

BIOPHYSICS PRACTICAL

Medicine

Division of Biophysics

Subject: BIOPHYSICS PRACTICAL

Year, Semester: 1st year/1st semester

Number of teaching hours:

Practical: 22

1st week:

Practical: Introduction to Biophysics Practical.

2nd week:

Practical: Introduction to Biophysics Practical.

3rd week:

Practical: Measurement of Nuclear Radiation and Determination of Attenuation Coefficient.

4th week:

Practical: Measurement of Nuclear Radiation and Determination of Attenuation Coefficient.

5th week:

Practical: Light Microscopy and Fluorescence Microscopy.

6th week:

Practical: Light Microscopy and Fluorescence Microscopy.

7th week:

Practical: Optical Measurements.

8th week:

Reading materials:

Practical: Optical Measurements.

9th week:

Practical: Computer Tomography Modelling and Blood Pressure Measurement.

10th week:

Practical: Computer Tomography Modelling and Blood Pressure Measurement.

11th week:

Practical: Principles of Ultrasound Imaging.

12th week:

Practical: Principles of Ultrasound Imaging.

13th week:

Practical: Spare lab.

14th week:

Practical: Lab exam (only for students where the final score is below 4.0, see Requirements 7/3.).

Requirements

Department: Department of Biophysics and Cell Biology, Division of Biophysics

Semester recommended for taking the subject: 1st year, 1st semester

Semester for the regular course: 1st

Prerequisites of the course: No prerequisites

Course coordinator: Dr. Andrea Dóczy-Bodnár

Coordinator of Practicals: Dr. Zsolt Fazekas

Educational manager: Dr. Enikő Nizsalóczy (e-mail: biophysedu@med.unideb.hu)

1. Aims of the course: Demonstration of some of the methods discussed in the Biophysics theoretical course, performing some simple experiments relevant to these topics, and introduction to designing, performing and evaluating experiments.

2. Structure of the course:

- Introduction to the practicals
- Completion of labs

3. Compulsory reading: material posted on the eLearning page of the course.

4. Recommended reading:

- Medical Biophysics (3rd edition, Editors: S. Damjanovich, J. Fidy, J. Szöllősi, Medicina, Budapest, 2019, ISBN: 978-963-226-127-0)
- Biophysics laboratory manual

5. Educational website: biophys.med.unideb.hu and the eLearning page of the course (on <https://elearning.med.unideb.hu/>).

6. Evaluation: Practical grades on a five-point scale.

7. Requirements:

7/1. Attendance to labs and recording all results in a separate logbook are compulsory. Students may attend the practicals according to their group assignment only. Students write a short quiz before each lab topic. The quiz is composed of true/false, multiple choice and simple calculation problems. At least 2.5 of 5 points (Quiz Grade, QG) must be earned in this test in order to be eligible for doing the lab. Ineligible students are not allowed to attend the given lab according to their timetable. The lab will be considered as a missed one, and the student must make it up (after passing the test) according to 7/4.

7/2. Evaluation of labs: At the end of each lab the teacher grades the performance of the student on a scale between 0-5 (lab grade, LG). Getting 0 means that the lab is not accepted and it has to be repeated. Details of how to write lab logbooks and of the evaluation system can be found on the eLearning page of the course.

7/3. Determination of the end-semester practical grade (PG): Students will be graded on a five-point scale based on the score of the written quizzes (QG) and the lab grades (LG). At the end of the semester both the scores of the written quizzes and those of the lab grades will be summed and averaged. The final practical grade will be determined as follows:

QG_average+LG_average	End-semester practical grade (PG)
4.00-5.49	pass (2)
5.50-6.99	satisfactory (3)
7.00-8.49	good (4)
8.50-10.00	excellent (5)

Students, who completed all the labs (i.e. LG>0 for all labs) but their QG_average+LG_average score is not enough (i.e. less than 4.0) to pass should take a lab exam on the 14th week. The lab exam covers the materials of all labs and evaluated on a pass-fail basis (so students passing the lab exam will finish the course with PG=2, otherwise fail). It is not possible to repeat or improve the practical exam.

If the labs are not fully completed by the end of week 13 (i.e. during the regular and spare labs), the signature for the course is denied. If the course is not completed successfully (denied signature or failed lab exam) the signature for the Biophysics Lecture course is denied as well.

7/4. Making up missed labs: Maximum two labs (missed for any reasons) can be made up during the week assigned to spare practicals. Students must register for the make-up labs on the eLearning page of the course. Only one occasion will be available for making up a certain lab. A given lab can be repeated/made up only once.

8. Information for repeaters:

Repeaters should attend and must complete all the labs. Points 7/1 – 7/4 apply to repeaters completely.

9. Exam course: No exam course is available.

Further information is available on the web page of the Department of Biophysics and Cell Biology (biophys.med.unideb.hu) and on the e-Learning page of the course. The above information is subject to change if unforeseen circumstances arise. These changes will be posted on the website.