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| Study program: Integrated Academic Studies in Pharmacy | | | |
| Course title: Selected Chapters in Molecular Biology | | | |
| Teacher Nataša, S, Vučinić | | | |
| Course status: elective | | | |
| ECTS Credits: 3 | | | |
| Condition: Biology with Human genetics | | | |
| Course aim Molecular biology studies the molecular processes that correspond to macromanifestacions in classical biology. The goal of this elective is: - To explain the molecular basis of vital processes - Understanding the structure and function of nucleic acids - Understanding of the central dogma of molecular biology - Understanding the mechanisms of recombination of genetic material - To explain the regulation of gene expression and the basic mechanisms of DNA repair | | | |
| Expected outcome of the course: Students will understand the basic concepts and use of molecular biology in modern science. They will clarify the structure and biological role of nucleic acids as carriers of hereditary information and proteins as implementers of such information. Students will understand the biological significance of the genetic code, they will be able to clearly distinguish between gene and genome. They will understand the organization of the genome in the nucleus as well as DNA replication. They will understand the mechanisms of mutations, the principles of mutagenic action, and the mechanisms of DNA repair. They will clarify and differentiate the levels of regulation of gene expression, as well as the possibility of "economy" of the human genome. Students will become familiar with methods in molecular biology for the purpose of diagnosing human diseases. | | | |
| Course description <i>Theoretical education</i> Cell cycle, cell cycle control and cell death. Structure and biological role of nucleic acids and proteins. Genetic code, gene and genome, genome organization in nucleus and DNA replication. DNA mutations and repair, evolution of cancer. Homologous recombination at the molecular level. Genome expression and expression control levels. Transcription, translation and human genome "economy" potential. Methods in molecular biology. <i>Practical classes :</i> , Study research work Student research work about up-to-date topics, group analysis of individual papers, clarification of practical examples for each topic, workshops, case studies. | | | |
| Literature <i>Compulsory</i> 1. Alberts B, Johnson A, Lewis J, Morgan D, Raff M, Roberts K, Walter P. Molecular Biology of the Cell, Sixth Edition. Garland Science, Taylor & Francis Group, New York, US, 2015. <i>Additional</i> 1. Human Molecular Genetics. Tom Strachan, Andrew Read, 4th Edition. Garlan Science, 2011 | | | |
| Number of active classes | | Theory: 30 | Practice: 15 |
| Teaching methods Lectures and practice-research | | | |
| Student activity assessment (maximally 100 points) | | | |
| Pre-exam activities | points | Final exam | points |
| Lectures | 5 | Written | 65 |
| Practices | 0 | Oral | |
| Colloquium | | | |
| Essay | 30 | | |