



# UNIVERSITY OF BANJA LUKA

Faculty of Medicine

Department of Human genetics



School year	Course	Study program	Cycle study	Year of study	Semester	Number of students	Number of practical groups
2024/2025.	Biology of cell and human genetics	Medicine	First	First	II		3

## PLAN AND PROGRAM OF LECTURES

Week I	Lecture	Tematic unit	Day	Date	Time	Place	No.of classes	Professor
I	1	The organization of the human genome. The genetic basis of reproduction and fertilization.	Wednesday	19.2.2025.	13:15-14:45	Amphitheater	2	Dr. Vanja Vidović, assistant professor
II	2	Chromosomes, chromatin, DNA and RNA. DNA replication	Wednesday	26.2.2025.	13:15-14:45	Amphitheater	2	Dr. Vanja Vidović. assistant professor
III	3	Function of genetic information (transcription, genetic code and translation).	Wednesday	5.3.2025.	13:15-14:45	Amphitheater	2	Dr. Vanja Vidović, assistant professor
IV	4	Mechanisms of DNA recombination. Reparation of DNA molecule.	Wednesday	12.3.2025.	13:15-14:45	Amphitheater	2	Dr. Vanja Vidović, assistant professor
V	5	Numerical and structural chromosomal aberrations. Genetic syndroms.	Wednesday	19.3.2025.	13:15-14:45	Amphitheater	2	Dr. Vanja Vidović, assistant professor
VI	6	Gene mutations. Mutagenic factors.	Wednesday	26.3.2025.	13:15-14:45	Amphitheater	2	Dr. Vanja Vidović, assistant professor

VII	7	Regulation of gene expression	Wednesday	2.4.2025.	13:15-14:45	Amphitheater	2	Dr. Vanja Vidović, assistant professor
VIII	8	Molecular basis of human diseases (Mendelian and non-Mendelian patterns of inheritance).	Wednesday	9.4.2025.	13:15-14:45	Amphitheater	2	Dr. Vanja Vidović, assistant professor
IX	9	Genetic counseling and prevention of hereditary disorders. Basic methods of molecular genetics.	Wednesday	16.4.2025.	13:15-14:45	Amphitheater	2	Dr. Vanja Vidović, assistant professor
X	10	Genetic basis of sexual determination and differentiation in humans.	Wednesday	23.4.2025.	13:15-14:45	Amphitheater	2	Dr. Vanja Vidović, assistant professor
XI	11	Oncogenetics: proto-oncogenes and tumor-suppressor genes.	Wednesday	30.4.2025.	13:15-14:45	Amphitheater	2	Dr. Vanja Vidović, assistant professor
XII	12	Genetic basis of the immune response: genes for immunoglobulins, HLA, MHC.	Wednesday	7.5.2025.	13:15-14:45	Amphitheater	2	Dr. Vanja Vidović, assistant professor
XIII	13	Personalized medicine, genetic markers.	Wednesday	14.5.2025.	13:15-14:45	Amphitheater	2	Dr. Vanja Vidović, assistant professor
XIV	14	Genetic structure of human populations.	Wednesday	21.5.2025.	13:15-14:45	Amphitheater	2	Dr. Vanja Vidović, assistant professor
XV	15	Test II	Wednesday	28.5.2025.	13:15-14:45	Amphitheater	2	Dr. Vanja Vidović, assistant professor

### PLAN OF EXERCISES

Week	Exercise	Thematic unit
I	E1	Human karyotype, Inactive X-chromosome
II	E2	Cytogenetic tests - banding techniques, FISH, micronucleus test
III	E3	Numerical and structural chromosomal aberrations
IV	E4	Monohybrid and dihybrid crossing, X-linked inheritance
V	E5	Multiple alleles, polygeny and linked genes
VI	E6	Genetic Engineering, Recombinant DNA Technology
VII	E7	Methods of DNA isolation
VIII	E8	Methods of polymerase chain reaction - PCR, RT-PCR

IX	E9	Electrophoresis - gel and capillary
X	E10	Hybridization tests, sequencing
XI	E11	General principles of inheritance I
XII	E12	General principles of inheritance II
XIII	E13	Genetics of human populations
XIV	E14	Genealogical trees
XV	E15	Colloquium 2

**Exercises will be held Monday, Wednesday, Friday for groups I, II and III, respectively from 8-9:30 am at seminar hall on the first floor.**