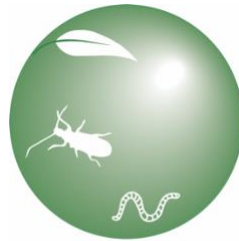


LEF Handbook



Functional Ecology
Laboratory

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Introduction

Welcome to the **LEF (Laboratoire d'Écologie Fonctionnelle)** of the University of Neuchâtel! We are delighted to have you as part of our team. This handbook¹ is intended to represent our vision for how the lab should function and to complement existing UniNE policies. Upon joining the lab, all lab members are required to read the lab manual and sign a form indicating that they have done so. We expect that more information will be added, and some sections will be revised as the lab grows and develops. If you have any comments or suggestions regarding the contents of this manual, please tell us (sergio.rasmann@unine.ch).

1. Lab Mission and Objectives

Our mission is to understand how plants, mostly, but animals and microbes too, interact with their (a)biotic environment in order to find ways to better preserve and protect the natural world. For interacting with their environment, plants produce and release a plethora of specialized molecules, both above and below ground. By studying these chemical signatures governing community assembly and ecosystem dynamics, our objective is to address several unanswered questions relating to:

- **Ecology and evolution of species interaction**, with a strong emphasis on plant-herbivore-predator interaction, community ecology along climatic gradients, and eco-metabolomics research
- **Soil sciences**, including aspects of soil formation, soil ecology, humus forms, soil biota and soil organic matter formation and recycling
- **Agroecology**, particularly focusing on pest control through plant defence mechanisms and plant-microbe interactions. In addition, our laboratory has built an international partnership with the Institute of Environmental Processes and Pollution Control (Jiangnan University, China) to address the beneficial effects of engineered nanoparticles on crop yield and pest control
- **Conservation biology**, particularly focusing on conservation approaches that combine monitoring and species interactions. This handbook serves as a valuable resource to ensure your safety, success, and adherence to ethical practices while conducting fieldwork.

2. Lab Organization and Structure

Big Picture

Science is hard. But it's also fun. At LEF, we want to make sure that everyone experiences a positive, engaging, hostility-free, challenging, and rewarding lab environment. To maintain that environment, we all have to do a few things.

- Pursue your passions wholeheartedly, put in the effort, and take pride in your work!
- As scientists, take your time to think, plan, and execute your research. Double and triple-check your work. Seek assistance from others if needed and be open to feedback on your code or data. Mistakes can happen, but they should not result from carelessness or haste.
- If you do make a mistake, be transparent and inform your collaborators promptly, especially if the results have been seen or if the paper is in preparation, submitted, or accepted. Acknowledge errors, correct them, and move forward.
- Our goal is to publish papers and achieve great outcomes, but we must do so with integrity. Plagiarism, data manipulation, fabricating data, omitting data, or altering results are unacceptable. Science is about uncovering the truth, and all results, including null and unexpected findings, are valuable. Academic misconduct will not be tolerated.

¹ Note : this document was written based on previous resources, including handbooks produced by the Whitaker Lab at the Turing Institute (Whitaker Lab, 2021), and the Aly Lab at Columbia University (Aly Lab, 2022; Aly, 2018), and the article by Tendler et al. in eLife 2023.

- Foster a supportive environment within the lab. Offer help to fellow lab members even if you're not directly involved in their projects and provide a listening ear when needed. Science is collaborative, not competitive. By supporting others, you can expect the same support when you need it.
- Show respect to your fellow lab-mates. Value their strengths and weaknesses, acknowledge their need for quiet or support, and respect their cultural, religious, and personal beliefs, as well as their sexual orientation.
- Don't hesitate to seek assistance if you're facing challenges. Reach out to someone if you need help. Your well-being and happiness are paramount, and the lab prioritizes the welfare of all members. It's normal to encounter difficult times, but you should never feel reluctant to ask for help or share your concerns.
- Address any tension or hostility within the lab immediately. A comfortable and respectful environment is essential for thriving. Rudeness and disrespect are not acceptable and will not be tolerated. If you're uncomfortable confronting the person involved, inform the PI. In any case, speak to somebody about the issue.
- If you have more serious concerns, please contact HR or contact the "Mediation" department (<https://www.unine.ch/conflits/home/moyens-a-disposition/mediation.html>).
- Stay updated on the latest research by using RSS feeds or checking the journal table of contents regularly. Consider following scientists in your field on Twitter for additional insights.
- Embrace the lab philosophy: "We like to do good science and have fun, at the same time but also separately." Remember to maintain a life outside of the lab, prioritize your mental and physical well-being, and never feel guilty for taking time off work.

Small Picture

There are a few day-to-day things to keep in mind to keep the lab running smoothly.

- If you're sick, stay home and take care of yourself. Because you need it. If you're sick, reschedule your meetings and participants for the day (or the next couple of days) as soon as you can.
- You aren't expected to come into the lab on weekends and holidays, and you aren't expected to stay late at night. You *are* expected to get your work done (whatever time of day you like to do it). If you need to come during the weekend or at night to work on specific projects, please ask Sergio for authorization.
- participate as much as you as you can to the institute activities (weekly seminars, doctoral school, festivities,...).
- Show up to your meetings, and show up to lab meetings. You do not have to be in at 8 am every day – just show up for your commitments and work the hours you need to work to get stuff done. (Note: The lab manager and technicians are expected to keep more regular hours than other lab members).
- If you're the last one leaving for the day, make sure the different doors of the labs are closed and locked (if no one is inside), and turn off the lights.
- Keep the office tidy. Eating in the office is fine, but clean up food waste, crumbs, and spills. Help clean the common eating area, even if it is not your dirt!

Principal Investigator

Prof. Sergio Rasmann: All of the above, and I promise to also...

- be committed to supporting you in various aspects, including scientific, emotional, and financial support.
- You can expect timely and constructive feedback on all aspects of your research, including project ideas, conference materials, manuscripts, figures, and grant proposals.

- I will be accessible to you in person and via email regularly, and we will have scheduled meetings to discuss your research progress and any other topics you'd like to address.
- I will share my insights on the direction of the lab and the field, providing valuable tips for excelling in academia.
- Your career development is important to me. I will facilitate your connections with other researchers, promote your work in talks, write strong recommendation letters, and encourage your attendance at conferences as much as our financial resources allow.
- Preparing for the next stage of your career, be it a post-doc, faculty position, or non-academic jobs, will be a priority, and I will provide guidance and support throughout this process.
- Your emotional and physical well-being is a top concern, and I will prioritize taking care of you above all else.

Lecturer

Adjunct Prof. Claire Le Bayon: All of the above, and I will also...

- Develop innovative research and engage in applying for grants as a complement to the UniNE financial support.
- Support and accompany postdocs and PhD students in the in-depth analysis of their scientific projects from a critical and creative perspective. I will help you implement your research and its promotion (scientific publications, oral and poster presentations, job applications, etc.).
- Supervise and accompany master, bachelor and high-school students in all the steps of a scientific project to encourage their future as researchers.
- Promote high-quality teaching in ex-cathedra and practical courses in bachelor's and master's. I will transfer my knowledge and experience as on-the-job training for PhD and student assistants.
- Ensure knowledge transfer to the society: general public, stakeholders and managers at the regional and international scales.
- Assist with administrative tasks: updating the lab's website and mailing lists, managing the compactus, organising teaching assistants, etc. I am also part of the first aiders.

Lab Managers, technicians, and apprentices

Lab manager: Amandine Pillonel

All of the above, and you will also be expected to...

- Help new lab members adjust to the lab by answering whatever questions they have that you can answer. If you can't answer, direct their questions to Claire or Sergio.
- Maintain protocols for the lab (writing them, renewing them), archived old consent forms, and kept any required paperwork up to date and organized.
- Oversee the hiring, scheduling, and training of apprentices.
- Give new lab members access to the lab after training.
- Assist lab members with data collection.
- Be in the lab on a regular basis.
- If you are a full- (or part)-time research staff but not a lab manager, then only some of the above may apply to you. Your research responsibilities will be similar to graduate students and lab managers, but your administrative duties may be different. Talk to Sergio so you can be sure you understand your responsibilities.

Post-Docs

In addition to the expectations mentioned above, as a post-doctoral member of the lab, you will also be expected to:

- Develop your own independent line of research, demonstrating your capacity for original and innovative scientific exploration.
- Assist in training and mentoring students in the lab, both undergraduate and graduate, when they seek guidance or when I request your help in their development.
- Present your research at lab meetings, or at other labs if invited, and actively participate in conferences to share your work with the scientific community.
- Engage in applying for grants, even though I will ensure your financial support for at least one year. Gaining experience in grant writing will be valuable for your future career, and successful grants will benefit not only yourself but also free up funds for the entire lab.
- Prepare for potential job opportunities, whether academic or non-academic, starting no later than the beginning of your 4th year of post-doc. If you are considering a career outside academia, I encourage you to have open discussions with me on how to best prepare for your desired path.
- Challenge your PI when you believe he/she is mistaken or when you have a different perspective. Embrace the opportunity to share your unique expertise with the rest of the lab, fostering an intellectually stimulating environment for all. Your diverse insights contribute to the lab's growth and success.

Graduate (PhD) Students

For graduate students in the lab, in addition to the expectations mentioned above, you will also be expected to:

- Develop your dissertation research, which should consist of at least three substantial experiments aimed at addressing a significant, big-picture research question.
- Assist in mentoring undergraduate students in the lab when they seek guidance, or as requested by your supervisor. You can involve undergraduates in data collection to provide them with valuable research experience.
- Contribution to teaching if you are a TA is mandatory, but I strongly encourage all PhD students to contribute some of their time to teaching and supervision.
- Present your research findings at departmental events (i.e., doctoral school), as well as at other labs if invited, and actively participate in conferences to share your work with the broader scientific community.
- Consider your career aspirations, whether it's pursuing academia (in research or teaching), industry, science writing, or any other field. Have open discussions with Sergio or your direct supervisor, to ensure that you receive the appropriate training and support to achieve your career goals.
- Be mindful of all deadlines regarding the doctoral school, and keep the PI informed of these milestones.
- Prioritize your research work, as your dissertation and research are essential for obtaining your Ph.D. and preparing you for the next phase of your career. While coursework and TAing are important, your research is a primary focus for achieving your academic and professional objectives.
- Join the doctoral school: <https://www.unine.ch/dp-biol> and actively participate in it.

Master and bachelor students

All of the above, and you will also be expected to...

- Develop your project, mostly in collaboration with other more senior members of the lab.
- Develop your weekly schedule by talking to your graduate student mentor or your post-doc mentor. You should be coming in every week, and scheduling enough time to get your work done.

- You should also attend lab meetings when your schedule permits, present at one of these lab meetings, and generally, be present in the lab for work as well as social activities.
- Develop autonomy and be proactive, both in the field and in the lab (see **Appendix A** “Check list for starting your master thesis”).

3. Code of Conduct

Essential Policies

The lab, in alignment with Neuchâtel University policies, maintains a commitment to providing a harassment-free and inclusive environment for all members. Discrimination or harassment based on gender, gender identity and expression, sexual orientation, disability, physical appearance, body size, race, or religion will not be tolerated. Acts such as intimidation, stalking, unwanted photography, inappropriate physical contact, and unwelcome sexual attention are strictly prohibited. In case of harassment, promptly inform the PI, or if PI is involved, reach out to the department chair or another trusted faculty member.

Scientific Integrity

The lab upholds the highest standards of research integrity and is firm against any form of misconduct, including fabrication, falsification, and plagiarism. Research misconduct not only jeopardizes one's career but also undermines the integrity of the scientific field. Our ultimate goal is to seek truth and advance our understanding of nature and natural processes. Misconduct is never justified and should never be pursued.

Authorship

Like most labs, we follow the APA guidelines with respect to authorship: *"Authorship credit should reflect the individual's contribution to the study. An author is considered anyone involved with initial research design, data collection and analysis, manuscript drafting, and final approval. However, the following do not necessarily qualify for authorship: providing funding or resources, mentorship, or contributing research but not helping with the publication itself. The primary author assumes responsibility for the publication, ensuring that the data are accurate, that all deserving authors have been credited, that all authors have given their approval to the final draft; and handles responses to inquiries after the manuscript is published."*

At the start of a new project, the student or post-doc taking on the lead role can expect to be first author (talk to the PI about it if you aren't sure). The PI will typically be the last author unless the project is primarily under the guidance of another PI. Students and post-docs who help over the course of the project may be added to the author list depending on their contribution, and their placement will be discussed with all parties involved in the paper. If a student or post-doc takes on a project but subsequently hands it off to another student or post-doc, they will most likely lose first-authorship to that student or post-doc, unless co-first-authorship is appropriate. All of these issues will be discussed openly, and you should feel free to bring them up if you are not sure of your authorship status or want to challenge it.

For old projects, if a student or post-doc collects a dataset but does not completely analyze it or write it up within 2 years after the end of data collection, the PI will re-assign the project (if appropriate) to another person to expedite publication. If a student or post-doc voluntarily relinquishes their rights to the project prior to the 2-year window, the PI will also re-assign the project to another individual. This policy is here to prevent data (especially expensive data) from remaining unpublished but is meant to give priority to the person who collected the data initially.

4. Lab resources

E-mail

We have a lab listserv for sending e-mails to the entire lab. Contact Claire Le Bayon to get added to the lab listserv.

Email to the whole lab (Liste LEF): Labo.LEF@unine.ch

Lab webpage

The LEF organises a Webpage (www.unine.ch/lef) where most of the general information, including lab-member's personal information is stored and visible to the public. Please, contact Claire to update your profile.

Internal drive

The lab has a shared Drive (/BIOL_LEF) that is used to store data, documents and files for general lab use. Contact the lab manager when you want to add something to this internal drive and see here for accessing the server:

https://mydoc.unine.ch/fr/Base_De_Connaissances/ConnecterUnLecteurReseau

https://docs.google.com/presentation/d/12c_2yqEdwMoTIEq952foQdEIPkIRaEzC/edit#slide=id.p1

GitHub (TBD)

The lab's GitHub (<https://github.com/orgs/LEF-UNINE/dashboard>) should be used to share code, stimuli, and data with the world. Only share data after you've spoken to Sergio (we don't want to share the data too soon, before you've had a chance to look at it thoroughly yourself). When you share code, make sure it's *flawless*, because we don't want to distribute buggy code to the world! Have other lab members check it if possible. Ask the lab manager to get access to the lab's GitHub.

Google account

The lab has a google account, particularly meant for teaching purposes: ecologiefonctionnelle@gmail.com (password: fonctionalecology2015*)

5. Lab Rules and Policies

General Policies

Hours

Being in lab is a good way of learning from others, helping others, building camaraderie, having fast and easy access to resources (and people) you need, and being relatively free from distractions at home. That said, hours in academia are more flexible than other jobs - but you should still treat it as a real job! Our primary concern is that you get your work done, so if you find that you are more productive at home (lab-mates can be chatty sometimes), feel free to work at home occasionally. The only exception to this is lab managers and apprentices (see **Appendix B** by Amandine Pillonel), who must keep more regular hours.

NOTE: Although I (Sergio) sometimes work weekends or in the evenings, I try to only do that when necessary. Please respect that by making sure to give me enough heads-up about impending deadlines so that I can get things done for you (e.g., write letters of recommendation, give feedback on manuscripts, ... see below) while maintaining my work/life balance.

Meetings

Weekly Lab Meetings

The schedule is regularly updated here

<https://docs.google.com/spreadsheets/d/1NL9erk3JIP6tVmHQOnrQmtjzqV1YFXHn/edit?pli=1#gid=1514125142>

Weekly lab meetings (~1-1.5 hours each) are meant to be a forum for trainees to present project ideas and/or data to get feedback from the rest of the group. Projects at any level of completion (or even not yet started!) can benefit from being presented. These lab meetings can also be used to talk about methods, statistical analyses, new papers, and career development. For paper discussions, everyone must come to lab meeting having read the paper and prepared with comments and questions to contribute. Some weeks we may explore a particular issue and have people read different papers – in that case, come to lab meeting having read your paper and be prepared to summarize it for the group. Each trainee (RA, students, post-docs) is expected to present at least once every semester. These meetings are informal, and you can do what you wish with your slot – just be prepared to contribute something substantive. Lab members are also expected to attend every meeting. Undergraduate students are encouraged to attend as often as possible (assuming it fits in their course schedule).

Annual appraisal Meetings

Once a “normal” year, we will set a schedule for a one-on-one meeting with Sergio, in order to discuss in depth the advancements and projections of each lab member.

Deadlines

One way of maintaining sanity in the academic work is to be as organized as possible. This is essential because disorganization doesn't just hurt you, it hurts your collaborators and people whose help you need. When it comes to deadlines, tell your collaborators as soon as you know when a deadline is, and make sure they are aware of it the closer it gets.

Give the PI at least one week's notice to do something with a hard deadline that doesn't require a lot of time (e.g., reading/commenting on conference abstracts, filling out paperwork, etc).

Give PI *at least* two weeks' notice (preferably more) to do something with a hard deadline that requires a moderate amount of time (e.g., a letter of recommendation).

If you want feedback on research and teaching statements, or other work that requires multiple back-and-forth interactions between you and the PI before a hard deadline, give as much time as you can; at the very least three weeks.

For manuscript submissions and revisions (i.e., which either have no deadline at all or only a weak deadline), send drafts as soon as you have them, and bug the PI to give you feedback if you don't have a response within three weeks.

Presentations

Learning to present your research is important. Very few people will read your papers carefully (sad, but true) but you can reach a lot of people at conference talks and posters. Also, if you plan on staying in academia, getting a post-doc position and getting a faculty position both significantly depend on your ability to present your data. Even if you want to leave academia, presentations are likely to be an important part of your job. Additionally, every time you present your work, you are representing not just yourself but the entire lab.

It is therefore highly encouraged that you seek out opportunities to present your research. If you are going to give a presentation (a poster or a talk), be prepared to give a practice presentation to the lab at least one week ahead of time (two weeks or more are advisable for conference presentations, and *many* weeks ahead of time are advisable for job talks, which require much refining). Practice talks will help you feel comfortable with your presentation, and will also allow you to get feedback from the lab and implement those changes well in advance of your real presentation.

Recommendation Letters

Letters of recommendation are extremely important for getting new positions and grants. You can count on Sergio (or any of your direct supervisor in the lab) to write you a letter if you have been in the lab for at least one year (exceptions can be made if students or post-docs are applying for fellowships shortly after starting in the lab).

If you need a letter, notify the PI as soon as possible with the deadline, your CV, and any relevant instructions for the content of the letter. If the letter is for a grant, also include your specific aims. If the letter is for a faculty position, also include your research and teaching statements. In some cases (especially if short notice is given), you may also be asked to submit a draft of a letter.

6. Data Management

Storing Active Datasets

In-silico storage

Lab data can be stored in one of four places:

1. Your computer (lab desktop or personal laptop)
2. An external hard drive or cloud storage
3. Archive 1 - for genomic data: smb://vert/BIOL_LEF_OMICS_DB
4. Archive 2 - for (mostly) metabolomics data (smb://vert/BIOL_LEF_STOCKAGE)

Physical storage

Physical samples (soil, dried leaves, insects,...) should be stored tidily in cardboard boxes labelled with your name, sample type, date, and, ideally containing a metadata sheet. These boxes should be stored in the underground rooms, and ideally, disposed of after publication. Please, limit the storage of samples in the office rooms.

Archiving Inactive Datasets

Before you leave, or upon completion of a project, you must archive old datasets and back them up. This should be done in a number of ways. First, you are responsible for backing up your data continuously, on the external hard drive. Second, upon submitting a paper to a journal, all datasets and codes must be publicly shared. This can be done on GitHub, or other platforms (e.g. Driad, Figshare,...). Finally, after a project is completed and the paper is published in a peer-reviewed journal, move the project to the archive on the server.

Open Science

We're all for open science, so lab members are encouraged (well, required) to share their code and data with others, whether they are in the lab or outside of it. Within the lab, you can share your code and data whenever you like. But do not share your code or data with the outside world until you think (and Sergio agrees) that the lab has finished working with it. This gives us an opportunity to work with the data to meet our needs (including grant needs!) before releasing it for other people to use. Generally, we will make our data and code publicly available simultaneously with the submission of the paper to a peer-reviewed journal (exceptions might be made if work on the dataset is ongoing for a different paper). Currently, the best option for sharing smaller datasets is by using the smb://vert/... folders.

7. Funding

The LEF has been supported by funds from SNSF, EU, and private foundations, as well as start-up funds, and internal grants from UniNE. If you need to buy something or must charge a grant for something (e.g., reimbursements), let the PI know and she will oversee the process.

8. Safety Rules and Procedures

Laboratory

For all safety rules applying to laboratory work, please refer to **Appendix B** (v. xx, written by Amandine Pillonel).

Fieldwork

For all safety rules applying to field work, please refer to **Appendix C** (v. xx, written by Amandine Pillonel, Sarah Semeraro, and Claire Le Bayon)

9. Equipment and Instrumentation

Equipment list and reservation system

The list of all material, laboratory space, machines and equipment is available on the Clustermarket website <https://app.clustermarket.com/login> .

To obtain access to this service, please ask Matthieu Bueche (matthieu.bueche@unine.ch) for an invitation, and a brief introduction on how to make a space or equipment reservation.

You must reserve everything in advance before starting your laboratory or field experiments!

Proper Use and Maintenance of Equipment

Needless to say, everything you will use from the lab (from a field shovel to the granulometer) will be given to you clean and ready to use. We thus expect that you will also leave your working space, hoods, material, and equipment as you have found them, spotless and ready to use for the next user.

Lab Maintenance and Upkeep (lab clean-up days)

Once or twice a year, the LEF organises a lab clean-up day, in which the entire lab will be cleaned from top to bottom, old material, and old orphan samples will be thrown away, and some restructuration will occur. Everybody in the lab at that time should come and help.

I, _____, have read and understood this document.

Date:

Signature:

Enjoy your stay at LEF!



Sergio Rasmann

Appendix A

Tips for master thesis¹

¹ Document produced by Sarah Semeraro

Welcome to the LEF. This is a short, but highly useful list of suggestions you would want to take into account when starting and doing a research project at the LEF for your Master thesis.

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Requirements

UniNe personal account:

- Create a storage space on your university disk (\\home) where you can SAVE AND ACCESS your data/reports at any time via VPN or webaccess. It also allows you to have a daily and up-to-date backup of your data.
- Add the green server: \\vert\BIOL_LEF on your office computer (see ppt presentation). All **important documents & information of the LEF** are there (old presentations, lab protocols, a folder for ongoing analyses, etc.)

Personal stuff

- USB key/dropbox for exchanging documents relating to your master's work only.
- If you will need to drive the **institute's cars**, please go to the secretariat with your supervisor, and ask for the information/papers that you must fill in (take a photocopy of your driving license).
- Ask Prof. Rasmann for a **key & access to quarantine rooms** (carte capucine)
- You are strongly advised to **plan & keep an agenda** of your activities related to your master's work (available ready-made version on Excel). This will allow you to plan your fieldwork, lab work, presentation, vacations, and writing periods. It is also beneficial when you have to repeat an experiment; write your thesis etc., you know how long it took you!

Personal computer

- **Softwares:** if you do not have Microsoft Office or other softwares (Adobe, Illustrator, ArcGIS, ...) on your PC, make an appointment at the sitel (UniNe). They can install a lot of software for free! Have a look here: <https://www.unine.ch/sitel/logiciel>
- Try to keep a copy of your work on a personal hard disk!

Basic, but useful from the beginning

- Start a **lab-book/notebook**, whatever the format, but you should be able to keep track of EVERYTHING you have done both in the field and in the lab. The more detailed it is, the more it will help you in writing your master's thesis.
- Make sure to use the appropriate **tools for proofreading**: writing emails or text correction before submitting your drafts:
- To translate: <https://www.deepl.com/translator>
- To correct grammar issues: <https://www.grammarly.com>
- Make sure you use **bibliographic reference management software** from the start.
- EndNote (free if you ask the Sitel: <http://www.unine.ch/sitel/logiciel/>) or you can use free software such as : Mendeley, Zotero, ...
- Be careful when you save articles or books: always mention the title/author/date, it helps when sorting and proofreading your reports.

Communications & meetings

- Schedule weekly or monthly meeting with your supervisor (PhD or Post-doc)
- This will enable you to group your questions together and discuss them with your supervisor, who will have set aside a time in his or her diary. The meetings can be online or in person.

Field work & labwork

Do you need a specific protocol?

Have a look on the LEF's server, you will find which experiments are feasible at the LEF!

Do you have an experiment at the lab?

- Meet Amandine Pillonel and Mathieu Bueche (lab technicians) & the apprentices BEFORE you start something.
- Book the equipment you need on <https://app.clustermarket.com/login> if you do not have registered, ask for the access!

Did you use a lot of glassware (beaker, Erlenmeyer flask, etc.)?

- Wash everything afterward. A washing machine is available, ask someone before using it the first time.

Have you finished your experiment?

- Leave it clean behind you, empty the garbage can under the hood if it's full.
- If you've used the deionized water and ethanol, fill the bottles up and top up the tip boxes if you've used a lot.
- If you've left crockery on the sink to dry, please put it away the next day.

- If something is missing (products, etc), tell Amandine by email.
- If samples need to be stored for an unknown period of time, ask how and where you can store them.

Do you need specific equipment for fieldwork?

- Check on clustermarket. If you do not find what you need, ask the laboratory assistant or your manager.
- Before buying, look in the compactus if you can find what you are looking for.

Did you borrow tools or equipment ?

- Make sure you bring them back clean and at the right place

Did you break or lost something?

- No problem, but tell the lab technicians, laboratory assistant or the people concerned so that the object can be replaced.

Other essential points

- If you don't know: search.
- If you can't find: ask.
- If you can't do something: find help.
- If you feel overwhelmed don't underestimate the power of a coffee break with your colleagues 😊.
- Actively participate in the lab activities: lab meetings, lab therapy, etc. This can really help you through your master.
- Take advantage of an activity you like outside the university.
- If you have ideas: do not hesitate to make suggestions.
- And generally: dare to say NO! Dare to talk if something is not right for you or bother you.

And the most important: enjoy your master, produce a good job, procrastinate as little as possible and work "little by little" but efficiently!

Appendix C

Safety rules for field work¹

¹ Document produced by Sarah Semeraro

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Introduction

During the course of your project, you may be required to work outdoors to collect samples, carry out field inventories, go on excursions with students and so on. This document sets out the main points to consider when working outdoors as part of a master's or thesis project, in order to limit the risk of accidents.

As part of your master's or thesis project, if you're going to be working in the field:

- ❖ Your supervisor must discuss the risks with you.
- ❖ If you have any doubts about the dangerousness of the sites you have chosen, don't hesitate to discuss them with your supervisor.
- ❖ No one can force you to go into a dangerous area if you don't feel comfortable or if the context frightens you.

It's not improbable that during your outings, various problems may prolong the day beyond what was initially planned. Good preparation beforehand will save you a lot of trouble and make you feel more at ease.

In all cases, here below we provide a set of advices to make your field work the safest and most successful as possible.

Before departure

Transport

Postbus/funicular/ cable car

Please check the timetable if you need to use these means of transport.

Institute's car

Make sure your car is in good condition and that you have the emergency numbers in case of breakdown or accident.

Personal car

If no car is available, you can use your own vehicle, but you must provide the kilometers driven (photo of the dashboard before/after the trip) + a map (<https://www.viamichelin.com/>) with the exact itinerary for it to be reimbursed at a rate of .-50/km.

Emergency numbers

Prepare and carry with you a list of emergency numbers

- 112 European emergency numbers (European)
- 117 Police
- 118 Fire brigade
- 144 Ambulance, urgent medical calls throughout Switzerland
- 145 Intoxication <http://www.toxi.ch>
- 1414* Rega, medical assistance by air, <http://www.rega.ch>
- 1415 Air-Glacier, medical assistance by air, <http://www.air-glaciers.ch>

*If you are a Rega member, please take your membership card with you! In the event of an accident, you'll be insured differently from a non-member.

Prepare your itinerary²

Know the weather

Get informed and equip yourself accordingly (protection against heat and cold, UV rays, etc.) In alpine environments, the weather changes rapidly! Do you know what time the sun sets? Start your hike as early as possible, especially if it's a long one and the route you plan to take is at high altitude.

If a thunderstorm threatens, turn back, leave the ridges, stay away from cables and streams, seek shelter but not under an isolated tree. In the event of lightning, if no shelter exists, look for a depression, don't keep your sticks or other metal objects with you, sit on your pack, knees close to your body, touching the ground on as small and compact a surface as possible and wait for the storm to move away.

Stay informed!

Use the various apps to plan/track your itinerary offline and keep up to date with the weather: Swisstopo, météoSuisse, (available on google play /& the App store).

Itinerary

- Starting point, end point and route.
- Distance and altitude difference (available free online at <https://map.geo.admin.ch> or <https://schweizmobil.ch/fr/ete>)
- Time required and safety margin
- Alternative itineraries: examine the possibility of bypassing difficult sections or shortening the hike.
- Other route features: find out about exposed sections, steep sections, refreshment facilities, altitude, etc.

Hiking trail category¹³

- Road conditions: even several days after an episode of rain, the roads can still be wet and slippery, making exposed sections particularly dangerous. In early summer, there is often still snow at mid-altitude. You can find out about current conditions from hut wardens or lift stations, via webcams or Internet portals.
- Huts: if you're planning to eat or sleep in a hut, find out exactly where it is, check that it's in operation and find out when it's open. Berths must be reserved. If you don't need them after all, be sure to let the hut know, so that other people can make use of them.

Trails and off-trail activities

A significant part of the excursions and fieldwork for a Master's project takes place off-piste. Sturdy, high-cut, ankle-hugging shoes are therefore essential to protect against sprains and involuntary kicks against rocks or pebbles rolling down the slope. They also provide protection against brambles and other rough edges (branches) at ground level. For the same reasons, shorts are not recommended in the field. In marshes or along rivers, knee-high boots are recommended.

Working in steep terrain

Some of our excursions may take place in steep terrain, such as clifftops or steep slopes. Be careful not to get too close to the cliff edge (slipping), nor too close to the foot of the cliffs (rock falls). In the event of a master's project requiring prolonged work at the foot of a cliff, be sure to wear a helmet. On steep slopes, progress slowly, making sure you never lose your balance.

Really risky situations shouldn't arise on excursions. However, a passage along a narrow path might happen. If you suffer from vertigo and dare not continue, let the supervisor know. Climbing on slopes >45° will not occur as part of an excursion and should not be considered for a master's project. Working in such conditions can

² <https://rando-en-montagne.ch/fr/bien-se-preparer>

³ <https://www.swissmountainfun.ch/switzerland-hiking-trails-guide/>

only be done with your supervisor's permission, with suitable equipment, accompanied by a specialist and insofar as you are trained yourself.

Rivers, snowfields, glaciers

When working along rivers, beware of unstable banks and keep your distance. A river can erode the foot of its banks from below, leaving the overhanging bank unstable. Avoid approaching rivers during periods of high water.

Find out if there is a dam upstream that could suddenly release large quantities of water. In the mountains, fording rivers can quickly turn out to be dangerous. Cross only with caution and beware of unstable or slippery rocks. Prefer quiet barefoot crossings, bearing in mind that a strong current at knee level can quickly destabilize you. Don't forget that the flow of Alpine torrents increases during the day under the sun. As a result, a torrent crossed without difficulty in the morning can be very dangerous at the end of the day. Sliding on a snowfield is fun, but not without risks. Loss-of-control accidents on steep slopes are not uncommon. What's more, snowfields sometimes form bridges over streams, with several meters of clearance between the snow and the stream. You never know when the bridge will give way. In spring, the path is sometimes cut by a snowfield that you have to cross on the hillside. Do this only with caution, if the slope is not too steep and the snow not frozen. Or get the right equipment. If you're in a group, go one at a time. Crossing a glacier should not be part of the Master's program. If such a crossing is unavoidable for your Master's project, get a specialist to assess the risks and equip yourself.

Insects and other animals

Ticks

Ticks, and the diseases they transmit, are certainly the main danger you may encounter on excursions to low and medium altitudes. Ticks can be found on plants up to 1.5 m high. The two main diseases they transmit are :

- **Borreliosis (or Lyme disease)**, which can cause local redness, flu-like symptoms, nervous system damage nervous system damage with pain, sensory disturbance, even partial paralysis, and joint pain. joint pain. Treated promptly, long-term consequences are generally minimal. Neglected, however, it becomes very difficult to get rid of. No vaccine is available, but treatment with antibiotics antibiotic treatment is possible.
- **Tick-borne meningoencephalitis** causes flu-like symptoms and headaches, which can progress to inflammation of the nervous system, with paralysis, impaired consciousness and even death. Progression can be very rapid. A vaccine is available, and is strongly recommended for people who regularly spend time in the forest.

In forests and meadows, wear light-colored, well-covered clothing, tuck trouser bottoms into socks and protect yourself with repellents.

Check your skin, especially the folds, as soon as you get home. If a tick becomes attached to your skin, keep an eye on the symptoms over the following weeks, and don't hesitate to consult a doctor.

More information (symptoms, behavior) at: <https://www.suva.ch/fr-CH/materiel/documentation/attention-aux-tiques-44051-e-6027-6026/#uxlibrary-from-search>

Snakes, wasps, bees

Encounters with vipers in Central Europe are rare (unless you're looking for them). Generally speaking, snakes will spot you first and then hide. Bites are not fatal, except in cases of severe allergy. And high shoes greatly reduce the risk of being bitten. This risk is therefore vastly overestimated by most people.

However, be careful on steep south-facing slopes, where there is a slight risk of putting your hand on a snake when trying to hold on to a boulder or a tuft of grass. Wasps, bees, and hornets can cause serious problems for allergy sufferers when stung far from away from medical help. If you know you are allergic, take the necessary treatments with you and inform your supervisor.

Cattle and sheep

Hiking in pastures is generally risk-free. However, herds of suckling cows (with calves) should be avoided, and never attempt to pet a calf. Mothers can be very defensive. If cows become nervous, leave the pasture quietly. Quick movements can provoke an attack. Similarly, you should never cross sheep flocks guarded by guard dogs. They will come and bark. Remain calm and continue on your way, bypassing the flock.

Shovels and picks

Pedology and other fields in ecology require walking with shovels, picks, augers or other metal items. Be careful turning when carrying these tools on your shoulder. When assisting someone digging, stay far enough so as not to receive any blows or stones thrown up by the tool. Maintain a constant dialogue about respective intentions. If the pit is more than one meter deep, it should be shored up. Never stay alone in a deep pit. A wound with a metal tool, as with other natural objects (thorns, pebbles, etc.), can transmit tetanus. This disease is difficult to treat and can be fatal if detected too late. Please, check the validity of your vaccination.

Health risks

Apart from allergies to bees and wasps, other predispositions can lead to problematic situations. If you are aware of any health problems (weak heart, severe hay fever, etc.), take the necessary medication and report it to the supervisor. Also, please, ask yourself: are you fit enough, sure-footed and free of vertigo? Is this your first hike of the year?

Get the word out!

Inform at least one of your colleagues of your destination (GPS coordinates), as well as the duration of your absence and the expected date of return.

During your fieldwork

Be reachable

By telephone, radio, etc., and check the condition of your batteries beforehand. If necessary, take a extra battery with you to recharge your phone, or find out about the nearest place to live (cabin, restaurant, store, etc.).

Never set off alone

Never be in the field alone, but take at least one other person with you. If this isn't possible, make sure someone knows where you are, when you are due back and what to do if they don't hear from you by the time you're due back.

First aid kit

Plan to bring/borrow a first-aid kit adapted to your work outdoors (pocket pharmacy) containing at least :

- Bandages
- Bandages
- Tweezers
- Small scissors/knife
- Basic/personal medication (headaches, nausea, anti-inflammatories)
- Tick and mosquito repellent (depending on location)
- Survival blanket

Personal field equipment (suggestions)

A good backpack

Acquire/borrow a backpack of at least 30-40L, and up to 70-80L depending on field work. Note that the heavier the load to be carried (equipment & samples), the better the quality and fit of the bag (back size)!

Hiking poles

Hiking poles can take the strain off your knees on the way down and help you on the way up.

Clothing (3-layer system)

- 1st breathable layer to wick away perspiration (technical T-shirt in synthetic or merino material)
- 2nd insulating layer to retain heat (e.g. a zipped fleece or small down jacket, depending on the season)
- 3rd waterproof and windproof layer for protection from the elements (hardshell jacket, Gore-Tex)

Shoes

Equip yourself with good hiking boots with a profiled, water-resistant sole. Don't go into the mountains with shoes that aren't suited to the terrain!

Food and drink

Take sufficient food and drink (water/hot tea depending on the season):

- Eat nutritious, caloric foods (starchy foods, meat, cheese, fruit, vegetables, nuts).
- If necessary, bring an extra can of water with tap.
- Bring hot tea with you on cold-weather terrain.
- If you're bivouacking, choose foods that keep well and freeze-dried meals (available from sports stores).

Edible plants and berries

We strongly advise against consuming plants, berries and mushrooms picked on a field trip, as this may lead to poisoning.

Direction indicators for hiking trails

Yellow diamonds and arrows

Hiking trails are generally wide, but can also be narrow and uneven in places. Steep passages are equipped with steps, and places where there is a risk of falling are secured by barriers. Hiking trails marked in yellow make no special demands on users. However, vigilance and caution are essential. We recommend that you wear sturdy shoes with well-profiled soles, bring weather-appropriate clothing and a map.

Yellow with white-red-white tip and white-red-white markings

Mountain hiking trails are usually narrow, steep and partly exposed. Particularly difficult passages are secured by ropes or chains. To use these paths, you need to be sure-footed, in good physical condition and not suffer from vertigo. You also need to be aware of mountain hazards. In addition to wearing sturdy shoes with well-profiled soles and having the right equipment for the weather conditions, it's a good idea to take a hiking map with you.

Blue with white-blue-white tip and white-blue-white markings

Alpine hiking trails sometimes cross snowfields, glaciers or scree, or take in cliffs with short climbing passages. The path is not always marked. The presence of facilities is not guaranteed. To use these paths, you need to be sure-footed, in very good physical condition and not suffer from vertigo. You also need to be aware of mountain hazards. In addition to the equipment required for mountain hiking trails, you should also bring a compass, a rope, an ice axe and crampons, depending on the itinerary planned.

ENJOY YOUR FIELDWORK!