TEACHING PLAN OF MEDICAL BIOLOGY

Spring semester of the academic year 2022/2023

(General Medicine – 1st year)

1. week: 13.-17.2.
Lecture: **Introduction to genetics I – genetics in medicine, Mendelian Inheritance, autosomal and gonosomal Inheritance, chromosome abnormalities** (prof. RNDr. Ondřej Slabý, Ph.D.)
Practice: *Genetic disorders - autosomal inheritance*

2. week: 20.-24.2.
Lecture: **Introduction to genetics II – multifactorial inheritance, genetic linkage, population genetics** (prof. MUDr. Iva Slaninová, Ph.D.)
Practice: *Genetic disorders - gonosomal inheritance*

3. week: 27.2.-3.3.
Lecture: **Human genome** (prof. RNDr. Ondřej Slabý, Ph.D.)
Practice: *Extension to basic genetics*

4. week: 6.-10.3.
Lecture: **Epigenetics – interactions of genes and environment** (Mgr. Stjepan Uldrijan, CSc.)
Practice: *Genetic prognosis and genetic counselling*

5. week: 13.-17.3.
Lecture: **Immunogenetics** (prof. RNDr. Ondřej Slabý, Ph.D.)
Practice: *Human population genetics*

6. week: 20.-24.3.
Lecture: **Cancer biology I - carcinogenesis, hallmarks of cancer** (prof. RNDr. Ondřej Slabý, Ph.D.)
Practice: ***Control test 3 (knowledge of weeks 1 to 5)***

7. week: 27.-31.3.
Lecture: **Cancer biology II - application of cancer biology into cancer diagnostics and therapy** (prof. RNDr. Ondřej Slabý, Ph.D.)
Practice: *Molecular diagnostics of human pathogenic bacteria* (1st half of the group)

8. week: 3.-7.4.
Lecture: **Bacterial and viral genomics** (prof. MUDr. David Šmajs, Ph.D.)
Practice: *Molecular diagnostics of human pathogenic bacteria* (2nd half of the group)

9. week: 10.-14.4.
Lecture: **Gene therapy** (prof. RNDr. Ondřej Slabý, Ph.D.)
Practice: *Gene engineering - production of human proteins in bacterial cells* (1st half of the group)

10. week: 17.-21.4.
Lecture: **Human microbiome** (prof. MUDr. David Šmajs, Ph.D.)
Practice: *Gene engineering - production of human proteins in bacterial cells* (2nd half of the group)

11. week: 24.-28.4.
Lecture: **Stem cells and tissue engineering** (Mgr. Vladimír Rotrekl, Ph.D.)
Practice: *Molecular diagnostics of cancer* (1st half of the group)

12. week: 1.-5.5.
Lecture: **Introduction to human ontogeny (pre- and postnatal development)** (Mgr. Vladimír Rotrekl, Ph.D.)
Practice: *Molecular diagnostics of cancer* (2nd half of the group)

13. week: 8.-12.5.
Lecture: **Evolutionary Biology** (prof. RNDr. Ondřej Slabý, Ph.D.)
Practice: ***Control test 4 (knowledge of weeks 7 to 12)***

14. week: 15.-19.5.
Dissection week – no biology lecture and practices

15. week: 22.-26.5.
Dissection week – no biology lecture and practices

COMPULSORY LITERATURE:

- ALBERTS, Bruce, Karen HOPKIN, Alexander JOHNSON, David Owen MORGAN, Martin C. RAFF, Keith ROBERTS a Peter WALTER. ***Essential cell biology***. 5th edition. New York: W.W Norton, 2019.
- SNUSTAD, D. Peter a Michael J. SIMMONS. ***Principles of genetics***. 6th edition. Wiley, 2011.

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Head of the Department