zoom: Maria Barna - Stanford University, Stanford, USA

  "Ribosomes in Gene Regulation: Controlling the diversity of proteins made in specific cells, tissues, and organisms"

March 2021, on zoom: Xiang-Dong Fu - University of California, San Diego, USA

"RNA Biology in the Core to Understand and Treat Neurodegenerative Diseases"

May 2021, including PhD Luncheon: Rachel Green - Johns Hopkins University, Baltimore, USA

“Ribosome collisions function as a sentinel for cellular distress"”

Nov 2021, including PhD Luncheon: Anne Willis – University of Cambridge, UK

"Post translation control of gene expression in healthy and diseased states."

December 2021, including PhD Luncheon: Hervé Le Hir - Institute of Biology, ENS, Paris, France

"Extended role of the Exon Junction Complex in mRNA trafficking"

- **Autumn Semester 2021**
  RNA Biology Lecture Series I: Splicing, alternative splicing & RNA editing; Transcription; Ribozymes & Translational Regulation; RNP biogenesis & nuclear export; Rhythmic transcriptome and proteome; The ribosome structure & translation; Coronavirus replication; 3' end formation & minor intron splicing; Nonsense-mediated mRNA decay & mRNA turnover

  RNA Biology Lecture Series II: Micro RNA function in metabolism; RNA and neurodegeneration; Epigenetic programming of genome remodelling in ciliates; Nucleic acid-based drugs; CRISPR-Cas genome editing; RNA processing code; Telomerase and telomeres; piRNA biogenesis & function; Signal transduction & RNA; tRNA biology; Mitochondrial tRNA import

- **NCCR Retreat;** had to be postponed to 2022

- **Summer School;** had to be postponed to 2022

Outlook

- **NCCR RNA & Disease Seminar Series 2022**
  If Speakers are onsite – there is a PhD Luncheon with the speakers at the day of the Seminar

  March 2022: Gisela Storz - National Institutes of Health, Bethesda, USA

  “RNA-mediated regulation within protein-coding sequences”

May 2022: Geraldine Seydoux - Johns Hopkins University, Baltimore, USA

Title tba

May 2022: Amy Pasquinelli - University of San Diego, USA

Title tba

- **NCCR Retreat 2022, March 21-23**
  Engelberg, Switzerland

- **Summer School 2022, August 23 - 27**
  Saas-Fee, Switzerland

  "RNA & Entrepreneurship"

Science and Policy

The program in figures and numbers

Program statistics	as of December 31
Program students	57
UZH affiliation	17
ETH affiliation	36
Uni Basel affiliation	3
Other institutions	2
Track I students	31
Track II students	26
Female students	34
Male students	23
International students	41
Swiss students	16
Program drop-outs	5
Completed PhD	9
Program Alumni	41
Faculty members	17

Recruitment

Recruiting statistics	December 1	July 1
Complete applications	209	355
Invited candidates	20	8
Drop-outs before interview	3	3
Free slots (1 priority program)	1	6
Matches	10	5
Candidates without matches	9	2
Decision against program	0	0
Rejected candidates	0	0
Change to other LSZGS programs	0	0
Gained from LSZGS programs	0	0

Finances

	Income	Expenses
Balance January 1	111’525	
Income	24’780	
ETHZ		
UZH		
Fees		
Other		
Expenses		
Salaries program		49’867
Social benefits		
Recruitment December 1		
Recruitment July 1		0
Program activities (retreat, symposia, etc.)		2’100
Overhead		reported elsewhere
Total		51966.6
Balance as of December 31		84338.45

Program Activities

The PSC has core infrastructure and personal resources to carry out and manage training for 500+ participants per year. Established training formats range from workshops, colloquia and lectures to summer schools, and face-to-face events to blended learning and e-learning formats that make our education highly scalable in number of participants. Didactical formats include case-study work, cognitive apprenticeship models, role play scenarios, simulations but also hands-on training in tools and methodology and experimentation that make our education highly successful in targeting learning objectives to the different target groups and demands of a multi-faceted academic education.

The PSC educational programs are embedded in several educational platforms that operate nationally and internationally and make the course offer of the PSC and of corresponding programs fully transferable: Life Science Zurich (www.lifesciences.ch), an international graduate school in life sciences, Swiss Plant Science Web (www.swissplantsciencwweb.ch), housing 9 national PhD programs in Plant Sciences, Graduate Campus University of Zurich (www.grc.uzh.ch), bringing together all PhD students of the University of Zurich.

Students registered in the program in the reporting period, as of Dec 31

Year	TOTAL	University of Zürich	ETHZ	University of Basel	Other	Female	Male	National	International
2021	57	17	36	3	2	34	23	16	41

Program Curriculum for the PSC PhD Program in "Plant Sciences"

Since 2003 The PSC has offered the PhD Program in Plant Sciences with 20 – 30 ECTS per year of methodological training in several areas of plant sciences and following the international accepted frameworks of joint skills statement, 2001 and Vitae, 2010 for transferable skill training in:

- Understanding of the research environment and scientific community (e.g. understanding standards of good research practice and ethical standards, funding and publication practices in research)
- Research management (e.g. project management in research)
- Training of communication skills (e.g. scientific writing, scientific presentation, scientific communication practice)
- Networking and teamwork
- Career management

Module	**ECTS**
Compulsory Activity: 4 out of 6 modules - **Policy Workshops** (offered by PSC, 2 ECTS each): • Evidence-based Policy-making in Plant Sciences • Stakeholder Engagement • Communicating Science • Building Political Support • Contributing to Policy Action – Analyzing and Communicating Risks and Uncertainties • Understanding Policy Evaluation • Scenario Building and Modelling • Introduction to Political Sciences	9

1 Lecture in **Basics of Policy Sciences** (i.e. Introduction to Political Sciences, 1 ECTS)	
Elective Activities: • **Technical Courses**: Intensive workshops on skills, methods and techniques • **Transferable Skill** Courses • PSC: Careers in Science or Policy, or both? (1 ECTS) • PSC: Scenario-building and modeling (1 ECTS) • PSC: System Thinking (1 ECTS) Seminars, Colloquia	3
Other Elective Activities: • Participation in international scientific symposium with own scientific contribution (oral or poster presentation, preferentially with science-policy section) (max. 1 ECTS) • Organization of PSC PhD Symposium, preferentially with science-policy section (max. 3 ECTS) ECTS from the PSC offer of technical and scientific courses and Transferable skill courses.	
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* with approval from principal investigator or thesis committee

Recruitment & interviews:

The PSC offers a fully implemented Track I admission channel (recruitment via Life Science Zurich Graduate School, LSZGS) following LSZGS guidelines that was used for 23 of the 30 PhD students recruited to the program in 2021.

For Track II admission channel (direct application to principal investigator, PI): We now request formal admission interview with future PhD students to be organized by PI. The interview should be conducted in presence of at least one other principal investigator or faculty member and is confirmed with signed PhD Program interview protocol. This admission channel is used for 7 of the 30 PhD student recruited to the program in 2021.

Supervision:

The supervision is following the regulation of the partner universities and includes: doctoral agreement between supervisor and PhD students is set up 6 months after arrival of student. Set up of a research plan, establishing of thesis committee with internal and external experts, thesis committee meeting all 12 month and documentation of the meeting and the feedback in the thesis committee meeting protocol. The protocol is part of the documentation that is sent to the doctoral program coordination. The coordination is communicating to the universities' management (dean of faculties) if thesis committee meetings are not carried out regular.

PSC Trainings and Certifications

The PSC PhD Program "Sciences and Policy" is finished with a **PhD Program certification**. The certification is part of the diploma supplement of the doctoral certificate that is awarded by the University of Zurich, ETH Zurich or University of Basel. The certification includes a transcript of record of all PhD courses work carried out by the PhD student.

Courses carried out in the reporting period

In the reporting period, the PSC organized / co-organized 6 courses. We report 98 course visits of PhD students.

Table 1: Number of courses carried out and number of course participations. Participants per University are summarized over all courses.

Year	Total Course Nr	Part. University of Zurich	Part. ETH Zurich	Part. University of Basel	Part. Other	Course Participations
2021	6	30	60	2	6	98

Table 2: Courses in the PhD Program in Science and Policy including number of participants.

Course	Speakers / case study supervisors	Participants
Science & Policy Workshop B: Stakeholder Engagement	Minu Hemmati	ETHZ (11) UZH (4) OTHER (2)
Science & Policy Workshop E: Contributing to Policy Action - Analysis and Communication of Risks and Uncertainties	Cornelius Senf (University of Natural Resources and Life Sciences, Vienna), Melanie Paschke, (PSC), Christoph Beuttler (Risk-Dialogue Foundation, St. Gallen), Elisabeth Ehrensperger (TA Swiss)	ETH (10) UZH (4) OTHER (1)
Science & Policy Workshop F: Understanding Policy Evaluation	Dr. Tobias Arnold, Interface	ETH (16) OTHER (2)
Science & Policy Workshop C: Communicating Science	Jacopo Pasotti	ETH (9) UZH (8) OTHER (1)
Specialized Course: Strategic Scenario-building and Foresight	Chris Luebkeman (ETH), Katarina Hruba (ETH)	ETH (8) UZH (2) UNIBAS (1)
Science & Policy Workshop C: Evidence-based Policy-making	Eva Lieberherr (ETH), Isabel Günther (ETH), Adina Rom (ETH), Holger Gerdes (Ecologic Institute, Berlin), Susanne Menzel (Swiss Federal Office for Agriculture), Jerylee Wilkes-Allemann (Berne University of Applied Sciences, School of Agricultural, Forest and Food Sciences HAFL)	ETH (6) UZH (12) UNIBAS (1)

Table 3: Course Evaluation 2021: 4 = fully agree, 1 = fully disagree

Course	Number of questionnaires	The course was well organized?	The topics covered met my expectations?	The instructor explained clearly?	Manual was helpful & useful also for future?	Good balance between theoretical & practical?	level of course was according to my needs?	working atmosphere was good?	I learnded & benefited from this course?	The instructor moved at an appropriate pace? 1 = too slow/too fast, 2 = just right
Communicating Science	17	3.50	3.53	3.76	3.24	3.88	3.47	4.00	3.71	1.8
Contributing to policy action – Analysis and communication of risks and uncertainties	2	3.00	3.50	3.00	2.50	4.00	3.50	3.50	3.50	2.0
Evidence-based Policy Making	3	2.67	3.33	2.67	3.00	3.00	3.67	3.67	3.00	1.3
Stakeholder Engagement (HS20)	9	3.89	3.56	3.78	3.67	3.44	3.44	3.56	3.67	2.0
Strategic Foresight and Scenario Building	10	3.80	3.1	3.7	3.3	3.5	3.1	3.8	3.4	2.0
Understanding Policy Evaluation	5	3.40	3.20	3.80	3.40	3.60	3.40	3.60	3.60	1.6

Outlook

The PSC PhD Program in Plant Science remains one of the largest in its field, offering students access to (a) transferable skills and competencies courses to enhance employability and career perspectives, as agreed in the Lisbon strategy and following the Research Development Framework (Vitae) competency matrix as well as (b) multidisciplinary courses on research topics, from molecular biology to ecosystem research.

Systems Biology

The program in figures and numbers

Program statistics	as of December 31
Program students	71
Track I students	37
Track II students	36
Female students	32
Male students	39
International students	57
Swiss students	14
Program drop-outs	0
Completed PhD	7
Program Alumni	98
Faculty members	35

Recruitment

Recruiting statistics	December 1	July 1
Complete applications	112	46
Invited candidates	20	10
Drop-outs before interview	7	2
Free slots (XX priority program)	3	4
Matches	6	3
Candidates without matches	0	0
Decision against program	1	0
Rejected candidates	0	1
Change to other LSZGS programs		
Gained from LSZGS programs	2	2

Finances

	Income	Expenses
Balance January 1	98’057	
Income		
ETHZ	30’632	
UZH	0	
Fees	0	
Other	0	
Expenses		
Salaries program		22’100
Social benefits		4’697
Recruitment December 1		507
Recruitment July 1		2’924
Program activities (retreat, symposia, etc.)		244
Overhead		0
Total		30’472
Balance as of December 31		98’217

Program Activities

(i) Compulsory intro course “Systems Approaches in Biology” (conducted by SB program, 19 participants from SB): two week full-time, online via Zoom, the aim of this course is to experience and understand systems biology as a scientific process for hypothesis generation in complex and dynamic situations and networks.

(ii) Advanced course “Computational Biology” (conducted by SB program, 14 participants from SB and 1 participant from BioMed): two-week full-time, online via Zoom, course aimed at students with sufficient theory background for in-depth review of mathematical / computational approaches to systems biology problems, combined with practical case study performed in groups (based on project proposals by PhD students).

(iii) *The 9th Systems Biology PhD retreat took place on the 6-8th October in Kandersteg*