
		UNIVERSITY OF EAST SARAJEVO					
		Faculty of Medicine					
		Study program: medicine					
		Integrated academic studies		II study year			
Full subject title		BIOMARKERS OF OXIDATIVE STRESS					
Department		Department for preclinical subjects, Faculty of Medicine in Foca					
Subject code			Subject status		Semester		ECTS
ME-02-2-019-3			elective		III		1
Professor/ -s		Full professor. Dijana Miric, PhD; full profesorDijana Miric,PhD; associate professor.Ilija Dragojevic, PhD; assistant professor Dragana Pavlović PhD;					
Associate/ -s							
Number of lectures/ teaching workload (per week)			Individual student workload (in hours per semester)			Coefficient of student workload S₀¹	
L	E	SP	L	E	SP	S₀	
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		Acquiring knowledge about biologically significant free radicals of oxygen in clinical medicine.					
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 prepared for further development and advances within the field of medicine. They are acquainted with methodology of scientific research.					
Preconditions		Precondition for taking the exam: all year I exams passed					
Teaching methods		lectures, laboratory exercises, seminar papers					
Subject content per week		Lectures: 1. The concept of free radicals; Biologically significant free radicals. 2. Mechanisms for the formation of free radicals of oxygen in cells; The role of the metal of variable valency; Physiological roles of individual oxidants. 3. The action of free radicals on organic and inorganic molecules. 4. Lipid peroxidation; Oxidative modification of proteins; DNA modification. 5. Main sites of oxidant synthesis in the body; Metabolism of free radicals in phagocytes. 6. The concept of antioxidant protection; Division of antioxidants; Compartmentalization and interaction of antioxidants; Oxidative stress. 7. Antioxidant and pro-oxidant effect of some vitamins. 8. The enzymatic antioxidant protection. 9. Glutathione - creation, antioxidant activity, and pro-oxidant activation. 10. Proteins like antioxidants. 11. Nitrogen monoxide, formation, role and pro-oxidative activation. 12. Creation and detoxification of oxidants in conditions of chronic hyperglycaemia. 13. The role of oxidative stress in the pathogenesis of atherosclerosis and its consequences. 14. Biochemical indicators of oxidative stress. 15. Biochemical determination of antioxidant protection indicators.					
Compulsory literature							
Author/s		Publication title, Publisher			Year	Pages (from-to)	
1. Djordjevic, V, Pavlovic, D., Kocic		1. Biohemija slobodnih radikala, Nis			2002.		
Additional literature							
Author/s		Publication title, Publisher			Year	Pages (from-to)	
Student responsibilities,		Grading policy				Points	Percentage
		Pre-exam activities					

types of student assessment and grading	lecture/exercise attendance	30	30%
	test/colloquium	20	20%
	Final exam		
	test	20	20%
	oral exam	30	30%
	TOTAL	100	100 %
Certification date	June 17th 2024		

* ¹ Coefficient of student workload S_o is calculated as it follows:

- a) for the study programs not going through the licensing process: $S_o = (\text{total workload in semester for all the subjects } 900 \text{ hrs} - \text{total teaching workload } L+E \text{ in semester for all the subjects } 870 \text{ hrs}) / \text{total teaching workload } L+E \text{ in semester for all the subjects } ______ \text{ hrs} = ______$. 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.