
		UNIVERSITY OF EAST SARAJEVO Faculty of Medicine in Foča							
		Study program:medicine							
		Integrated academic studies		IV study year					
Full subject title		Application of biological therapy in medicine							
Department		Department of Propaedeutics ,Faculty of Medicine in Foča							
Subject code			Subject status		Semester		ECTS		
ME-02-2-020-3			elective		III				
Professor/ -s		Ivan Jovanović,MD PhD, full professor; Aleksandar Arsenijevic, MD PhD, associate professor; Nevena Gajovic, MD PhD, assistant professor							
Associate/ -s									
Number of lectures/ teaching workload (per week)			Individual student workload (in hours per semester)			Coefficient of student workload S <sub>0</sub> <sup>1</sup>			
L	E	SP	L	E	SP	S <sub>0</sub>			
1	0	0	1*15*1	0*15*1	0*15*1	1			
total teaching workload (in hours, per semester) 1*15 + 0*15 + 0*15 = 15				total student workload (in hours, per semester) 1*15*1 + 0*15*1 + 0*15*1 = 15					
Total subject workload (teaching + student): 15 + 15 =30 hours per semester									
Learning outcomes		<b>Course goals:</b> The aim of this course is to introduce students to the application of biological therapy in the treatment of inflammatory/autoimmune diseases.							
		<b>Course outcome:</b> After completing the course in Application of biological therapy in medicine, the student is expected to knowledge to: Describes the mechanisms of action and knows the side effects of monoclonal antibodies/cytokines/stem cells/inhibitors of immune checkpoints that are approved for the treatment of chronic autoimmune and malignant diseases, or are in the phase of clinical trials, knows the principles of mechanism of action of vaccines that are used in tumor therapy or are in the research phase, knows the tumor therapy with CAR T-cells and the side effects of this therapy.							
General competences		They possess broad fundamentals of theoretical knowledge and practical skills, preparing them for any type of postgraduate education as well as for collaboration with other medical professionals. They are capable of making appropriate therapeutic decisions. They are prepared for accepting responsibility and appropriate medical decision-making.							
Preconditions		Precondition for taking the exam: all year 1 exams passed							
Teaching methods		Oral lectures							
Subject content per week		<b>Lectures</b> 1. BIOLOGICAL THERAPY.General characteristics of biological therapy. Types of biological therapy. 2. MONOCLONAL ANTIBODIES 1. Characteristics and functions of monoclonal antibodies. 3. MONOCLONAL ANTIBODIES 2. Production of monoclonal antibodies.Hybrid and humanized monoclonal antibodies. 4. MONOCLONAL ANTIBODIES IN THE THERAPY OF CHRONIC INFLAMMATORY DISEASES 5. MONOCLONAL ANTIBODIES IN THE THERAPY OF AUTOIMMUNE DISEASES 6. BIOLOGICAL THERAPY OF INFECTIOUS DISEASES 1 7. BIOLOGICAL THERAPY OF INFECTIOUS DISEASES 2 8. TUMOR THERAPY WITH IMMUNE CHECKPOINT INHIBITORS 1 9. TUMOR THERAPY WITH IMMUNE CHECKPOINT INHIBITORS 2 10. TUMOR THERAPY WITH CAR T-CELLS, LAK AND TIL CELLS. 11. CYTOKINES IN THE TREATMENT OF CHRONIC INFLAMMATORY DISEASES 12. CYTOKINES IN THE TREATMENT OF AUTOIMMUNE DISEASES							

<sup>1</sup>The coefficient of student workload S<sub>0</sub> is calculated as it follows:

- a) for the study programs not going through the licensing process: S<sub>0</sub> = (total workload in semester for all of the subjects 900 hrs – total teaching workload L+E in semester for all of the subjects 870 hrs)/ total teaching workload L+E in semester for all of the subjects \_\_\_\_ hrs = \_\_\_\_\_. Consult form content and its explanation.  
b) for the study programs going through the licensing process, it is necessary to use form content and its explanation.

	13. MONOCLONAL ANTIBODIES IN TUMOR THERAPY 14. VACCINES IN TUMOR THERAPY 1. 15. VACCINES IN TUMOR THERAPY 2.			
Compulsory literature				
Author/s	Publication title, Publisher	Year	Pages (from-to)	
Steven A. Rosenberg, John Rosenberg	Principles and Practice of the Biologic Therapy of Cancer 3rd Edition ;Lippincott Williams & Wilkins;	2000.		
Abul K.Abbas and Andrew H. Lichtman	Basic Immunology: Functions and Disorders of the Immune System, 6th edition. Elsevier, Philadelphia	2019.		
Additional literature				
Author/s	Publication title, Publisher	Year	Pages (from-to)	
Student responsibilities, types of student assessment and grading	Grading policy		Points	Percentage
	Pre-exam activities			
	lecture/exercise attendance		30	30%
	colloquium		20	20%
	Final exam			
	test		50	50%
Total		100	100 %	
Certification date	June 17th 2024			

\* the number of necessary rows is added by using *insert mode*