

Information for assistants: PHY112 Basic Physics Lab Course

Laboratory classes for students in physics - fall term 2020

Homepage: <https://www.physik.uzh.ch/de/lehre/PHY112/HS2020.html>

Lecturer General Physics I: Prof. B. Kilminster

Responsible for the lab classes: Dr. M. Hengsberger

Covid-19 measures:

1. Students work in groups of 2 (max.!) wearing masks. We will distribute masks to all students and assistants for every lab course.
2. The number of students and TAs per lab was reduced.
3. Important for HS20: if you are assigned to a lab course and if you belong to a group with particular risks, please contact me as early as possible!! The labs will run with presence of students!

General information concerning the modules PHY111 and PHY112:

- The physics course for 1st year's physics majors consists of lectures, problem-solving classes (modules PHY111 and PHY110), and laboratory work (PHY112).
- The students have to attend the lecture on error calculus that I will give on Oct 6 and 7, 2020. In semester week 5, they carry out the introductory experiment „Einführungsversuch“ including error calculus (without report) and, finally, 4 experiments with reports (and get them signed).
 - Semester start: Monday, September 14, 2020
 - Week 4: introductory lecture on error calculus (October 6 and 7)
 - Lab classes start in week 5 on **Tue, October 13th, 2020** with Einführungsversuch.
 - Weeks 6-12: 4 experiments (with reports and error calculus) according to schedule
 - The experiments are located in building 11, floors 11-E and 11-G.
 - If the students miss an experiment they have to contact me.

Your tasks:

You will be in charge of supervising all the experiments, read the reports and ask the students for corrections. Alternatively, you can arrange for a discussion meeting with the students (i.e. after the lab classes), where you discuss their analysis. This is strongly suggested for the first reports the students will write!!

Please, download the **booklet** “Anleitungen” or the PDF files of the translated manuals from the following web page:

<http://www.physik.uzh.ch/~matthias/espace-assistant/>

Keys/badges: your keys and UZH cards open the labs in building 11, office 11-G-06, and locker with spare parts in the hallways.

Please, keep all doors locked (in particular 11-G-06) when nobody is in the room!

If you miss a date due to sickness or you are absent, please, organize **as fast as possible** somebody to replace you. According to experience, you always find somebody.

**Starting times of the experiments:
afternoon classes: 14:00 on Tue and Wed**

Please, check every week whether you have to teach. It is extremely annoying if students have to search for the assistants!

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Experimental session and handling of reports:

Be on time! It is advantageous to come a few minutes beforehand.

Electrical mains supply: button „Netz Ein“

Pressurized air (experiment S): simple valve at each table.

Radioactive sources: The long-lived sources for experiment Ab (gamma-absorption) can be kept in the experiment room.

The „**Testatblatt**“ is a control sheet for the students on which you sign once the students have carried out the experiments. You find it at the end of the „Anleitung“, the booklet with the explanations for the experiments. It has **two** columns:

1. The one on the left is for the signature once the students have finished the experiments and made a measurement protocol (check that the values are reasonable and complete - they often forget to write down units or some dimensions).
2. The column on the right is for the signing once the report is accepted.

We have our own (online) control sheets where you mark the corresponding name and experiment. I will upload an online spreadsheet which you can edit and where we do our bookkeeping.

During the experiment you should already fix a date for returning the reports (and exchange e-mail addresses with the students)!

Time schedule for the reports:

At the latest one week after the experiment **every student** returns a report,

- either by using the **blue mailbox at my office 11-G-06** and I will distribute them to your mailboxes in building 36 (H-floor)
- or according your own arrangement with the students like e-mail.

You then have a few days to correct this report and to hand it back personally or electronically together with a list of requested corrections. (See next page)

Eventually, you have to accept it or to ask the students for corrections.

It is strongly advised – at least for the first reports – to meet the students (altogether) and discuss their analysis. It is more efficient than simply sending back remarks and students get immediate feedback!

If you experience **technical problems**:

- In each room, there wall cupboards which contain tools, paper for the printer and so on. This helps to repair little things.
- If a device is defective you should fill out a little card that you find in the drawers at the assistant's place. Put this card on my desk. Devices are replaced/exchanged as fast as possible.

At the end of the day:

The students have to clean up the tables once you have signed their "Testatblatt". Lock the door when you are the last person leaving the room.

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Correction of a report:

For each experiment except for "Einführungsversuch EV", the students have to return a report. **Every student has to return his/her own report!**

This report should contain a short introduction and description of what has been measured and the way this was done. Then there has to be a protocol with the whole data set they have taken, all graphs and calculations required according to the lab manuals (no extra tasks, please!), and the complete error calculus, except otherwise stated in the manuals.

At the beginning you may ignore the introduction and focus on analysis and error calculus.

The report may be done using a computer, except otherwise stated! **If explicitly mentioned in the manual, the students must do the graphical analysis manually (e.g. experiment Ab).**

Each quantity and variable have to be defined, all units and errors should be given, formulas be correct and readable, and in particular the graph axis, slopes, fits etc. properly labeled!

To this end: check that the reports are properly written and focus only on essential points! They have to learn writing such reports in these labs; so, do not insist on little formal details like formatting issues or the use of SI units (nobody in research uses SI units thoroughly).

There is an example report including some hints at the end of the booklet "Anleitungen"! You may use it as a guideline...

In case of problems contact Matthias Hengsberger (internal phone number 50664).