

**Rules and standards for
advanced practical courses
at the chairs of the physics department
Ludwig-Maximilians-Universität München**

Munich, April 1st 2023

1. The practical course consists of three (=6 ECTS) or more advanced experiments in an experimental physics content.
2. At least two experiments (=3 ECTS) have to be completed within the cycle of one semester term. A transfer of grades of partially completed courses or individual experiments to another semester term is not possible.
3. In case of an experiment fails to be completed successfully, the student is in charge to apply in time for a replacing experiment at the coordinator (M. Benoit).
4. The graded certification for the advanced practical courses will be assigned only after at least two experiments were completed successfully.
5. In every experiment the students' preparation, the conduction of the experiment, the evaluation report and the gained knowledge about the experimental topic will be graded each.
6. An experiment will be conducted in a group of two to three students. Never the less, each student is responsible on her/his own for preparing, conducting and evaluating her/his experiment.
7. The experiments will be conducted at the physics chairs assigned below.
8. The conduction of an experiment shall last two weeks containing two oral exams, and the elaboration of a written report evaluating the experimental results.
(see: "a typical experiment" further down)
9. The time frame for each experiment is set by the coordinator and shall be completed within one month after the experimental day and graded by the supervisor.
10. Each student participating in an experiment ideally writes a protocol noting preparation details, measured data, sketches and details of the equipment as well as experimental difficulties in order to elaborate an evaluation report.
11. The evaluation shall become a complete scientific report of the experiment. It typically is written in a pdf-format. The two to three manuscripts of one group may be identical and shall contain the aim, the work and the results of the experiment as well as a detailed discussion of the results. There shall be an emphasis on a comprehensive consideration of all error values and error sources and a critical discussion.
12. A reference library Theresienstr. 37, Zi 107, 1.OG and am Coulombwall 1 in Garching are open for every student participating in the course.

13. While conducting an experiment carefully follow the security instructions announced by your supervisors.

In particular for x-ray experiments you are obliged to carry a radiation protection tag and to exactly register the duration in lists present there. Additionally, you have to wear a stick-dosimeter controlling your personal dose of radiation during the experiment.

14. Further information and details are provided on the web page:

<http://www.physik.uni-muenchen.de/lehre/praktika/f-praktikum/fl-praktikum> .

Locations of the experiments (opening hours in agreement with the supervisor):

- Chair of condensed matter, Altbau der Sektion Physik
- Chair of semiconductor physics and systems biophysics, Altbau der Sektion Physik
- Chair of photonics and opto-electronics, Königinnenstr. 10
- Chair of laser spectroscopy, Schellingstr. 4, III. Stock,
- Chair of quantum optics, Garching, Am Coulombwall 1
- Chair of nuclear and elementary particle physics, Garching, Am Coulombwall 1
- Institute of bio-molecular optics, Oettingenstraße 67

A typical experiment:

- get in contact with your supervisor latest on the first Friday. Find agreement to a date (usually Wednesday of the next week) for the day of the experiment within the following week and about the literature (usually on a webpage) required for the preparation of the experiment.
- There will be an oral colloquium to check your preparation level. The experiment will take place only, if you are prepared well enough to conduct the experiment. Now the experiment begins and you collect data from your measurements.
- Complete the evaluation of the experiment at home. Then find agreement for a date of the final colloquium.
- The final colloquium about the manuscript and the main topics of the experiment complete the experiment. Make sure your grading sheet is filled and signed by the supervisor.
- Return the completed grading sheet including all grades in time to the coordinator (M. Benoit).