

2022/2023. ACADEMIC YEAR

PROGRAM OF STUDY (FOR STUDENTS OF 1ST YEAR)

Full name of the subject: Biofizika I.							
Program: Undivided program (pharmaceutical)							
Schedule: full-time							
Short name of the subject:							
English name of the subject: Biophysics I.							
German name of the subject:							
Type of registration: <u>obligatory</u>/obligatory elective/elective/criteria requirement							
Neptun code of the subject: GYKFIZ268E1A							
Responsible Department: Department of Biophysics and Radiation Biology, Semmelweis University							
Responsible tutor Dr. Levente Herényi Contact information: - phone: +361 459-500/60222 - email: herenyi.levente@med.semmelweis-univ.hu				Title, academic degree: associate professor, Ph.D.			
Name of the persons responsible for the teaching of the subject: Dr. Gergely Agócs Dr. Gabriella Csík Dr. Tamás Bozó Dr. Rita Galántai Dr. Nikoletta Kósa Dr. Ádám Orosz Dr. Gusztáv Schay Dr. László Smeller Dr. István Voszka Dr. Ádám Zolcsák				Title, academic degree: senior lecturer, PhD associate professor, PhD senior lecturer, PhD teacher, PhD assistant lecturer assistant senior lecturer PhD senior lecturer, PhD professor DSc associate professor, PhD PhD student			
Class per week: 1.5 hours theory, 2.5 hours practice				Credit point(s): 4			
Professional content, intent of acquirement and it's function in order to implement the goals of the program: Our teaching program is evolving continuously. Today's students will be the pharmacists of the oncoming decades. In selecting and highlighting topics of study, the first viewpoint is scientific foresight: the knowledge should be conveyed which must be pertinent to ensure first-class professional competence while keeping abreast of the most recent development in the field of study.							
Short description of the subject: Our aim is not only the teaching of a specific body of knowledge but also the development of the exact scientific method and concrete problem-solving abilities.							
Course data							
Recommended term	Contact hours (lecture)	Contact hours (practice)	Contact hours (seminar)	Individual lectures	Total number of contact hours/semester	Normal course offer	Consultations

1.semester	21	35			56	Autumn semester* Spring semester Both semesters (* Please underline)	--
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Program of semester**

Topics of theoretical classes (pro week) :

1. week: Introduction; Basic mathematics
2. week: Basic general physics
3. week: Geometrical optics; Fermat principle; Applications of geometrical optics
4. week: Wave optics; Applications of wave optics; Photon concept
5. week: Radiations; Law of attenuation of intensity of radiation
6. week: Structure of matter; atom, electron
7. week: Atomic and molecular interactions; Applications
8. week: Many atom systems; Boltzmann distribution; Gases; Solids
9. week: Light emission, scattering, absorption; Thermal radiation
10. week: Luminescence; Light sources; Lasers
11. week: Liquid crystals; biological and artificial membranes
12. week: Structural organization of living systems: water, nucleic acids, proteins
13. week: Radioactive isotopes and radiation
14. week: X-ray and its absorption

Topics of practical classes (pro week) :

1. week: Laboratory safety rules
2. week: Microscope
3. week: Measuring devices
4. week: Refractometer
5. week: Light emission
6. week: Resonance measurement
7. week: Special microscopes
8. week: Light absorption
9. week: Optics of the eye
10. week: Nuclear medicine
11. week: Polarimeter
12. week: Skin impedance
13. week: Gamma absorption
14. week: Summary, repetition

Schedule of consultations: every week in the exam period

Course requirements

Prerequisites: -

Conditions of attending the classes, amount of acceptable absents, way of presentation of leave, opportunity for makeup:

Participation in the practical lessons is compulsory. No more than three absences from practices are allowed for any reason, otherwise the semester will not be credited. Missed sessions must be reported to the teacher the week after. The missed measurements should be done with another group if possible.

Number, topics and dates of tests during the semester, opportunities of makeup and improvement of results*:**

It will be announced on the homepage of the department during the first week of the semester

Requirements of signature:

Participation at least on 75 % of laboratory practices and all the lab reports should be accepted by the teacher of the group.

Number and type of projects students have to perform independently during the semester and their deadlines:

Lab. report should be written about each measurement. Deadline: one week after the measurement.

<p>Type of the semester-end examination: signature*/<u>practical grade</u>*/<u>semi-fnal</u>*/final* (* Please underline)</p> <p>Examination requirements: as published by the education-research department on the MOODLE interface by the start of the academic term.</p>
<p>Form of the semester-end examination: written*/<u>oral</u>*/combined examination* (* Please underline)</p>
<p>The possibility and conditions for offering grades: -</p>
<p>Scientific, course related researches, publications, essays:</p> <p>Damjanovich-Fidy-Szöllösi (eds): Medical Biophysics (2009) Kellermayer Miklós: Medical biophysics practices (2018)</p>
<p>In the case of a subject lasting more than one semester, the position of the teaching/research department on the possibility of parallel enrolment and the conditions for admission****:</p> <p>yes*/<u>no</u>*/on and individual assesment basis* (* Please underline)</p>
<p>The course description was prepared by:: Dr. Levente Herényi and Dr. István Voszka</p>

**** A tantárgy tematikáját oly módon kell meghatározni, hogy az lehetővé tegye más intézményben a kreditelismerési döntéshozatalt, tartalmazza a megszerzendő ismeretek, elsajátítandó alkalmazási (rész)kézségek, (rész)kompetenciák és attitűdök leírását, reflektálva a szak képzési és kimeneti követelményeire.**

***** A tantárgyi programban kell meghatározni azt, hogy a félévközi teljesítményértékelések eredménye hogyan befolyásolja a félévközi érdemjegyet (gyakorlati jegy), a vizsgaérdemjegyet megállapítását és a jegymegajánlást.** A teljesítményértékelés módját, tartalmi elemeit megfelelő részletességgel fel kell tüntetni a tantárgy követelményrendszerében (tantárgyi programban). A vizsgajeggyel záruló tárgy esetén a félévközi teljesítmény-értékelés: a) nem lehet az aláírás feltétele, de a jól vagy rosszul teljesítőknél kedvezmény vagy többletfeladat megadását vonhatja maga után, b) eredményéhez a tantárgyi programban (tantárgyi követelményrendszerben) meghatározott vizsgakedvezmény vagy többletfeladat társulhat, ilyen vizsgakedvezmény lehet például gyakorlati vizsga, beugró alóli mentesség, bizonyos vizsgarész teljesítése alóli felmentés; többletfeladat lehet például több tétel húzása és teljesítése a vizsgán, c) a tantárgyi programban (tantárgyi követelményrendszerben) részletezni kell az egyes félévközi teljesítmények eredményeihez társított kedvezmény vagy többletfeladat mibenlétét, valamint azt, hogy azok milyen módon és arányban kerülnek figyelembe vételre a vizsgán.

****** Pontosan jelölni kell, mely részük ismerete melyik követelmény elsajátításához szükséges (pl. tételenkénti bontásban).**