

Weeks 1-7, lect1, MONDAY 12:00-12:45, LSB F003-004; lect2, THURSDAY 10:00-10:45, Internal Medicine "A"

**Biophysics
Pharmacy
Academic year 2023/24 spring semester**

Date	#	Title
12 Febr (Monday) 12:00-13:00	1	Introduction to the course. Generation and absorption of X-rays. X-ray contrast materials
15 Febr (Thursday) 10:00-11:00	2	Ionizing radiations and their interaction with materials. Dosimetry, tissue effects, detection of radiation.
19 Febr (Monday) 12:00-13:00	3	Research, diagnostic and therapeutic application of stable and radioactive isotopes. Contrast materials, radiopharmacoens.
22 Febr (Thursday) 10:00-11:00	4	Fluorescence spectroscopy, fluorescence techniques
26 Febr (Monday) 12:00-13:00	5	Lasers and their biomedical applications. Photodynamic therapy.
29 Febr (Thursday) 10:00-11:00	6	Optical and electron microscopy.
4 March (Monday) 12:00-13:00	7	Diffusion at the molecular level, statistical interpretation. Fick's 1st law. Thermodiffusion. Osmosis.
Seminar 5 March (Tuesday) 12:00-14:00	S1	Set theory. Random events. Conditional probability, marginalization. Independent events. Descriptive statistics.
7 March (Thursday) 10:00-11:00	8	Structure of biological membranes. Membrane transport
11 March (Monday) 12:00-13:00	9	Pharmacology of ion channels (gating, selectivity). Patch clamp technique.
Seminar 12 March (Tuesday) 12:00-14:00	S2	Random variable. Cumulative distribution function, distribution function of random variable. Discrete probability distributions: binomial and Poisson-distribution.
14 March (Thursday) 10:00-11:00	10	Origin of membrane potential Resting potential, action potential, electric excitibility.
18 March (Monday) 12:00-13:00	11	Methods of pharmacological research. Gelectrophoresis, isoelectric focussing, blotting. Detecting molecular interactions (SPR, FCS, FRET)
Seminar 19 March (Tuesday) 12:00-14:00	S3	Continuous probability distribution. Normal distribution. Standard normal distribution. Sampling.
21 March (Thursday) 10:00-11:00	12	Fluid mechanics, blood circulation. Newtonian fluids, viscosity, creams and emulsions
25 March (Monday) 12:00-13:00	13	Biophysics of drug delivery. Nanotechnology approaches.
Seminar 26 March (Tuesday) 12:00-14:00	S4	Hypothesis testing. Null hypothesis. Statistical significance. One- and two tailed tests. The z-test. One sample t-test.
28 March (Thursday) 10:00-11:00	14	Medical imaging (CT, PET, SPECT, MRI)
Seminar 2 Apr (Tuesday) 12:00-14:00	S5	Paired t-test. F-test. Unpaired t-test.
Seminar 9 Apr (Tuesday) 12:00-14:00	S6	Screening tests. Epidemiologic investigations: odds ratio and relative risk. The Kaplan-Meier curve.
Seminar 16 Apr (Tuesday) 12:00-14:00	S7	Consultation.
Biophysics grade offering exam (electronic exam), 19 April 18:00-20:00 Histology 1-2		
Biophysics practical exam (electronic exam), 26 April 18:00-20:00 Histology 1-2		
Biostatistics final test, 30 April 18:00-20:00, IVDI		

Lecturer
BZS
BZS
NP
FZS
VGy
VGy
VáGy
FÁ/FZs
BZS
PF
FÁ/FZs
HP
MG
FÁ/FZs
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SzöÁ
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