

## **Protocol, Organism Biology steering committee meeting**

**April 20, 2021, 10-12**

**Zoom**

### **Attending:**

Petra Fransson (chair)  
Christina Dixelius  
Magnus Karlsson  
Charles Melnyk (left meeting after point 5 on agenda)  
Peter Bozhkov  
Mariana Kluge  
Dimitrios Kokoretsis (joined meeting during point 3 on agenda)  
Sanjana Holla  
Mattias Thelander (coordinator without right to take part in decisions)  
Eddy Véléz (coordinator without right to take part in decisions)

### **Not attending:**

Sanjana Holla

### **§ 1 Meeting was opened by Petra Fransson**

- a) Mattias Thelander was appointed secretary
- b) Magnus Karlsson was appointed adjutor
- c) Last meeting protocol was approved
- d) Additional questions: New student representative from Mykopat in steering committee

### **§ 2 Final reports from concluded activities**

- a) How to become a postdoc (workshop, no credits): Eddy reported that the workshop was given on March 12, 2020. It was a collaboration between all NJ research schools with Ali and Helena as main organizers. 12 SLU students participated. The activity was well received by students as indicated by a score of 4.5 / 5 on an evaluation question asking for their general impression of the activity. The total cost for the activity was 53 539 kr. Of this, OB will pay 7 600 kr. We had budgeted 5 000 kr on beforehand. The final report was approved.
- b) Visualize your science (4 credits): Mattias reported that this course organized by Andreas Dahlin was given via Zoom from Sep 22 to Nov 27, 2020. The course had 20 registrants (all SLU PhD students) among which 16 have so far passed. The activity was well received by students as indicated by a score of 4.5 / 5 on an evaluation question asking for their general impression of the activity. We had budgeted 100 000 kr for the activity and the actual costs added up to 93 454 kr. The final report was approved.
- c) Multivariate methods for ecologists (4.5 credits): Eddy reported that the course was given from Nov 2 to Nov 20, 2020. It was organized by Ulf Grandin with colleagues and was a collaboration between NJ research schools. 28 students participated among which 6 were from SLU. The activity was very well received by students as indicated by a score of 4.7 / 5 on an evaluation question asking for their general impression of the activity. OB's share of the total cost was 62 814 kr. We had budgeted 65 000 kr on beforehand. The final report was approved.
- d) Plant disease epidemiology – from theory to applications (4.5 credits): Eddy reported that the course was given in Dec 2020. It was organized by Jiasui Zhan. 32 students took part and passed the course. The activity was well received by students as indicated by a score of 4.0 / 5 on an

evaluation questions asking for their general impression of the activity. We had budgeted 70 000 kr for the activity and this is also what was spent. The final report was approved.

- e) Analysis of high throughput sequencing RNA-seq data (1+2+1 credits): Mattias reported that this course organized by Nicolas Delhomme with colleagues as SLUBI was given via Zoom from Nov 23 to Dec 10, 2020. The course consisted of three independent modules and 16 students finished one or more modules (12 SLU PhD students + 3 SLU postdocs). The activity was very well received by students as indicated by a score of 4.6 / 5 on an evaluation questions asking for their general impression of the activity. We had budgeted 100 000 kr for the activity and this is also what was spent. The final report was approved.
- f) PhDs careers outside academia (workshop, no credits): Eddy reported that the workshop was given on Dec 1, 2020. It was a collaboration between all NJ research schools with Eddy and Magda as main organizers. SLU alumni and SLU career were co-organizers. 24 students had signed up but only 6 participated in the whole event. The activity was well received by students as indicated by a score of 4.4 / 5 on an evaluation question asking for their general impression of the activity. OB's share of the total cost was 5011 kr. We had budgeted 10 000 kr on beforehand. The final report was approved.

### **§ 3 Progress reports from ongoing and planned activities**

- a) How to write and publish a scientific paper (4.5 credits): Eddy reported that this course originally planned for 2020 is ongoing right now with 4 students and Marisol Sanchez-Garcia as the organizer.
- b) Practical skills in sequence analysis (2 credits): Mattias reported that this course organized by Tomas Linder was finished just a few days ago. Teaching was offered via zoom. 7 students took part. A final report will be given at the next meeting.
- c) Real time quantitative PCR – theory, experimental design and data analysis (3.5 credits): Mattias reported that this course organized by Alyona Minina is ongoing right now with about 16 participants among which 12 are PhD students. Teaching is via Zoom.
- d) Genome editing by CRISPR/Cas9 in theory and practice (5 credits): Panos reported that this course organized by himself will run via zoom in May with 9 registered students.
- e) Visualize your science (4 credits): Mattias reported that the course organized by Andreas Dahlin is ongoing via Zoom right now with 12 participants among which 10 are PhD students. It will end on May 7.
- f) From population to ecological functional genomics: Concepts, tools and applications (2.5 credits): Mattias reported that this course organized by Pär Ingvarsson and Adrien Sicard will run in late May to early June. With a few days to the application deadline, there are 12 registrants.
- g) How to become a postdoc (workshop, no credits): Eddy reported that this collaborative workshop organized by Ali and Helena took place on March 4. We are still waiting for further details.
- h) Pathobiome and plant immunity (5 credits): Eddy reported that this course organized by Salim Bourras will run in June. 24 students have registered so far.

- i) Understanding and coding R (2 credits): Eddy reported that this collaborative course coordinated by the Ecology school was organized in May. We are still waiting for further details.
- j) Thesis summary writing (workshop, no credits): Eddy reported that this collaborative activity coordinated by FoSW took place on April 19. We are still waiting for further details.
- k) Picture a scientist (workshop, no credits): Eddy and Dimitrios reported that this activity was first proposed by PhD students within OB. The basic idea is to highlight equality issues and challenges for women in science by viewing the film “Picture a scientist” as a basis for discussions. For the discussion, the plan is to bring in one of the scientists in the film as well as someone working with these questions at SLU. After having discussed the activity with persons outside OB the initiative has grown and both the library and the NJ unit for equal opportunities are now on board. A date has not been set yet, but the activity will probably take place in late May or early June. Eddy estimates the total cost for the activity to 65 000 kr. Of this, the library and the NJ faculty can probably cover 15 000 kr. The meeting decided that OB should contribute up to 50 000 kr to the activity. It was also decided that Eddy should reach out to the research school Focus on Food and Biomaterials to investigate if they would like to be co-organizers and share parts of the cost.

#### § 4 Economy status – funding available for activities fall 2021

Mattias reminded the meeting that FUN-NJ granted OB a total budget of SEK 4 894 k for the 4-year period from July 17 to June 21. Out of this 30% can be used for coordination leaving 70% or SEK 3 426 k for activities during the 4-year period. On average, this means that SEK 428 k can be used for activities each semester.

Mattias reported that he estimates that OB will have spent around 3 000 k on activities when we reach the end of the spring semester 2021. As summarized in the table below, this estimation is based on solid economy outcomes from 2017, 2018 and 2019 while figures for 2020 and 2021 are still shaky since final economical outcomes for many activities are still pending for this period.

Spent on activities	<u>Costs</u>		
	Registered	Expected	Total
Fall 2017	317 k	0	317 k
2018	530 k	0	530 k
2019	744 k	54 k	798 k
2020 (partly prognosis)	484 k	220 k	704 k
Spring 2021 (largely prognosis)	25 k	620 k	645 k
			<b>3 000k</b>

Finally, Mattias reported that FUN-NJ has approved that we can and should use “left-over” funding from the original 4-year period to organize activities also in fall 2021. If the estimation of costs for 2017 to spring 2021 holds true, this means that OB has 425 k to spend on activities in fall 2021 (3 425 k – 3 000 k). Mattias also reported that he had discussed the risk of overdrawing the funding approved for the original 4-year period due to the challenges of estimating final costs with the chairperson of FUN-NJ. The oral reply was that it is ok with a moderate overdraw as long as activities arranged are of good quality.

## **§ 5 Program and budget for fall 2021**

It was decided that the coordinators should work to realize the following activities in fall 2021:

a) Course: Confocal microscopy	100k
b) Course: Bioinformatics of community sequence data	100k
c) Course: Visualize Your Science	100k
d) Course: In-depth RNAseq course	100k
e) Course: Advances in enzyme regulation*	40k
f) Course: Multivariate statistics	65k
g) Course: Mycology	100k
h) Workshop/seminar: career outside academia	10k

\* Peter raised concerns that he and his group may not have the time needed to organize the course “Advances in enzyme regulation” in fall 2021. Peter said that he will investigate this until the next steering committee meeting.

## **§ 6 Report 2017-2020, submitted to faculty 15th of Feb, 2021**

Petra gave a brief description of the report summarizing OB activities from 2017 to 2020 which was submitted to the faculty in Feb 15, 2021 (attached with protocol).

## **§ 7 Archiving**

Petra informed the meeting that Mykopat currently is working to update their routines for archiving. Routines for archiving of material from the OB research school are also needed. It was agreed that Petra should bring up the question again in a future meeting once mykopat has sorted out their routines.

## **§ 8 Per capsulam decisions since last meeting**

Four per capsulam decisions taken via e-mail since our last meeting are attached to this protocol:

- a) Approval of syllabus for the PhD course “Plant disease epidemiology – from theory to applications”
- b) Approval of syllabus for the PhD course “Pathobiome and Plant Immunity”
- c) Approval of syllabus, budget and schedule for the PhD course “From population to ecological functional genomics: Concepts, tools and applications”.
- d) Approval of syllabus, budget and schedule for the PhD course “Real Time Quantitative PCR – Theory, experimental design and data analysis”.

## **§ 9 Additional questions**

Petra informed the meeting that Mariana needs to leave the steering committee since she will soon defend her thesis. After discussions among the PhD students at mykopat the suggestion is that Carol Kälén takes over. It was decided that Petra should ask the student union to approve this change. Mariana was thanked for her important work in the steering committee.

## **§ 10 Next meeting:**

7 June 2021, 10-12

Attachments:

- a) *Report 2017-2020, submitted to faculty 15th of Feb, 2021*
- b) *Approval of syllabus for the PhD course "Plant disease epidemiology – from theory to applications"*
- c) *Approval of syllabus for the PhD course "Pathobiome and Plant Immunity"*
- d) *Approval of syllabus, budget and schedule for the PhD course "From population to ecological functional genomics: Concepts, tools and applications".*
- e) *Approval of syllabus, budget and schedule for the PhD course "Real Time Quantitative PCR – Theory, experimental design and data analysis".*



2021-04-22, Uppsala

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Mattias Thelander, secretary

Date and Place



2021-04-21, Uppsala

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Magnus Karlsson, adjutor

Date and Place

Number	Name of activity	Year when the activity was performed	Type of activity (C=course; S=seminar; WS=workshops; Symp=symposium/conferens;K=kick off; H=supervisor activity; O=other)	HEC (if it was a course with course plan)	Number of participating PHD students	Number that passed the exam if the activity was a the course	Number of participating supervisors if an H activity	General course evaluation (value from question 1 in course evaluation template)	Name of research school	Mark with 1 if activity was arranged in cooperation with another SLU research school	Mark with 1 if activity was arranged in cooperation with other parties	Comments
1	PNS0151: Genome editing by CRISPR/Cas9 in theory and practice	2017	C	5	8	17	n/a	4,8	Organism Biology	0	1	17 participants in total
2	PNS0155: Laser-assisted microdissection	2017	C	2	3	2	n/a	5,0	Organism Biology	0	0	9 participants in total
3	PFS0160: Mycology, its basics and state-of-the-art applications	2017	C	3	4	11	n/a	4,9	Organism Biology		1	11 participants in total.
4	PFS0159: Future plant disease epidemiology	2017	C	1,5	5	5	n/a	4,6	Organism Biology	0	1	5 participants in total
5	PhDs Careers Outside Academia	2017	WS	n/a	19	n/a	n/a	4,0	Organism Biology	1	1	20 participants in total
6	PNG0044: How to write and publish a scientific paper	2017-18	C	4,5	4	4	n/a	3,8	Organism Biology	1	0	4 participants in total.
7	P0031: Advances in Enzyme Regulation	2018	C	5	6	9	n/a	4,8	Organism Biology	1	1	9 participants in total.
8	P0052: To communicate science	2018	C	2	13	13	n/a	4,1	Organism Biology	1	1	
9	PNG0073: Visualize Your Science	2018	C	4	19	17	n/a	4,8	Organism Biology	0	1	20 participants in total.
10	PNG0073: Visualize Your Science	2018	C	4	18	15	n/a	4,8	Organism Biology	0	1	20 participants in total.
11	PNG0088: Understanding and coding the R programming language (Spring)	2018	C	2	22	24	n/a	4,8	Organism Biology	1	1	24 participants in total.
12	PNS0074: Multivariate methods for ecologists	2018	C	4,5	11	21	n/a	4,5	Organism Biology	1	0	23 participants in total.
13	PFS0144: Sample Preparation for high-throughput sequencing	2018	C	3	6	15	n/a	4,5	Organism Biology	1	1	16 participants in total.
14	Annual workshop - focus on the academic career	2018	WS+C	1	14	14	n/a	4,8	Organism Biology	0	1	17 participants in total.
15	PNG0044: How to write and publish a scientific paper	2018-19	C	4,5	5	4	n/a	4,0	Organism Biology	1	0	5 participants in total.
16	PhDs Careers Outside Academia	2018	WS	n/a	21	n/a	n/a	4,4	Organism Biology	1	1	31 participants in total
17	How to become a postdoc	2018	S	n/a	35	n/a	n/a	4,4	Organism Biology	1	1	
18	PhDs Careers Outside Academia (Autumn)	2019	S	n/a	20	n/a	n/a	4,2	Organism Biology	1	1	
19	Forest Pathology in the 21st century (Autumn)	2019	C	3	5	5	n/a	4,3	Organism Biology		1	15 participants in total; Course code registration in progress
20	PNS0181: Plant ploidy Brassica (Autumn)	2019	C	3	6	6	n/a	4,7	Organism Biology		0	
21	PFS0165 Basics of metagenomics analysis (Autumn)	2019	C	3	10	10	n/a	4,4	Organism Biology		1	19 participants in total
22	PNS0074: Multivariate methods for ecologists	2019	C	4,5	28	28	n/a		Organism Biology	1	0	
23	PNG0073: Visualize Your Science	2019	C	4	16	16	n/a	4,2	Organism Biology	0	1	21 participants in total
24	10th Annual Organism Biology Workshop: Apply for your future - Jobs, grants, CVs and interviews (Spring)	2019	WS+C	1	29	n/a	n/a	4,6	Organism Biology	0	1	32 participants in total
25	Organism Biology seminar: How to transfer your academic skill sets to industry - transferable and soft skills perspective (Spring)	2019	S	n/a	22	n/a	n/a	4,9	Organism Biology	0	1	27 participants in total
26	PNS0138: Confocal Microscopy (Spring)	2019	C	5	13	14	n/a	4,0	Organism Biology	0	1	15 participants in total.
27	POS0007: To communicate science	2019	C	2	10	10	n/a	3,8	Organism Biology	1	1	
28	PNG0088: Understanding and coding the R programming language (Spring)	2019	C	2	19	19	n/a	4,9	Organism Biology	1		
29	PFS0161: RNA-Seq data analysis	2019	C	2	7	7	n/a	4,4	Organism Biology	0	1	11 participants in total
30	How to become a postdoc (Spring)	2019	S	n/a	31	n/a	n/a	4,3	Organism Biology	1	1	
31	PNG0073: Visualize Your Science	2019	C	4	20	17	n/a	4,8	Organism Biology	0	1	20 participants in total.
32	PNG0079: Global Sustainable Development Goals & Swedish Environmental Quality Objectives (Spring)	2019	C	1	9	9	n/a	4,2	Organism Biology	1	1	55 participants in total, of which 9 were students
33	PNG0073: Visualize Your Science	2020	C	4	20	15	n/a	4,5	Organism Biology	0	1	20 participants in total.
34	PNS0074: Multivariate methods for ecologists	2020	C	4,5	32	28	n/a	4,7	Organism Biology	1	0	
35	Academic productivity & Stress handling (Autumn)	2020	W	n/a	20	n/a	n/a	4,0	Organism Biology	0	1	
36	PFS0178: Plant Disease Epidemiology– From Theory to Applications (Autumn)	2020	C	4,5	32	32	n/a	4,0	Organism Biology		1	
37	PNS0208: Analysis of High Throughput Sequencing RNA-Seq Data (Autumn)	2020	C	2	16	12	n/a	4,6	Organism Biology	1	1	course offered one mandatory module (2 ECTS) and two optional modules (1 ECTS each)
38	PhDs Careers Outside Academia (Autumn)	2020	S	n/a	16	n/a	n/a	4,0	Organism Biology	1	1	With the participation of SLU Alumni Network and SLU Career Centre
39	PNG0088: Understanding and coding the R programming language (Spring)	2020	C	2	33	28	n/a	4,7	Organism Biology	1		38 participants in total
40	PNS0078: Root-soil-microbe interactions (Autumn)	2020	C	3,5	21	21	n/a	4,6	Organism Biology	0	1	
41	POG0084: To communicate science (Spring)	2020	C	2	15	13	n/a	4,7	Organism Biology	1	1	
42	How to become a postdoc (Spring)	2020	S	n/a	12	n/a	n/a	4,5	Organism Biology	1	1	
43	Thesis summary writing workshop (Spring)	2020	W	n/a	42	n/a	n/a	4,4	Organism Biology	1	1	
44	PNG0073: Visualize Your Science	2020	C	4	13	13	n/a	4,8	Organism Biology	0	1	15 participants in total, of which 13 were students.
45	PNS0191: Practical skills in sequence analysis (Spring)	2020	C	2	8	8	n/a	4,4	Organism Biology	1		8 participants in total
46	PNG0070: Reviewing and Summarizing Science - Everything You Always Wanted to Know About Science* (*But Were Afraid to Ask), (Spring)	2020	C	2	4	3	n/a	4,0	Organism Biology	1	1	
47	Mobility support / travel grants	2017-20	O	n/a	6	n/a	n/a	n/a	Organism Biology		n/a	Funding of participation in external courses

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## **Organization and Management**

### **The Organism Biology steering committee**

The Organism Biology steering committee is responsible for activities and finances of the research school. The committee consists of senior members from the three departments at the BioCenter and student representatives selected by the PhD students. The coordinators prepare the agenda and matters to discuss in collaboration with the chairperson, and the coordinators also take minutes. Four steering committee meetings are held per year and meeting protocols are posted on the home page of the research school. Current members of the Organism Biology steering committee are:

- Petra Fransson, Forest Mycology and Plant Pathology (chairperson)
- Christina Dixelius, Plant biology (vice chairperson)
- Peter Bozhkov, Molecular Sciences (senior member)
- Charles Melnyk, Plant Biology (senior member)
- Magnus Karlsson, Forest Mycology and Plant Pathology (senior member)
- Panagiotis Moschou, Plant Biology (senior member)
- Sanjana Holla, Molecular Sciences (PhD student representative)
- Mariana Kluge, Forest Mycology and Plant Pathology (PhD student representative)
- Dimitrios Kokoretsis, Plant Biology (PhD student representative)

### **The Organism Biology coordinators**

Two 15-20% coordinators work to turn decisions made by the steering committee into relevant PhD education activities. Coordinator tasks include, but are not limited to, 1) inventories of needs and wishes of the members, 2) planning and following up steering committee meetings, 3) dissemination of information about upcoming activities by e-mails, flyers and meetings, 4) the maintenance of an updated home page, 5) coordination of activities with other research schools within and outside of SLU, 6) recruitment and support of in-house and external organizers of individual activities, 7) acting as the main organizer of some activities, 8) organizing our reoccurring annual workshops, 9) summarizing and reporting the outcome of concluded activities to the steering committee, 10) daily economy administration, 11) budget work, 12) putting together economical closures, 13) provide economy and activity reports requested by the faculty and 14) to contribute to evaluations. Current coordinators are:

- Heriberto Véléz, Forest Mycology and Plant Pathology
- Mattias Thelander, Plant Biology

### **Routines for decisions and reports**

A founding idea behind the Organism Biology research school is that activities always should meet a pronounced need of the members. PhD students and other members are asked to suggest courses, activities and improvements via homepage forms, their representatives in the steering committee, group discussions at the annual workshops, and personal contacts with the coordinators. Individual activities can be suggested by any member and other associated person, and always pass through the steering committee for feedback and approval of an activity budget and course syllabus when applicable. Course evaluations that cover both content and organisation are routinely carried out, and are considered when a course is repeated. The coordinators report activities (outcome, finances and evaluation) to the steering committee after they are finished, and a short description of the given activity and the syllabus is normally posted on the home page.

### **Communication and information routines**

Activities are announced on the organism biology home page, via e-mail to various send lists, by flyers and poster, and at SLUkurs.

## Self-evaluation Organism Biology

Based on the aims of the NJ faculty research school initiative, Organism Biology put forward three main objectives in the granted application for support:

- ❖ To offer high quality courses within the broad field of organism biology with special emphasis on common methods and state of the art techniques
- ❖ To provide information and tools to help the PhD students make decisions about their future career in science and related areas
- ❖ To promote interdisciplinary collaborations and increased interaction between research groups, departments, universities as well as between science and society

The following self-evaluation considers the efforts done by Organism Biology to reach these three goals as well as the aims of the research school initiative as a whole, both based on the general learning outcomes of the PhD education.

### The role of the research school in the PhD education at SLU

The research school Organism biology has during the four last years, as well as since it started in 2008, strengthened the graduate education within the broad subject of organism biology at SLU by coordinating available resources in an efficient manner. A large number of departments at SLU conduct research and research training within this area which encompasses the description of molecular, structural and physiological mechanisms that define an organism to how they interact with each other and with their environment. As such, the research school activities has mainly targeted PhD students at the NJ departments in Uppsala Biocentre; Plant Biology, Forest Mycology and Plant Pathology, and Molecular Sciences. However, the broad scope of the research school, which represents one of the main strengths, has also attracted PhD students from several other departments and faculties of SLU, as well as students from other universities.

Many research groups active in the area of Organism Biology are united by a similar need of technical skills and a common choice of methodology. Therefore, a corner stone has been to offer courses focused in these aspects. Another fundamental idea of the school has been to increase the flow of technical expertise and biological knowledge between different departments and disciplines. The graduate school has also aimed to prepare the graduate students in the best possible way for their continued career in ways other than the pure subject-related. In addition to the wide variety of career-enhancing courses and activities, the research school has offered access to formal and informal networks in both academia and industry. This has included providing tools for communication and collaboration with industry and society, as well as applied research.

### The content of the activities organized by the research school

A significant portion of the activity program has consisted of high-quality courses focused on specialized analytical methods (e.g., Confocal Microscopy; Laser-assisted microdissection;

Understanding and coding the R programming language; Advances in Enzyme Regulation; Community profiling by sequencing; Multivariate methods for ecologists). The development in modern biology towards larger and more complex datasets, has led to a focus on courses from basic sample preparation to more complex bioinformatic-analysis (e.g., Sample Preparation for high-throughput sequencing; Practical skills in sequence analysis; RNA-Seq data analysis; Analysis of High Throughput Sequencing RNA-Seq Data; Basics of metagenomics analysis). The research school continues to arrange subject courses on timely topics (e.g., Genome editing by CRISPR/Cas9 in theory and practice; Forest Pathology in the 21st century; Mycology, its basics and state-of-the-art applications; Root-soil-microbe interactions; Plant ploidy in Brassica species; Future plant disease epidemiology; Plant Disease Epidemiology–From Theory to Applications; Global Sustainable Development Goals & Swedish Environmental Quality Objectives). In addition, courses have been given to provide generic skills in scientific writing, media communication and scientific presentation (e.g., How to write & publish a scientific paper; To communicate science; Visualize Your Science; Reviewing and Summarizing Science - Everything You Always Wanted to Know About Science\* (\*But Were Afraid to Ask); Thesis summary writing workshop). Finally, in keeping with the current health regulations related to Covid, many of the courses have been made “Zoom-friendly” allowing the research school to reach a wider student-audience, as well as the inclusion of subject-experts worldwide (e.g., Plant Disease Epidemiology–From Theory to Applications; Root-soil-microbe interactions).

Every year, the research school organizes workshops aimed to provide information and tools to help PhD students to make informed decisions about their future careers in science, industry, and society (e.g., PhDs Careers Outside Academia; How to become a postdoc). Thus, the research school has begun to collaborate with the SLU Alumni Network and the SLU Career Centre during the organization of these activities. The Organism Biology Annual Workshop is a yearly activity aimed mainly at PhD students within the subject area. The overall goal is to offer an arena for scientific discussions, reflections about future directions of the research school, and informal networking across department and subject borders. During the last funding cycle we have focused on themes related to career choices and planning (e.g., Annual workshop - focus on the academic career; Organism Biology seminar: How to transfer your academic skill sets to industry - transferable and soft skills perspective; 10th Annual Organism Biology Workshop: Apply for your future - Jobs, grants, CVs and interviews). The research school has also included activities aimed at the well-being of the students and especially now during the Covid pandemic (e.g., Academic productivity & Stress handling).

Taken together, the range of courses and activities arranged by Organism Biology comply well with the general learning outcomes of SLUs doctoral degree education. First, we have arranged courses and other activities focused on both broad and specific topics and methods, thereby contributing towards increased *knowledge and understanding* of the field of research. Second, we have provided plenty of opportunities for research students to critically discuss research and research results, and engaged them in networking seminars and in giving scientific presentations to a broader audience increasing their *skills and abilities*. Third, we have arranged a number of activities dealing with the interaction between academia and society, providing training in *judgement and approach*.

## The quality of the activities organized by the research school

By coordinating research education across department borders via Organism Biology, the critical number of PhD students needed to make high quality courses worthwhile is more easily gathered. Furthermore, by channelling available resources through Organism Biology with its solid experience and routines for planning, execution and quality assurance of activities, the steps from an identified need to an actual activity are considerably shortened. The efficient use of available resources has permitted the involvement of leading scientists and the organisation of excellent courses. The research school organisation also maintains and secures a high-quality standard for the activities organized through the work of coordinators and steering committees.

Organism biology has actively worked to assure a high-quality standard on all levels, from individual activities and courses, via our research school to the research school initiative as a whole. Throughout this work, the contribution of our research students has been central. We have PhD student representatives in the steering committee elected by the student group. PhD students are asked to suggest courses, activities, and improvements via homepage and e-mail forms, group discussions at the annual workshops, and through personal contacts with the directors of studies.

For each activity arranged by Organism Biology, we aim for high standards in regards to both, content and organization. Activities and courses can be suggested by any member and other associated persons, and always passes through the steering committee for feedback and approval. All courses have a clear element of examination ranging in format from short oral presentations to traditional written exams. Course evaluations that cover both content and organisation are routinely carried out, and are considered when a course is repeated and for reporting purposes. The directors of studies report activities (outcome, finances and evaluation) to the steering committee after they are finished. Course organizers have mostly been recruited from within SLU. However, recognising that the expertise has been lacking within certain subjects, methods or techniques at SLU, courses are commonly given with the involvement of external competence and skill. This involvement ranges from individual invited lecturers to jointly arranged courses with other universities and clusters, e.g. SciLifeLab or external consultants, when needed.

The direction and content of the yearly activity program of Organism Biology is decided by the steering committee. Care is taken to ensure that feedback from the PhD students is considered when planning for future activities. In this way, not only the content, but also the organisation and type of activities are developed over time as the needs and requirements from the PhD students evolve.

The research schools at the NJ faculty have regular meetings when joint courses and activities are planned and discussed, providing coordination and synergy. The number of workshops and courses organized in collaboration between two or more of the research school is considerable, which enable a more efficient use of resources and interaction between both, students and researchers across departmental and subject barriers. The joint research school forum also channels the communication between the research schools and the faculty with the aim to improve the overall research school organization and contribution to the research education at the faculty.

Participant evaluations of courses and activities organised by Organism Biology during the period 2017-2020 show that the PhD students generally thought that the course/activity was very good

(average score 4.5 (ranging 3.8-5.0) for the question 'My general opinion about the activity is that it was (5=Excellent – 1=Poor)').

## **The added value of cooperation with external partners and organisations**

A large proportion of the courses and activities organized by OB involve cooperation and the involvement of external partners and organisations (interpreted here as including only partners from organisations other than SLU).

Courses have been co-organized with other universities and research centres around the world (e.g., Anglia Ruskin University, UK; CSIRO, Australia; ETHZ, Switzerland; Estonian Crop Research Institute, Estonia; Estonian University of Life Sciences, Estonia; Ghent University, Belgium; Höskolan i Halmstad, Sweden; INRAE, France; International Potato Center, Peru; Kansas State University, Kansas USA; Karolinska Institute, Sweden; Monash University, Melbourne Australia; National Genomics Infrastructure (SciLifeLab), Sweden; Oregon State University, Oregon USA; Potato Research Center, Inner Mongolia University, China; Sainsbury Lab, UK; Stockholm University; Sustainable Use of Renewable Natural Resources (AGFOREE), University of Helsinki, Finland; Swiss Federal Institute of Aquatic Science and Technology; Umeå University; Università degli Studi di Torino, Italy; University of Helsinki; University of Reading, UK; University of South Florida; Uppsala University; VIB-Ugent, Belgium).

Via a mobility support program, the research school has also enabled individual PhD students to attend external courses at places like the Austrian Institute of Technology, the University of Amsterdam, Lodz University of Technology, and the University of Nagoya.

Non-academic external organisations have also been invited to lecture or contribute to both courses and other activities organized by the research school (e.g., career choices and planning; stress management). These include government agencies (e.g., Swedish Energy Markets Inspectorate, Stockholm; Swedish Board of Agriculture; Swedish Society for Nature Conservation; Statistics Sweden, Stockholm; Swedish Energy Agency, Stockholm; The Swedish Association of University Teachers and Researchers; The Swedish Environmental Protection Agency, Stockholm; County administrative board, Jönköping; Swedish Chemicals Agency; Regional Development & Cooperation regarding the Environmental objectives (RUS), Jönköping), as well as consultancy firms and other companies, research grant agencies, etc., (e.g., Analysys Mason; Bergvik Skog AB, Falun; Dfind Science & Engineering AB; Finish on Time; Foliumscience; Formas; Greensway, Uppsala; Länsstyrelsen, Uppsala; Lantbrukarnas Riksförbund; Naturskyddsföreningen, Stockholm; Nbis; NIBIO, Norway; Skogforsk, Uppsala; Swedish Match AB; The Swedish Research Council; Passage2Pro; UPPMAX; Visualize Your Science AB, Finland).

The involvement of external partners and organisations is a prerequisite to achieve the set goals for the research school. Apart from this straight forward benefits; added value includes increased visibility of the research school, opportunities for knowledge exchange, opportunities to initiate future collaboration, and possibilities to broaden the professional network for PhD students and researchers. The external partners from the societal sphere facilitate a link between university and society which enable communication with stakeholders and the possibility to improve the

communication skills, contribute to the understanding of the role of science in society and science in an ethical context. These contacts will also support PhD students to find a suitable career path either within or outside of academia.

## Use a SWOT-analysis to evaluate other aspects of the research school

We have used a previous SWOT-analysis as a basis for the following analysis since many of the strength and opportunities are the same and several of the weaknesses and threats still remain. We have focused primarily on issues relating specifically to Organism Biology but have chosen to also bring up some aspects of relevance to all research schools at the faculty.

**Strengths** of the research school Organism Biology comprise the rapid launching of tailored courses and networking activities requested by PhD students and their supervisors. The broad member-base with respect to both departmental belongings and subject fields enables us to find enough participants, also for rather specialized activities and give members access to a wide professional network. Added value of the research school includes giving opportunities for young researchers and newly appointed associate lecturers to give lectures and organize courses which strengthen their merits.

**Weaknesses** include limited commitment from PhD students, supervisors and departments when it comes to long term planning and development of the school. The relatively large size and broad thematic base of Organism Biology possibly require extra efforts to tackle this issue. This heterogeneity furthermore makes it unrealistic with thematic course packages and difficult to attract very large numbers of participants to any one activity. Whether unique to Organism Biology or not, we feel that the interest from our members for activities focused on generic competences and/or networking aspects, the importance of which has repeatedly been emphasized by the faculty, have decreased over the years.

**Opportunities** of “external origin” include a natural possibility to strengthen the collaboration and cross-talk between faculties on the level of PhD education, since we now have a substantial number of members belonging to the forest faculty. Established collaboration with external parties such as Helsinki University, SciLifeLab and Uppsala University, could be further developed to include more joint courses and activities. Such collaboration would enable the organization of high quality resource-demanding courses despite a relatively low number of interested PhD students in each organization. Further, we think that the overall value of the research schools could be improved if the participation of non-PhD students in different activities was more clearly encouraged and rewarded.

**Threats** include the problem of limited engagement from PhD students and supervisors, a possible explanation valid for all research schools is that they might be considered by many as parallel functions to the traditional departmental PhD education. During the pandemic one threat is the lack of IRL interactions, that we have not been able to run the annual workshop etc, loss of team feeling and all the other psycho-social aspects of the situation. Finally, without having figures to support it, our feeling is that external threats include the admission of fewer new PhD students year by year.

*Per capsulam approval of syllabus for the PhD course, 'Plant disease epidemiology– from theory to applications'*

Decision

The steering committee for the Organism Biology research schools decides:

to approve the proposed syllabus for the PhD course '*Plant disease epidemiology– from theory to applications*' (4.5 credits).

Background

This is a new course requested by the students during a survey in the spring of 2020. The proposed course syllabus was worked out by Prof Jiasui Zhan at the department of Forest Mycology and Plant Pathology, with assistance from the Organism Biology coordinator, Heriberto (Eddy) Véléz. This decision has been taken by the following board members: Mariana Kluge, Peter Bozhkov, Magnus Karlsson, Charles Melnyk, Panagiotis Moschou, Dimitrios Kokoretsis, Christina Dixelius, Sanjana Holla and Petra Fransson via e-mail correspondence in October 8<sup>th</sup>, 2020.

A handwritten signature in purple ink, reading 'Heriberto Véléz', is positioned above the printed name.

Heriberto (Eddy) Véléz

CC: Mattias Thelander, Jiasui Zhan

*Per capsulam approval of syllabus for the PhD course,  
'Pathobiome and Plant Immunity'*


Decision

The steering committee for the Organism Biology research schools decides:

to approve the proposed syllabus for the PhD course, '*Pathobiome and Plant Immunity*' (PFG0079: 5 credits or PFG0080: 2 Credits)

Background

This is a new course requested by the students during a survey in the spring of 2020. The proposed course syllabus was worked out by Associate Senior Lecturer, Salim Bourras at the Department of Forest Mycology and Plant Pathology; Division of Plant Pathology/Epidemiology, with assistance from the Organism Biology coordinator, Heriberto (Eddy) Véléz. This decision has been taken by the following board members: Peter Bozhkov, Charles Melnyk, Panagiotis Moschou, Magnus Karlsson, Petra Fransson, Dimitrios Kokoretsis, Mariana Kluge, Sanjana Holla and Christina Dixelius, via e-mail correspondence in February 22<sup>nd</sup>, 2021.

A handwritten signature in purple ink, reading 'Heriberto Véléz', is positioned above the printed name.

Heriberto (Eddy) Véléz

CC: Mattias Thelander, Salim Bourras

## Per capsulam approval of syllabus, schedule and budget for the PhD course, “From population to ecological functional genomics: concepts, tools and applications” (2.5 credits)’

### Decision

The steering committee for the Organism Biology research schools decides:  
To approve the proposed syllabus, schedule and budget for the PhD course “From population to ecological functional genomics: concepts, tools and applications (2.5 credits)’

### Details

The proposed course syllabus, budget and schedule were worked out by Pär Ingvarsson and Adrien Sicard at the department of Plant Biology with assistance from the Organism Biology coordinator Mattias Thelander. This decision has been taken by the following board members: Mariana Kluge, Peter Bozhkov, Magnus Karlsson, Charles Melnyk, Panagiotis Moschou, Dimitrios Kokoretsis, Christina Dixelius and Petra Fransson via e-mail correspondence between Feb 24 and March 1, 2021.

A handwritten signature in blue ink, which appears to read 'Mattias Thelander', is positioned above a horizontal line.

Mattias Thelander

## Per capsulam approval of syllabus, schedule and budget for the PhD course, 'Real Time Quantitative PCR – theory, experimental design and data analysis (3.5 credits)'

### Decision

The steering committee for the Organism Biology research schools decides:  
To approve the proposed syllabus, schedule and budget for the PhD course “Real Time Quantitative PCR – theory, experimental design and data analysis (3.5 credits)'

### Details

The proposed course syllabus, budget and schedule were worked out by Alyona Minina at the department of Molecular Sciences with assistance from the Organism Biology coordinator Mattias Thelander. This decision has been taken by the following board members: Mariana Kluge, Peter Bozhkov, Magnus Karlsson, Charles Melnyk, Panagiotis Moschou, Dimitrios Kokoretsis, Christina Dixelius, Sanjana Holla and Petra Fransson via e-mail correspondence between Jan 22 and Jan 25, 2021.

A handwritten signature in blue ink, appearing to read 'Mattias Thelander', is written over a light yellow rectangular background.

Mattias Thelander