Advanced Practical Course Guidelines for Students – 2017

Introduction

Advanced practical courses (Fortgeschritten Praktika) are excellent opportunities for you to learn new laboratory techniques directly from experienced PhD student teaching assistants (TA), with the advantage of small group settings and hands-on introductions to various laboratory techniques. In addition to the basic laboratory experience, you also learn about applications of the techniques and gain a broader understanding of the underlying scientific principles. Lastly, it is a great opportunity for you to familiarize yourself with the techniques used in specific labs at the LMU, which can inform you about where they might choose to pursue a Master thesis or PhD.

That being said, the practical courses should still be taken as seriously as a normal lecture course. This means that you should expect to be challenged, and should be motivated to engage yourself during the laboratory component itself and the evaluation afterwards.

In an effort to make the practical courses more structured, here are some basic guidelines that you should adhere to. Not only will this enrich your experience in the practical courses, it will also ensure that basic standards of coursework ethics are met.

Laboratory Safety

- **Wear lab-appropriate clothing.** For your own safety (especially in chemistry labs), wear close-toed shoes and clothes that are appropriate for the setting. Safety gear (such as gloves, lab coats and goggles) will be provided by the lab, but your normal clothing should not be considered unsafe or interfere with the experiments.
- **Be focused and alert in the lab.** Your practical course may require that you (for example) safely handle dangerous chemicals or operate delicate machines. Additionally, you must always be able to respond quickly in an emergency situation. If your TA determines that you are unfit for the lab, you will ***not*** be allowed to participate in the practical course – for your own safety, and the safety of others around you.

Before the Practical Course

- **Coordinate with your TA in advance.** Ensure that you have contacted your TA at least 1 week before the day of your practical course. They will send you the materials you need to read beforehand, inform you of any special requirements, and designate a time and place to meet on the day of the course.
- **Read the introductory material.** Most practical courses have introductory reading material with some information that is essential to the course. This includes background information of the principles, materials and methods. Do not expect the TA to explain *everything* to you on the day that you meet. However, if you have read

the material and still want some clarification before or during the course, the TA will be happy to explain these things for you!

- **Prepare for the oral examination.** You do not need to be an expert on everything discussed in the introductory material, although you should aim to start with a basic understanding. This will be evaluated by the TA in the beginning via a short oral examination. If the TA determines that you are insufficiently prepared (e.g., have not bothered to read the material), they can choose to cancel your practical course.

During the Practical Course

- **Arrive on time.** Many practical courses have long days or time-sensitive steps. If you are late, this will delay the protocol and ultimately forces everyone to stay longer or rush through steps.
- **Record your own notes.** Bring a notebook and a USB disk to ensure that you can retain all of your data. Do not rely on the most diligent member of the group to take all of the notes. This is a dangerous habit in general for scientists and can be a disaster in the practical courses if this "responsible" individual a) misplaces the notes, b) records something incorrectly / incompletely, or c) fails to follow up on the practical course evaluation with the rest of the group.
- **Ask questions.** Questions are an essential part of learning and science! If you do not understand a certain step, or you want to know more about what you are doing, do not hesitate to ask your group TA.
- **Listen to your TA.** Take advantage of the small-group setting! Real people can be much better sources of insight and information than textbooks. Additionally, your group TA will emphasize the most important parts of the protocol, which will give you a better idea of what will be expected of you in the evaluation stage.
- **Listen to your partner(s).** Other students might ask great questions that you did not think of. Working as a team will improve everyone's grasp of the techniques and underlying principles.

After the Practical Course

- **Plan accordingly for the deadline.** You will have 3 months from the date of the practical course to complete the final oral examination and written report. However, you are strongly encouraged to complete these tasks as soon as possible. It is much easier for you to evaluate what you have done while it is still fresh in your mind, and it leaves room for flexibility in case you must delay the date of completion. **If you have not completed the practical course follow-up within 3 months, in most cases you must retake the practical course the following year. If a real emergency occurs and you have a good reason to delay the deadline, it may be possible to coordinate with your TA.**
- **Schedule a time to meet with your partner(s).** By working together, you will improve your collective understanding of the protocol and assemble a more complete analysis for the written report.

- **Contact your practical course TA if you have additional questions.** If you did not fully understand something – especially if it is a critical component of the protocol – email your practical course TA.

Additional Advice

- **You are responsible for your own work.** Students are encouraged to complete the evaluation work as a group, but sometimes this is not possible. Failure to coordinate with your partner(s) for the evaluation is not a sufficient excuse for missed deadlines.
- **Ask for additional reading material.** If you find yourself especially interested in a topic, your TA may be able to point you towards excellent literature or presentations to supplement the introductory material or lab work.
- **For students who are considering a Master Thesis or PhD in the corresponding lab, think of the practical course as an interview.** Show your best self to the TA. If you do not take the course seriously, the TA will not take you seriously.
- **Bring a snack.** There will be a guaranteed break for lunch, but your protocol could extend from early morning to the evening. Many practical courses will have opportunities for short breaks, and an extra dose of glucose may improve your focus. A hungry scientist is a miserable scientist.

Final Remarks

You should approach the practical courses as a kind of test-drive for real laboratory research. Many of the components that have been emphasized in this guideline are essential to working in labs: asking questions, sharing ideas, critical thinking, familiarity with literature, teamwork, and coordination.

Importantly, the practical courses are opportunities for you to observe many of the core principles of natural science in “real world” situations, rather than in the semi-abstract forms of a lecture or a textbook. Science is not merely memorization of what has already been described in literature, but the discovery of new principles or applications. The practical courses offer students a preview of this process under the leadership of experienced peers.

The practical courses organizers look forward to your enthusiasm, and wish you an engaging and instructive practical course!

Admission to the Advanced Practical Biophysics Courses for:

.....
(full name in capital letters)

The advanced practical biophysics courses are part of the advanced practical courses (P5.2.7 & P6.0.7) master program. Accordingly the rules and standards

www.physik.uni-muenchen.de/lehre/praktika/f-praktikum/f1-praktikum/vorlesung/MasterPraktOrdn.pdf

for the advanced practical courses hold here.

However the biophysics courses are more condensed and during the summer term break between two semesters with experiments fixed to a strict timetable to certain days*. Therefore the timeframe to return the completed grading sheets for all courses is set to the end of the calendar year

*find the time table here:

www.physik.uni-muenchen.de/lehre/praktika/f-praktikum/f1-praktikum/f1-biophysik

Nevertheless we recommend to carefully trace and note the experimental details to your note book and share all notes between the group members in the end. Complete each course with an evaluation report as soon as possible in order not to forget important experimental details before finishing the report.

In particular we require that you send a personally signed copy of this document to the secretary of the chair of Biophysics Amalienstr. 54, 1st floor before starting any of the courses!

By signing this document you confirm that you

- have entirely read the „**Advanced Practical Course Guidelines for Students**“ (sent together with this document),

- agree to the **rules and standards of the advanced practical courses** and

- will follow the **safety instructions of the supervisors**.

Date: ..... Signature: .....

in case of further questions please visit the webpage:

www.physik.uni-muenchen.de/lehre/praktika/f-praktikum/f1-praktikum/f1-biophysik

or contact martin.benoit@physik.uni-muenchen.de