Course ID: HOA306	**Course name: CHEMISTRY OF REACTIVE NITROGEN COMPOUNDS**		
Cycle: FIRST	**Year:** THIRD	**Semester:** VI	**ECTS credits:** 1
Course status: ELECTIVE		**Total course hours: 15** Lectures: 15	
Teaching participants:	Teachers and associates with expertise in the field to which the subject belongs		
Prerequisite for enrollment:	-		
Course aims:	The aim of the course is to introduce students to the basics in the field of reactive nitrogen compounds, structure, reaction mechanisms, detection and application in chemistry.		
Thematic course units:	1. Cellular radicals. Introduction to the chemistry of reactive nitrogen species-review 2. Classification and chemical properties of reactive nitrogen species 3. Cellular and redox chemistry of nitrogen (II) -oxide (NO) - biologically relevant aspects: Physico-chemical properties; Chemical reactions of NO and their biological significance (reactions of NO with oxygen and superoxide, amines, hem-proteins and metals; reactions of NO with oxyhemoglobin and oxymyoglobin; reactions of NO and NO_2 with thiols); 4. *In vivo* synthesis of NO. Prooxidative to protective NO reactions in tissues. Contribution of NO in the prevention of LDL oxidation. Interactions of NO and oxygen radicals in atherosclerosis. 5. NO synthetase 6. Detection methods of NO in different media. 7. Other reactive nitrogen species, structure, preparation and reaction mechanisms - peroxynitrite and S-nitrosothiols. 8. Biological consequences of peroxynitrite-mediated modifications of amino acids and proteins. Peroxynitrite as a signaling mediator. 9. NO interactions in diseases		
Learning outcomes:	*Knowledge:* Acquisition of knowledge related to the chemistry of reactive nitrogen species in vitro and in vivo, interactions with other biomolecules, translation into other forms, connection with various diseases, as well as methods of detection *Skills:* Students will gain basic knowledge about chemistry related with reactive nitrogen species. *Competencies:* To give students a detailed overview of the importance of reactive nitrogen species and their interaction with other radicals and biomolecules.		
Teaching methodology:	Auditory lectures		

Assessment methods and grading system[1]:

Grading criteria		
Criteria	Maximal score	Required score
1. Class attendance	5	3
2. Class activities	-	-
3. Midterms	50	27
4. Final exam	45	25
Total	100	55

Scores and grading		
Score	Grade (BiH)	Grade (ECTS)
< 55	5	F, FX
55–64	6	E
65–74	7	D
75–84	8	C
85–94	9	B
95–100	10	A

Literature[2]:

Mandatory literature:

1. Nitric Oxide, 2000, Elsevier Inc. Edited by: Louis J. Ignarro
2. Ignarro, L., Murad, F. (1995) Nitric Oxide: Biochemistry, Molecular Biology, and Therapeutic Implications (Advances in Pharmacology, Vol 34)
3. Nitric Oxide: Principles and Actions (Lancaster, editor)

Supplementary literature:

1. Radi R., 2009,, Peroxynitrite, Review, Nature

[1] The grading structure for each subject is determined by the Council of the organizational unit before the beginning of the academic year in which the subject is taught as per Article 64, paragraph 6 of the Law on Higher Education of Sarajevo Canton

[2] The Senate of the higher education institution, as an institution, or the Council of the organizational unit of the higher education institution, as a public institution, determines by a special decision, which is published on its website before the beginning of the academic year obligatory, mandatory and recommended textbooks and manuals, as well as other recommended literature based on which exams are prepared and taken as per Article 56, paragraph 3 of the Law on Higher Education of the Sarajevo Canton