

IMMUNOLOGY AND MEDICAL GENETICS 2020/21.

Medical studies in English, 2nd year course
Time: 04.01.2021. – 16.02.2021.

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, 15th edition, Elsevier, 2017.

Recommended (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:

| 1 st exam date | 2 nd exam date | 3 rd exam date | 4 th exam date |
|--|---------------------------|---------------------------|----------------------------|
| February 15 th and 16 th | July 13 th | September 7 th | September 21 st |

Note: First exam date consists of written exams in Immunology and Medical genetics taken separately during the course and oral exam scheduled for February 15th and 16th

EXAM: The exam consists of written and oral part. 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 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.

Final test grade is formed as a sum of 60% of immunology test grade and 40% of medical genetics test grade. Test grade participates in the subject final grade with 60%, while oral exam grade makes 40% of the final grade, if the oral exam grade is a passing grade.

To take the exam, students must attend at least 80% of all teaching classes. The seminars that one was not able to attend must be orally presented to one of the professors at least 2 days before the exam date.

COURSE PREPARATION:

Students should prepare materials for the seminars in advance.

Students activity during the class is rewarded by pluses/minuses and points. 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

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IMMUNOLOGY AND MEDICAL GENETICS

24 lectures, 47 seminars, 24 practicals

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

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) – Chronic inflammation and cancer.

L5 (2 hours) – Immunotherapy. Vaccination.

L6 (2 hours) – Microbiome.

L7 (2 hours) – Research methods in immunology.

Seminars (2 groups):

S1 (3 hours) – Antigen presentation. MHC. (Chapter 3)

S2 (3 hours) – Antigen recognition. Adaptive immunity. (Chapter 4)

S3 (3 hours) – Cell-mediated immune responses. (Chapter 5)

S4 (3 hours) – Effector mechanisms in cell-mediated immunity (Chapter 6)

S5 (3 hours) – Humoral immune responses. Antibodies. (Chapter 7, CS1)

S6 (3 hours) – Effector mechanisms in humoral immunity responses. Complement. (Chapters 8)

S7 (3 hours) – Immunological tolerance. Autoimmunity. Tumor immunity. (Chapters 9, 10, CS4)

S8 (3 hours) – Transplantation. Hypersensitivity (Chapters 10, 11, CS2, CS3)

S9 (3 hours) – Congenital and acquired immunodeficiency. (Chapter 12, CS5). 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 (1 hours) – Introduction to Medical genetics. Functional genomics & proteomics. RNA genes.
- L9 (2 hours) – Mutations and aberrations.
- L10 (2 hours) – Gene therapy. Genetically modified organisms (GMO)
- L11 (2 hours) – DNA analysis.
- L12 (2 hours) – Epigenetics. RNAi. Telomeres.

Seminars (2 groups):

- S10 (3 hours) – Patterns of inheritance. Developmental genetics (ch 6, 9)
- S11 (3 hours) – Hemoglobin. Inborn errors of metabolism (ch 12, 18)
- S12 (3 hours) – Cancer genetics (ch 14)
- S13 (3 hours) – Pharmacogenetics. Monogenic disorders (ch 15, 19)
- 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) – A visit to clinical laboratory for medical genetics.
- P7 (3 hours) – PCR primer design for genetic testing
- P8 (2 hours) – Bioinformatics. Databases. Protein sequence analysis.
- P9 (2 hours) – Analysis of a research article.
- 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 room: V5 and V10

Course leader: Prof. dr. sc. Ivana Marinović Terzić