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|  | | | **UNIVERSITY OF EAST SARAJEVO**  Faculty of Medicine Foča | | | | | | | | | | |  | | |
| ***Study program: Nursing*** | | | | | | | | | | |
| First study cycle | | | | | | First study year | | | | |
| **Full subject title** | | | **HUMAN GENETICS** | | | | | | | | | | | | | |
| **Department** | | | Department for cell biology and human genetics, Faculty of Medicine Foča | | | | | | | | | | | | | |
| **Subject code** | | | | | | **Subject status** | | | | | **Semester** | | | **ECTS** | | |
|
| NU-05-1-003-1 | | | | | | compulsory | | | | | I | | | 3 | | |
| **Professor/ -s** | | | Associate professor, Nikolina Elez-Burnjakovic, PhD | | | | | | | | | | | | | |
| **Associate/ -s** | | | Senior asisistant, Sara Rakocevic, MA | | | | | | | | | | | | | |
| **Number of lectures/ teaching workload (per week)** | | | | | | | **Individual student workload (in hours per semester)** | | | | | | | **Coefficient of student workloadSo[[1]](#footnote-1)** | | |
| **L** | **E** | | | | **SP** | | **L** | | | **E** | | **SP** | | **So** | | |
| 2 | 1 | | | | 0 | | 30 | | | 15 | | 0 | | 1 | | |
| total teaching workload (in hours, per semester)  2\*15 + 1\*15 + 0\*15 = 45 | | | | | | | | total student workload (in hours, per semester)  30+15+0 =45 | | | | | | | | |
| Total subject workload (teaching + student): 45+45= 90 hours per semester | | | | | | | | | | | | | | | | |
| **Learning outcomes** | | 1. Upon completion of this subject, the student should be able to: master the microscopy technique, describe and explain the process of DNA replication and the transfer of hereditary information from DNA molecules, via RNA to proteins.   2. To understand the basic laws of inheritance and apply it in understanding human inheritance.  3. To understand and explain the mechanisms of genetic diversity and to relate changes in genetic material to changes in phenotype.  4. To understand the basics of the genetics of malignant cells and the genetics of the immune response, and to apply the acquired knowledge of human genetics in practice.  5. Acquiring basic knowledge in human genetics and the application of acquired knowledge in other medical disciplines during the course of the study. | | | | | | | | | | | | | | |
| **Preconditions** | | No preconditions | | | | | | | | | | | | | | |
| **Teaching methods** | | Lectures, exercises, seminar papers, consultations and colloquium | | | | | | | | | | | | | | |
| **Subject content per week** | | **Lectures:**  1. Introduction to genetics. Hereditary material. Nucleic acids. DNA and RNA. The flow of information in a cell.  2. Replication of DNA molecules. Transcription. Processing the primary transcript. Genetic code.  3. Translation. Regulation of gene activity.  4. Chromosomes. Human genome.  5. Cell cycle (control factors) and cell population. Gametogenesis.  6. First colloquium. Genetic determination of sex. Disorders of gender development. Genetic mutations.  7. Recombination. DNA reparation mechanisms.  8. Changes in the number of chromosomes.  9. Changes in the structure of chromosomes.  10. Inheritance in humans. Monogenic inheritance. Codominant inheritance. Multifactorial Inheritance. Mitochondrial inheritance.  11. Second colloquium. Genealogy. Genetic counselling and prevention of hereditary diseases.  12. Genetics of cancer.  13. Genetics of aging.  14. Population genetics.  15. Third colloquium. Genetic engineering. Gene therapy.  **Exercises:**  1. Molecular genetics (drawing, tasks).  2. Karyotype  3. Introduction to microscopy (microscopy).Barr body (making of the preparation).  4. Mitosis (animation, observation of sample).  5. Meiosis (animation, drawing)  6. Gametogenesis (observation of sample, drawing).  7. Mendel's laws of inheritance (tasks).  8. Mendel's laws of inheritance (tasks).  9. Genes interactions (tasks).  10. Sex-linked inheritance (tasks)  11. Genealogy (tasks).  12. Molecular Genetics Methods: Isolation of DNA (laboratory work)  13. Seminar papers  14. Seminar papers  15. Consultations | | | | | | | | | | | | | | |
| **Compulsory literature** | | | | | | | | | | | | | | | | |
| **Author/s** | | | | **Publication title, Publisher** | | | | | | | | | **Year** | | **Pages (from-to)** | |
| Robert L. Nussbaum, Roderick R. McInnes, Huntington F. Willard | | | | *Genetics in Medicine, Thompson and Thomspon, ISBN: 9781416030805, 7th edition* | | | | | | | | | 2007 | |  | |
| Ricki Lewis | | | | *Human genetics: Concepts and Applications, ISBN 978–0–07–352527–3, 9thedition* | | | | | | | | | 2010 | |  | |
| **Additional literature** | | | | | | | | | | | | | | | | |
| **Author/s** | | | | **Publication title, Publisher** | | | | | | | | | **Year** | | **Pages (from-to)** | |
| Bruce Alberts, Alexander Johnson, Julian Lewis, David Morgan, Martin Raff, Keith Roberts, Peter Walter | | | | *Molecular biology of the cell,* Garland Science, Taylor & Francis Group, ISBN 978-0-8153-4432-2, 6th edition | | | | | | | | | 2015 | |  | |
| Geoffrey M Cooper | | | | *The cell*, Sunderland (MA): Sinauer Associates, ISBN-10: 0-87893-106-6 | | | | | | | | | 2000 | |  | |
| **Student obligations, types of student assessment and grading** | | | | | **Grading policy** | | | | | | | | **Points** | | | **Percentage** |
| Pre-exam activities | | | | | | | | | | | |
| lecture/exercise attendance | | | | | | | | 10 | | 10% | |
| seminar paper | | | | | | | | 10 | | 10% | |
| colloquium | | | | | | | | 30 | | 30% | |
| Final exam | | | | | | | | | | | |
| practical exam | | | | | | | | 10 | | 10% | |
| final test | | | | | | | | 40 | | 40% | |
| TOTAL | | | | | | | | 100 | | 100 % | |
| **Certification date** | | | | | December 2024. | | | | | | | | | | | |

1. Coefficient of student workload So is calculated as it follows:

   а) for the study programs not going through the licensing process: So = (total workload in semesterfor all the subjects 900 hrs – total teaching workload L+Ein semester for all the subjects 870 hrs)/ total teaching workload L+Ein semesterfor all the subjects \_\_\_\_\_ hrs = \_\_\_\_. Consult form content and its explanation.

   b) for the study programs going through the licencing process, it is necessary to use form content and its explanation. [↑](#footnote-ref-1)