

**Protocol, Organism Biology steering committee meeting**

**March 27<sup>th</sup> 2022, 14-15**

**Room A-402**

**Attending:**

Mattias Thelander (chair)

Peter Bozhkov

Georgios Tzelepis

Carol Kälin

Anna Berlin (coordinator without right to take part in decisions)

Katarina Landberg (coordinator without right to take part in decisions)

**Not attending:**

Marisol Sánchez García

Charles Melnyk

Stefanie Rosa

Salim Bourras

Martina Leso

Florentine Ballhaus

**§ 1 Meeting was opened by Mattias Thelander**

- a) Katarina Landberg was appointed secretary
- b) Peter Bozhkov was appointed adjutor
- c) The protocol from last meeting was approved.
  - Mattias informed that FUN has approved that Georgios Tzelepis from Dept. Forest mycology and plant pathology is appointed substitute in the committee for Salim Bourras and Marisol Sánchez García, who are on parental leave.
  - Mattias informed that FUN approved that we moved funds from 2022 to the first quarter of 2023 for the two courses Application of NMR spectroscopy to protein structure elucidation (40 000 kr) and Applied population genetics in plant disease epidemiology (85 000 kr). A 10% tax will be withdrawn.
- d) Additional questions: Two additional questions were raised, see § 6 below.

**§ 2 Final reports from concluded activities**

- a) *Understanding and coding the R language, autumn 2022*: Anna reported that this is a course organized by Matt Low at the Ecology research school. We have not received the final report yet so the approval of this course was postponed until next meeting.
- b) *To communicate science, 2 credits*: Katarina reported that this course is arranged together with all NJ research schools, and the division of Planning and Communication (Lotta Jäderlund) is the main organizer. It ended Nov 16 and had 12 registered participants, all PhD students. 8 students have passed of which 4 from the NJ-faculty. The budgeted 20 000 kr was spent. In the course evaluation the general opinion about the course scored 4,6 out of 5. The final report was approved.

- c) *Thesis summary writing workshop 2022*: Anna reported that the "kappa" workshop, also a joint activity with all NJ-research schools, was held Oct 21st 2022. It was organized as a hybrid event at Loftet Ultuna/ Zoom by Philip Jacobson SLU Aqua via the research school FoSW. The workshop had 45 participants of which 23 with an association to OB. The general opinion about the Workshop was 4,6 / 5. We did not receive an invoice from the organizers FoSW, which means that we did not spend the budgeted 6000 SEK. The final report was approved.
  
- d) *Analysis of High Throughput Sequencing RNA-Seq Data*: Katarina reported that this course was arranged by Nicolas Delhomme and colleagues from SLUBI. It is divided into three modules, the middle one (2 credits) is taken by everyone, the first and third are optional (1 credit each). 22 students (14 PhD-students) were registered for the course. Of the registered PhD students, 7 have passed so far, 4 students from the NJ faculty. We had budgeted 100 000 kr for the course and this is also what was spent. The activity was well received by the students as indicated by a score of 4.4 / 5 on the evaluation question asking for their general impression of the activity. The final report was approved.
  
- e) *Practical skills in sequence analysis, 2 credits*: Katarina reported that this course was conducted remotely via Zoom by Tomas Linder at Molecular Sciences, Nov 7th to Dec 5th. It had 12 registrants, all PhD students, four from NJ. Seven have so far handed in their final report. We had budgeted 45 000 kr for the activity and this is also what was spent. The activity was well received by the students giving 4,2 / 5 as their general impression of the course. The final report was approved.
  
- f) *Quantitative real-time PCR, 3.5 credits*: Katarina reported that the course was organized in December 2022 by Alyona Minina from Molecular Sciences on behalf of the OB research school. 15 students registered for the course, 11 were PhD students (8 from the NJ faculty). 6 PhD students passed the exam. The course was very well received, with the general opinion about the course scoring 4.8 out of 5. The money spent was 87 366 kr out of the budgeted 100 000 kr. The final report was approved.

### § 3 Status report of ongoing and planned activities

- a) *Planning/info meetings*: In January, Katarina visited PhD student meetings at the department of Plant Biology and the department of Molecular Sciences and informed about this terms upcoming OB activities. Katarina and Anna also had a meeting with PhD students from Aqua, located in BioCenter over fika. The students were informed about the OB research school and our activities. The meeting was well received by the students and we have now included them in our e-mail list for future information. A meeting with the students at Mycopat is planned but has not yet taken place.
  
- b) *Application of NMR spectroscopy to Protein Structure Elucidation, 5 credits*: This course was put together by the research school Focus on Food and Biomaterials with Organism Biology as co-organizers, and replaces the course Frontiers in post-genome studies organized by Adrian Dauphinee that was cancelled due to very few registrations. This is



one of the two courses that FUN approved the transfer of funding to from last year's budget. It was organized by Tatiana Agback and Peter Agback from Molecular sciences in February 2023. We spent 36 000 kr on the course which is the amount budgeted for minus 10% tax (40 000 - 4 000). We have not yet received the final report from the organizers about number of students and course evaluation.

- c) *Applied population genetics in plant disease epidemiology, 2.5 credits*: Anna reported that this course, which is the second course that we were allowed to transfer funding to from last year's budget, started March 1<sup>st</sup> and the final assignment is due March 31<sup>st</sup>. It attracted 18 students, 12-14 will most probably complete the course. The course is given by Anna at Mycopat in collaboration with SLUBI and consists of a flipped-classroom module + a workshop IRL/zoom.
- d) *Efficient data mining and management for biological sciences, 2.5 credits*: Anna informed that this course will be given in April at Ultuna and the course organizer is Edoardo Pimbo from Dept. Forest Mycology and Plant Pathology. The number of participants were limited to 12 and all spots have been filled.
- e) *Visualize your science, 4 credits and Animate your science, 4 credits*: Katarina reported that both these courses are organized in collaboration with Andreas Dahlin at Visualize your Science AB. Both courses are filled with SLU PhD students. The 10 available spots at Animate your science were filled in just a few days! The courses have just started and will end in the beginning of May.
- f) *Annual workshop*: Anna reported that the annual workshop will take place June 7-8<sup>th</sup> at Fagerudd outside Enköping. Most of the program has been set and a flyer has been sent out and posted in BioCenter. Åsa Burman has been invited and will give a workshop themed "Sustainable working methods". On June 8<sup>th</sup>, a few inspirational talks are planned and then the workshop will end with lunch. Shared transport will be organized from Uppsala to Fagerudd.
  - The coordinators asked for suggestions from the committee on inspiring persons to invite for the talks on June 8 and possible speakers were discussed. It would also be highly appreciated if someone in the committee would be interested in giving a talk.
  - Since the next steering group meeting is set to June 8<sup>th</sup>, it was suggested to have the meeting at Fagerudd, starting with lunch together with the students, followed by a meeting at 13:00-14:00. The committee members are also encouraged to join the workshop for the inspirational talks in the morning. For the committee members that are unable to join at Fagerudd an option to attend the Steering group meeting via Zoom will be available.
- g) Anna and Peter pointed out that two additional courses, not included in the agenda for this meeting, are upcoming later this spring:
  - *How to write and publish a scientific paper*: This course will be organized by Marisol Sánchez García at Dept. Forest mycology and plant pathology and is planned to start in May. It will be announced shortly.

- Confocal microscopy, 5 credits: This course is organized by Adrian Dauphinee at Molecular Sciences and Stefanie Rosa at Dept. Plant Biology. It will run in May and 13 students have registered so far.

#### § 4 Program and budget for autumn 2023

Katarina and Anna informed the meeting that if we conclude all budgeted activities budgeted for spring 2023, we have 315 000 SEK left for the autumn activities. The coordinator suggested the following activities for autumn:

Type of activity	Name of activity	Estimated cost (1000 SEK)
Course	Understanding and coding the R programming language	30
Workshop	Careers outside academia	6
Course	To communicate science	20
Workshop	Thesis summary writing workshop	6
Course	Analysis of high throughput sequencing RNA-seq data	100
Course	Plant breeding for sustainable development	110
Course	Root-soil- microbe interactions	90
Course	Molecular methods: from theory to methods and applications (previously called Community profiling by sequencing)	90
<b>Total sum</b>		<b>452</b>

The total sum for the activities planned for exceeds the available budget from the faculty with 137 000 kr. However, since we expect some of the activities to cost less than originally budgeted for, and since we got a green light from Petra at FUN, it was decided that the coordinators should work to realize the suggested activities during autumn 2023.

#### § 5 Registration of PhD students in Ladok

Katarina informed that starting from 2023, instead of only providing the students with a course certificate, we will register all PhD students attending our courses in Ladok.

#### § 6 Additional questions

##### a) Yearly report to the faculty 2022

- Katarina informed that, according to instructions, the coordinators have submitted a two pages yearly report to the NJ faculty, along with an excel sheet reporting conducted activities (attached to this protocol). A meeting will be held the 19 of April by Petra and co-workers with all NJ research school study directors, where we will get feedback from the faculty and FUN.

- b) Suggestion on a new course in Popular Science Writing by Tomas Linder (at Molecular Sciences)
- Katarina informed that Thomas Linder from Molecular Sciences has suggested a new OB course in popular science writing for researchers, which he is willing to organize. Attached to this protocol is a document from him explaining the rationale behind the course, as well as a preliminary syllabus.
  - It was decided that the steering committee will read the documents until next meeting, and that the coordinators will approach the other NJ research schools and ask if they would like to collaborate and co-finance this new course.

#### § 8 Next meeting

The next meeting is scheduled the 8th of June at 10-12, but since it now overlaps with the planned OB annual workshop, the time has been changed to 13-14 and it will take place at Fagerudd (see § 3f above). A possibility to participate via Zoom will be available.

#### Attachments:

- a) Yearly report to the faculty 2022
- b) Suggestion on a new course in Popular Science Writing by Tomas Linder



Katarina Landberg, secretary

2023-04-04 Uppsala

Date and Place

  
Peter Bozhkov, adjutor

2023-04-03 Uppsala

Date and Place

### **General description of activities with a focus on deviations that have occurred in relation to the original plan**

Of the activities budgeted for in the application we have successfully completed ten, including six courses: Visualize your Science, Understanding and coding the R programming language, To communicate science, Analysis of high throughput sequencing RNA-seq data, Quantitative real-time PCR, Practical skills in sequence analysis, three workshops: How to become a postdoc, Careers outside academia, Thesis summary writing workshop and three Planning/info meetings.

Two scheduled courses were canceled due to lack of organizers availability during 2022, "Human Driven environmental changes and their effects on organism biology" and "Community profiling by sequencing". Our scheduled annual workshop was also canceled. This usually very well attended two-day event was first postponed from June until November due to remaining Covid outbreaks in spring, but did not manage to attract enough students to be realized. We think this is an important social activity to bring students back together after the pandemic, and will work hard to realize it as planned in 2023, with an updated theme and moved back to early June as in previous years.

Two planned activities have furthermore been moved to early 2023. "Frontiers in post-genome studies", a course organized together with the research school Focus on Food and Biomaterials, was scheduled and announced twice, with updated and modified content, without succeeding in attracting enough students. We have now created a new protein related course to replace it, scheduled for February 2023 (with funds moved from 2022, see below). The organization of the "Plant disease epidemiology - from theory to applications" course was also delayed but will now run as a new, updated course called "Applied population genetics in plant disease epidemiology" in the beginning of 2023 (with funds moved from 2022, see below).

One new networking activity, not planned for in the original application for support and somewhat compensating for the lack of the annual workshop, was initiated and organized by PhD students within the research schools of Organism Biology and Focus on Food and Biomaterials in May 2022. We furthermore arranged a second course occasion of Visualize your Science in autumn, since this is a very popular course and we fill it up with SLU PhD students each time.

### **Planned changes for 2023**

For the upcoming year, we have initiated two new courses not included in the original application for support, upon requests from the students. "Animate your science, 4 HEC", in external collaboration with Andreas Dahlin from Visualize your Science, and "Navigating large biological datasets using simple bioinformatics tools, 2.5 HEC" lead by Edoardo Pimbo at Mycopat. We will also give the postponed course "Community profiling by sequencing", in a new revised version in connection to the course "Root-soil-microbe interaction" as a collaboration with the research school Focus on Soils and Water.



**Compliance, budget vs actual financial outcome for 2022:**

The actual financial outcome for 2022 differs from what was budgeted in several ways, most of which are clearly connected to the deviations in the planned activity range described above. These are the major differences:

- Funding not spent, due to canceled courses and activities:
  - 50 000 SEK (Human driven environmental changes)
  - 100 000 SEK (Community profiling by sequencing)
  - 120 000 SEK (Annual workshop)
- Costs for extra activities not in the original application budget:
  - 23 070 SEK for PhD student activity
  - 100 000 SEK for a second course occasion of Visualize your Science
- Funds moved from 2022 to first quarter of 2023 (as accepted and decided by FUN-NJ 2022-12-08):
  - 40 000 SEK for the course Application of NMR spectroscopy for Protein Structure Elucidation, 5 HEC
  - 85 000 SEK for the course Applied population genetics in plant disease epidemiology, 2.5 HEC
- The Thesis summary writing workshop, given in collaboration with other NJ-research schools, was never billed by the organizers, so the 6000 SEK budgeted for was not spent.
- Lagging costs from previous funding period (covered by 2022 allocation in line with approval from Petra Fransson / FUN):
  - Lagging costs for confocal microscopy course from previous funding period (15 000 SEK).
  - Lagging costs for compensation to three international scientists lecturing on the Population Genomics course given in spring 2021 (29 177 SEK + OH).
- As reported via E-mail, the Q-PCR course, given in December, has not concluded all costs yet, but the last invoice (81 908 SEK) is under processing.

Katarina Landberg  
Study director

Anna Berlin  
Study director

# Report of education activities performed by the Organism Biology research school 2022

Mark with 1 if activity was arranged in cooperation with another research school

Number	Name of activity	Year when the activity was performed	Type of activity (K=course; S=seminar; W=workshop; T=study trip; I=internal coop; X=external coop; M=miscellaneous)	HEC (if course with course plan)	Total number of participants	Number of participating PhD students	Number PhD students that passed the exam if the activity was a the course	Number of participating PhD students from NJ-faculty	Number of participating PhD students from SLU	General course evaluation (value from question 1 in course evaluation template)	Ecology	Focus on Food and Biomaterials	Focus on Soils and Water	Organism Biology	Society and Landscape	Social Science Persp. on Sust. Dev.	Sustainable systems for food, energy and bior	Other SLU research school	Name of external partner(s)	Comments
1	Visualize your science vt 22	22	K, X	4	20	20	15	10	20	4,9									Andreas Dahlin at Visualize your Science	
2	BioC PhD student day	22	W, I		19	19		19	19			1								
3	Information meetings with OB PhD students	22	M		30	30		30												
4	How to become a postdoc	22	S, I, X		?	?	?	?	?	?	1	1	1	1	1	1	1			?: Not stated by organizer
5	Understanding and coding the R programming language	22	K, I	3	15	10	?	?	10	?	1		1	1						?: Not stated by organizer
6	Careers outside academia	22	W, I, X		40	22		19	21	4,5	1	1	1	1	1	1	1		Alison Sjöström at Verto Konsult and 4 external lecturers	
7	To communicate science	22	K, I, X	2	12	12	8	4	11	4,6		1	1	1			1		*	* This course is given jointly with other research schools, the Planning Division and The Division of Communication at SLU. External partners - 3 teachers from outside of SLU
8	Thesis summary writing workshop	22	W, I		45	45		29	43	4,6	1		1	1	1		1			
9	Visualize your science ht 22	22	K, X	4	20	20	10*	7	20	4,7									Andreas Dahlin at Visualize your Science	*The course ended in Nov and students still have the opportunity to fulfill the course requirements, so we expect the final number of students passed to increase.
10	Analysis of High Throughput Sequencing RNA-Seq Data	22	K, I	4	27	14	7*	4	13	4,4									Co-organized with SLUBI	*The course ended in Nov and students still have the opportunity to fulfill the course requirements, so we expect the final number of students passed to increase.
11	Practical skills in sequence analysis	22	K	2	11	10	*	2	10	4,2										*The course ended in Dec and the students still have a report to hand in before they pass.
12	Quantitative real-time PCR	22	K	3,5	16	11	6	8	11	*										*The course ended in Dec and we have not recieved the final report with Course evaluation yet.



## **To the board of the Organism Biology research school**

### **Proposal for a PhD-level course in popular science writing for researchers**

I wish to propose a new PhD-level course for the Organism Biology research school. The course is intended for graduate students who wish to develop their popular science writing skills “beyond the press release” and start to develop their own science communicator portfolio. The global covid-19 pandemic has clearly demonstrated that succinct and honest science communication is literally a matter of life and death. With the existential threat of climate change on humanity’s doorstep, science communication is an absolutely essential tool in mobilizing both policy makers and the public. This is particularly urgent for Sweden, which compared to other countries such as the United States and the United Kingdom, still has very poor quality of science literacy and communication within the mainstream news media (which is often also tainted by ideology). There is an urgent need to get more scientists in Sweden to interact directly with the public on a semi-regular basis to demystify and humanize science as well as provide the necessary context when Swedish news media (mis)reports new scientific discoveries. Science communication is also an effective way to inspire young people to choose a career in science (and more importantly – apply to study at Swedish universities). While communicating science can take many forms (public lectures, school activities, podcasts, video), popular science writing remains the foundation of science communication.

I would like to stress that the structure and contents of the proposed course are specifically designed to distinguish itself from the already existing course “*To communicate science*” (POG0086, 2 HECs). Course POG0086 is primarily aimed towards communication of one’s own research – primarily press releases for published papers and interacting with journalists. The proposed course “digs deeper” to train students to not just communicate their own research but that of their entire research field – and possibly even adjacent fields. Although course POG0086 briefly touches on popular science writing (a single 2 × 45 min lecture and one group discussion), the proposed course will delve much deeper and touch on an array of topics ranging from ethics in science communication to practical issues when running a science blog. The design of the proposed course will enable students to attend (and benefit from) both courses while not requiring that the students have completed either course before attending the other.

The proposed course will be conducted entirely online via Zoom (or equivalent video conferencing platform), which will allow students from Alnarp and Umeå to participate as well. The course is preliminarily structured as 4–5 online sessions spaced one or two weeks apart. I would estimate that the work load for the students would correspond to between 2 and 3 HECs. Course participants will be examined through a set of written assignments, the last of which will be published through the official course blog and ideally mirrored on the SLU Knowledge Bank website. The estimated course budget would be in the range of 40,000 SEK to compensate for time spent on teaching and administration duties by the course leader.

## ***My qualifications as course leader***

I have extensive experience with popular science writing. Not only have I read hundreds of popular science books but I have also published a number of popular science articles (including an op-ed for one of Sweden's largest newspapers):

*Gör bränsle och mat av uppfångad koldioxid.* Svenska Dagbladet.

<https://www.svd.se/a/AdJn4E/gor-bransle-och-mat-av-uppfangad-koldioxid>

*Why cultured meat will not feed the world (but mycoprotein just might).* Food and Farm Discussion Lab.

<http://fafdl.org/blog/2019/08/01/why-cultured-meat-will-not-feed-the-world-but-mycoprotein-just-might/>

*Making food without photosynthesis.* Biology Fortified, Inc.

<https://biofortified.org/2019/08/food-without-photosynthesis/>

*What would it take to feed the entire human population with nothing but mycoprotein?* Food and Farm Discussion Lab.

<http://fafdl.org/blog/2019/08/22/what-would-it-take-to-feed-the-entire-human-population-with-nothing-but-mycoprotein/>

*Edible microorganisms could 'climate-proof' Earth's food supply against catastrophic weather changes.* Genetic Literacy Project.

<https://geneticliteracyproject.org/2020/04/24/climate-proofing-the-worlds-food-supply-with-edible-microorganisms/>

*Can we feed humanity and save the planet with edible microbes?* Food Planet Prize.

<https://foodplanetprize.org/news/can-we-feed-humanity-and-save-the-planet-with-edible-microbes/>

*Reimagining global protein production for the 21<sup>st</sup> century.* Protein Report.

<https://www.proteinreport.org/reimagining-global-protein-production-21st-century>

Through my work in science communication, I regularly interact with journalists who wish to better understand my field of research for more in-depth articles that do not center around the publication of a single research article. Some examples:

*Why Japan's favorite fermented paste may hold the key to a low-carbon diet.* The Japan Times.

<https://www.japantimes.co.jp/news/2023/01/23/national/science-health/fermented-food-climate-change/>

*This company says it's making food from 'thin air' ... plus a dash of water and clean energy.* CNN International.

<https://edition.cnn.com/2020/01/20/europe/solar-foods-solein-scni-intl-c2e/index.html>

I am also featured in the 2022 book “*Regenesi: Feeding the World Without Devouring the Planet*” by the famous British environmentalist George Monbiot.

**Tomas Linder, PhD, Associate professor and senior lecturer of microbiology  
Department of Molecular Sciences, NJ Faculty**

# Popular science writing for researchers – **DRAFT SYLLABUS**

**Subject:** other social science

**Education cycle:** postgraduate level

**Grading scale:** pass/fail

**Language:** English

## **Prior knowledge**

The course is intended for PhD students at SLU but postdocs and external PhD students may apply if there are vacant positions.

## **Objectives**

There is a pressing need to engage more researchers in direct conversation with the public in order to provide the necessary context when new scientific discoveries are reported in news media. Succinct and honest science communication can literally mean the difference between life and death when comes to contentious issues such as outbreaks of infectious disease, human nutrition, sustainable food production and climate change. Science communication is also an effective way to inspire young people to choose a career in science. While communicating science to a lay audience can take many forms (public lectures, school activities, podcasts, video), popular science writing remains the foundation of science communication.

This course is targeted at researchers who are interested in developing as science communicators and honing their skills in popular science writing “beyond the press release”.

After completing the course, participant should be able to:

- discuss the societal importance of popular science writing.
- identify what distinguishes good popular science writing from bad.
- develop ideas for popular science texts.
- critically evaluate published material outside their area of expertise.
- perform basic interviews with other researchers outside their own field.
- reflect on some of the ethical issues relevant to science communication.
- construct a science communication portfolio and public online profile.
- design and maintain a personal science blog.

## **Content**

The course trains students to not just communicate their own research but that of their entire research field – and possibly even adjacent fields. The course will on an array

of topics relating to popular science writing ranging from ethics in science communication to practical issues when running a science blog.

### **Formats and requirements for examination**

In order to pass the course, course participants will need to attend a set number of group sessions as well as submit a number of written assignments, the last of which will be published through the official course blog.

### **Additional information**

The course is preliminarily as a number group sessions spaced one or two weeks apart as specified in the course schedule. The course will be conducted entirely online via Zoom (or equivalent video conferencing platform). The course is limited to 15 participants.

The course is specifically designed to minimize overlapping content with the postgraduate course *“To communicate science”* (POG0086, 2 credits). Course participants are not expected to have taken course POG0086 prior to taking this course. Because of their complementary content, taking course POG0086 before or after this course is expected to further benefit students’ overall skills in science communication.

### **Preliminary course dates**

TBD