

General Information			
Course name	ÚCHV/BMB1/03 Modern Trends in Biochemistry and Molecular Biology	ECTS Credits	6
		Semester	winter
Aims			
To give an overview on modern biochemistry and molecular biology methods and its application in practice.			
Content			
<p>Cell signaling system. Molecular basis of neoplastic cell transformation leading to development of cancer - oncogenes, tumor suppressing genes, regulatory regions of DNA. Gene mutations and DNA repair mechanisms. Induced pluripotent stem cells. Current trends and advances in the study of nucleic acids, their biological significance in cell metabolism. Gene therapy. Gene editing. Gene silencing.</p> <p>The classification of viruses based on genetic material, the effect of physical and chemical factors on viruses. Biochemistry of viruses. Virus replication. Viral oncogenicity. Retroviruses and HIV. Pandemic viruses - Covid, SARS, MERS, Ebola, influenza papillomaviruses. Prions. Aptamers and nanobioconjugates.</p> <p>Molecular basis of the manifestation of genetically determined diseases and their detection and diagnostic.</p>			
Assessment Methods and Criteria			
<p>Participation in lectures (also by distance learning).</p> <p>The lecturer conducting the lecture and related seminar will excuse the justified absence of the student (sickness, family reasons, etc.) at a maximum of two lectures/seminars during the semester. In the event of longer-term justified absence (e.g. due to sickness), the student must provide evidence of mastery of the missed course content by means of an agreed substitute; oral examination</p>			
<p>Grading Scale (in %): A (100-91%), B (90-81%), C (80-71%), D (70-61%), E (60-51 %), Fx (50-0%).</p> <p>Grading System: The University recognises the following six degrees for the evaluation of the study results:</p> <ol style="list-style-type: none"> A – excellent (excellent results) (numerical value 1) B – very good (above average results) (1.5) C – good (average results) (2) D – satisfactory (acceptable results) (2.5) E – sufficient (results meet the minimum criteria) (3) FX – failed (requires further work) (4) 			
Bibliography			
<p>Alberts et al: Molecular Biology of the Cell, Garland Publishing, 1994 Watson et al., Recombinant DNA, New York, 1992 Bloomfield et al., Nucleic acids - structures, properties and function, Canada, 1999 Scientific reports</p>			