SYLLABUS

1. Course title:

IMMUNOCHEMISTRY WITH BASICS OF IMMUNOLOGY

2. Code:

3. Cycle of study:

1

4. ECTS credits:

3

5. Type of course:

(•) Mandatory ( ) Elective

6. Prerequisites:

7. Class restrictions:

8. Duration / semester:

1 9

9. Weekly contact hours:

9.1. Lectures: 2

9.2. Seminars: 0

9.3. Laboratory/Practice classes: 1

10. Faculty:

Faculty of Pharmacy

11. Department/study program:

Pharmacy (integrated 1st and 2nd cycle)

12. Lecturer:

Adaleta Softić, full professor

13. Lecturer's e-mail:

adaleta.mulaomerovic@untz.ba

14. Web site:

www.frmf.untz

15. Course aims:

Introducing the student to basic knowledge of cellular and molecular immunology, mechanisms of diseases related to immune system disorders (immunodeficiencies, hypersensitivities, autoimmunities), principles and application of immunochemical tests in diagnostics and testing of immune functions and application of immunotherapy.

16. Learning outcomes:

Students will acquire knowledge about: components of the immune system; cellular basis of normal immune system development and outcomes of disrupted development; mechanisms of activation of innate and acquired immunity; mechanisms of innate and acquired immunity in combating bacterial, fungal, and viral infections, as well as consequences of ineffective suppression; immunoprophylaxis; mechanisms of development of immunological disorders and principles of therapeutic modulation of the immune system; prevention of infectious diseases; biological therapy; principles of immunochemical tests in diagnostics and tests of immune functions.

17. Course content:

Overview of the immune system; Innate immunity; Acquired immunity; Cells of the immune response/hematopoietic organs, B cell receptors and antibodies; Major histocompatibility complex, Antigen presentation, T cell receptors and co-receptors; Maturation, activation, and differentiation of T and B cells; Cytokines; Complement; Humoral and cellular immune response. Central and peripheral tolerance; Homeostasis of the immune system. Immune response against viral, bacterial, and fungal infections, protozoa, and helminths. Immunoprophylaxis. Hypersensitivity and autoimmunity. Immunodeficiencies. Immune system and cancer. Allogeneic transplantation.
Production of monoclonal and polyclonal antibodies; Immunohistochemical techniques; Immunofluorescence; Proximity ligation assay; Chromatin immunoprecipitation; Western blot; ELISA; xMAP technology; ELISPOT technique; Radioimmunoassay; Flow cytometry; Agglutination and precipitation techniques; Lymphocyte isolation methods; Effector cell function testing techniques. Immunotherapy.

18. Learning methods:

Lectures, exercises, consultations, and independent work.

The course is conducted through lectures and practical exercises. Students are required to attend lectures and practical exercises and actively participate in them through discussion, based on the knowledge already acquired from theoretical classes. Exercises - practical work (individual and group work) and demonstration of immunochemical methods in the laboratories of the University Clinical Center Tuzla as a teaching base.

19. Assessment methods:

Knowledge verification will be done through pre-examination tasks and the final exam. Pre-examination obligations consist of two partial exams, one colloquium, attendance and activities at lectures. The first partial exam is held in the 9th week of classes and includes the teaching material covered in the lectures in the first eight weeks, and the second partial exam and colloquium are held in the 15th week of classes and cover the material taught from the 10th to the 14th week of lectures or exercises. The final exam is taken on regular exam dates and includes partial exams and a colloquium that the student did not pass as part of the pre-examination requirements, i.e. did not achieve the required minimum points. A student who passes the partial exams and olloquium with a total of 55 - 100 points in the midterm obligations is eligible to enroll in the first regular exam period. The final grade represents the sum of points obtained from 2 partial exams, colloquia, attendance and activities at lectures.
Forming the final grade:
Based on regular attendance of lectures, a student can earn a maximum of 5 points.
On the basis of continuous activity in class, a student can earn a maximum of 5 points.
I partial exam carries 40 points. The minimum that a student should achieve is 24.
II partial exam carries 40 points. The minimum that a student should achieve is 24.
The number of points carried by the colloquium is 10. The minimum that a student needs to achieve is 6 points.

Point value of knowledge checks (min - max):

Regular attendance at lectures	1 - 5 points
Class activity	0 - 5 points
First partial exam	24 - 40 points
Second partial exam	24 - 40 points
Colloquium	6 -10 points
TOTAL	55- 100 points

20. Assessment components:

< 55	5 (F, FX) - does not meet the minimum criteria
55 - 64	6 (E) - meets the minimum criteria
65 - 74	7 (D) - generally good, but with significant shortcomings
75 - 84	8 (C) - average, with noticeable errors
85 - 94	9 (B) - above the average, with some errors
95 - 100	10 (A) - outstanding performance without errors or with minor errors

21. Required reading list:

1. Abbas, AK, Lichtman, AH, Pillai, S. Cellular and Molecular Immunology (2th ed.), 2007
2. A. Softić, Immunochemistry techniques, Soreli, Tuzla, 2017.

22. Web sources:

23. Applicable starting from the academic year:

2018/19.

24. Adopted in the Faculty/Academy session:

17.11.25.