IMMUNOLOGY AND MEDICAL GENETICS 2022/23.

Medical studies in English, 2nd year course
Time: 02.01.2023. – 14.02.2023.

LITERATURE:

Immunology:
Basic Immunology, Functions and Disorders of the Immune System – Abbas A.K, Lichtman A.H., 6th edition, Elsevier, 2020.

Medical Genetics:
Emery's Elements of Medical Genetics– Peter D Turnpenny, Sian Ellard, 16th edition, Elsevier, 2020.

Recomended (additional) literature:
1. Thompson & Thompson Genetics in Medicine - Robert L. Nussbaum, Roderick R. McInnes, and Huntington F Willard., 8th Edition, Elsevier, 2016.
2. Medical genetics - Lynn B. Jorde, John C. Carey, Michael J. Bamshad., 5th Edition, Elsevier, 2016.

EXAM DATES:

1st exam date	2nd exam date	3rd exam date	4th exam date
February 13th and 14th	July 13th and 14th	September 6th and 7th	September 20th

Note: First exam date consists of written exams in Immunology and Medical genetics taken separately during the course and oral exam scheduled for February 13th and 14th.

EXAM: The exam consists of written and oral parts. Students should bring their identification documents (index or personal identification card) to the exam. Written exam is divided into two parts: 1. Immunology and 2. Medical genetics and could be taken separately. Immunology test consists of 60 questions and Medical genetics of 40 questions. To pass the written exam students must reach the minimum of 60% on each test, and it is a prerequisite for taking the oral exam. If the exam is taken on the first examination period (January/February), points gathered during seminars will be added to the final score on the passed test, if the test scored at least 60% correct answers. Pass of a written test is valid for the current academic year.

To take the exam, students must attend at least 80% of all teaching classes.

COURSE PREPARATION:

Students should prepare materials for the seminars in advance.
Students activity during the class in rewarded by pluses/minuses, which will be assessed by the professor. Two pluses are equal to one point, which can be added to the written exam results only on the first examination date. A maximum of 3 points for immunology and/or medical genetics can be achieved during the course. If students are not prepared for the seminar, minuses are given. Two minuses are equal to one negative point that will be subtracted from the exam results on the first exam term.

TEACHERS AND STAFF

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IMMUNOLOGY AND MEDICAL GENETICS

24 lectures, 47 seminars, 24 practicals

Groups: 1 lectures, 2 seminars, 6 practicals, 12 clinical practicals

CURRICULUM:

Immunology:

Lectures (1 group):
L1 (3 hours) – Basic Immunology (Ch 1)
L2 (2 hours) – Innate Immunity (Ch 2)
L3 (2 hours) – Cytokines
L4 (2 hours) – Vaccination.
L5 (2 hours) – Immunotherapy. Chronic inflammation and cancer.
L6 (2 hours) – Research methods in immunology.
L7 (2 hours) – Microbiome. Mucosal immunity.

Seminars (2 groups):
S1 (3 hours) – Antigen presentation. MHC. (Ch 3)
S2 (3 hours) – Antigen recognition. Adaptive immunity. (Ch 4)
S3 (3 hours) – Cell-mediated immune responses. (Ch 5)
S4 (3 hours) – Effector mechanisms in cell-mediated immunity (Ch 6)
S5 (3 hours) – Humoral immune responses. Antibodies. (Ch 7, Cl.c 1)
S6 (3 hours) – Effector mechanisms in humoral immunity responses. Complement. (Ch 8)
S7 (3 hours) – Immunological tolerance. Autoimmunity. Tumor immunity. (Ch 9, 10, Cl.c 4)
S8 (3 hours) – Transplantation. Hypersensitivity (Ch 10, 11, Cl.c 2, Cl.c 3)
S9 (3 hours) – Congenital and acquired immunodeficiency. (Ch 12, Cl.c 5). Discussion and problem solving

Practicals (6 groups)
P1 (3 hours) – Leukocytes
P2 (3 hours) – Differential blood count. Blood groups.
P3 (3 hours) – Cell culture. Western blot. IHC.
P4 (2 hours) – ELISA.
P5 (2 hours) – Flow cytometry.

MEDICAL GENETICS:

Lectures (1 group):
L8 (2 hours) – Introduction to Medical genetics. Functional genomics & proteomics. RNA genes. Mutations and aberrations.
L9 (1 hours) – Patterns of inheritance. (Ch 6)
L10 (2 hours) – Gene therapy.
L11 (2 hours) – Epigenetics. RNAi. Telomeres.
L12 (2 hours) – DNA analysis.

Seminars (2 groups):
S10 (3 hours) – Developmental genetics. Pharmacogenetics. (ch 9, 15)
S11 (3 hours) – Monogenic disorders (ch 19)
S12 (3 hours) – Hemoglobin. Inborn errors of metabolism (ch 12, 18)
S13 (3 hours) – Cancer genetics (ch 14)
S14 (3 hours) – Congenital abnormalities. Chromosome disorders. (ch 16, 17)
S15 (3 hours) – Genetics of common and multifactorial diseases. Prenatal testing. (ch 10, 20)
S16 (2 hours) – Population screening. Genetic counseling. Ethical and legal issues. (ch 11, 21, 22)

Practicals (6 groups):
P6 (2 hours, clinical practical, 12 groups) – Visit to a clinical laboratory for medical genetics. (Covid pass mandatory!)
P7 (3 hours) – PCR primer design for genetic testing
P8 (2 hours) – Bioinformatics. Databases. Protein sequence analysis.
P9 (2 hours) – Research article. Reading and discussion.
P10 (2 hours) – Odds, probabilities, Bayes' theorem.

Classrooms for practicals:

Practicum (physiology or biochemistry): V1 - V4
Microscopy room: V1, V2
Pediatric ambulance, KBC Split: V6
Computer rooms: V7 – V9
Seminar rooms: V5 and V10

Course leader: Prof. dr. sc. Ivana Novak Nakir