

<b>Study Programme:</b> Doctoral Academic Studies in Biochemistry			
<b>Course Unit Title:</b> Stereochemistry of Monosaccharides			
<b>Course Unit Code:</b> DSB604			
<b>Name of Lecturer(s):</b> Professor Velimir Popsavin, Assistant professor Jovana Francuz			
<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> Acquisition of advanced knowledge about the three-dimensional structure of monosaccharides and their derivatives of biological significance.			
<b>Learning Outcomes:</b> Acquainting of modern scientific achievements in the stereochemistry of monosaccharides will help the student to understand and explain their reactivity, as well as their chemical behaviour in biological conditions.			
<b>Syllabus:</b> <i>Theory</i> Presentation of three-dimensional structures of monosaccharides and derivatives. Absolute and relative configuration. Conformational analysis of acyclic derivatives of monosaccharides. Three-dimensional structure of the cyclic derivatives. Conformations of the six-membered rings. Conformations of the five-membered rings and pseudorotation. Conformations of the seven-membered rings. Conformations of fused rings. The influence of steric factors on chemical and biological behaviour of monosaccharides and derivatives. The anomeric and exo-anomeric effects. <i>Practice</i> Nomenclature of carbohydrates and derivatives. 3D visualization and animation of carbohydrates of biological significance.			
<b>Required Reading:</b> 1. J. Kuszmann: Introduction to Carbohydrates, y The Organic Chemistry o f Sugars, D. E. Levy & P. Fügedi, Eds., Taylor & Francis Group LLC, Boca Raton, 2006, page 44–71. 2. M. Miljković: Carbohydrates: Synthesis, Mechanisms, and Stereoelectronic Effects, Springer, New York, 2010. (Chapters 2 and 3, page 2–88). 3. J. F. Stoddart: Stereochemistry of Carbohydrates, John Wiley & Sons Inc, 1971. 4. D. McNaught: Nomenclature of Carbohydrates, Pure & Appl. Chem. <b>1996</b> , 68, 1919–2008.			
<b>Weekly Contact Hours:</b> 150	<b>Lectures:</b> 75	<b>Practical work:</b> 75	
<b>Teaching Methods:</b> Lectures, seminar(s)			
<b>Knowledge Assessment (maximum of 100 points):</b> 100			
<b>Pre-exam obligations</b>	points	<b>Final exam</b>	points

Active class participation		written exam	60
Practical work		oral exam	20
Preliminary exam(s)		.....	
Seminar(s)	20		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			