

<b>Study Programme:</b> Doctoral Academic Studies in Biochemistry		
<b>Course Unit Title:</b> Basic of Molecular Nutrition		
<b>Course Unit Code:</b> DSB-627		
<b>Name of Lecturer(s):</b> Research Associate Sanja Krstić		
<b>Type and Level of Studies:</b> PhD degree		
<b>Course Status (compulsory/elective):</b> elective		
<b>Semester (winter/summer):</b> winter		
<b>Language of instruction:</b> English		
<b>Mode of course unit delivery (face-to-face/distance learning):</b> Face-to-face		
<b>Number of ECTS Allocated:</b> 15		
<b>Prerequisites:</b> None		
<b>Course Aims:</b> The aim of the course is understanding and acquiring knowledge about molecular mechanisms through which the nutritious and bioactive components express their biological effects in the cell; to gain knowledge about the mechanisms of their integration and control, ie. how they can influence the prevention, development and treatment of various diseases.		
<b>Learning Outcomes:</b> The student should, through the analysis of molecular mechanisms in human nutrition, gain insight into its significance and its connection with human health. The student is expected to be able to independently use scientific literature in oral and written form; presents the results obtained in experimental work or research and in this way develop a critical opinion on the content of this course.		
<b>Syllabus:</b> <i>Theory</i> Cellular bioavailability and bioavailability of nutrients and bioactive food molecules; cellular transport. Intracellular transport and redistribution of macronutrients and their physiological forms. Mechanisms of action and effects of food on human health and on the development or prevention of diseases at the molecular level. Definition of terms of metabolomics and nutrigenetics. Interactions between nutrients and bioactive compounds (present in nutrition) and cellular components. The influence of selected bioactive compounds and genome. Monitoring, regulation and control of disease development (cancer, diabetes, cardiovascular and neurodegenerative diseases) in the presence of bioactive compounds from food origin; use of methods. <i>Practice</i> Introduction and application of methods and protocols used to observe molecular mechanisms within selected cell lines in the presence of bioactive compounds (pure substance or extracted from food matrix). Planning and setting up experiments. Processing obtained experimental data.		
<b>Required Reading:</b> 1. Zemleni, J., Daniel, H. (2003) Molecular Nutrition; 2. Mechanich, J. I., M., Via, M.A., Zhao, S. (2015) Molecular Nutrition The Practical Guide 3. Malavolte, M., Mocchegiani, E. (2016) Molecular Basis of Nutrition and Aging		
<b>Weekly Contact Hours:</b> 10	<b>Lectures:</b> 5	<b>Practical work:</b> 5
<b>Teaching Methods:</b> Lectures, laboratory work, study projects		

<b>Knowledge Assessment (maximum of 100 points): 100</b>			
<b>Pre-exam obligations</b>	points	<b>Final exam</b>	points
Active class participation		written exam	45
Project presentation	30	oral exam	25
Preliminary exam(s)		.....	
Seminar(s)			
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			