

Study Programme: Doctoral Academic Studies in Biochemistry; Doctoral Academic Studies in Chemistry		
Course Unit Title: Chemical transformation of monosaccharides		
Course Unit Code: DSB-606		
Name of Lecturer(s): Associate professor Bojana Srećo Zelenović		
Type and Level of Studies: PhD degree		
Course Status (compulsory/elective): elective		
Semester (winter/summer): summer		
Language of instruction: English		
Mode of course unit delivery (face-to-face/distance learning): Face-to-face		
Number of ECTS Allocated: 15		
Prerequisites: none		
Course Aims: Introduce students to recent scientific developments in the field of monosaccharides and derivatives in terms of synthetic, medicinal and biological chemistry		
Learning Outcomes: Overcome knowledge about the chemical reactivity of carbohydrates		
Syllabus: <i>Theory</i> Reactions of hydroxyl groups of monosaccharides. Protecting groups and selective protection strategies. Formation of leaving groups. Halogenation reactions of monosaccharides. The Mitsunobu reaction. Formation of carbon-carbon bonds. Oxidations and reductions. Rearrangements and isomerizations. Glycosylation methods and stereochemical aspect of glycoside bond formation. <i>Practice</i> Identification of protecting groups and assignments of stereochemistry of monosaccharides and newly synthesized derivatives by NMR spectroscopy.		
Required Reading: Auxiliary literature: 1. S. Oscarson: <i>Protective Group Strategies, The Organic Chemistry of Sugars</i> , D. E. Levy & P. Fügedi, Eds., Taylor & Francis Group LLC, Boca Raton, 2006, p. 73–106. 2. P. Fügedi: <i>Glycosylation Methods, The Organic Chemistry of Sugars</i> , D. E. Levy & P. Fügedi, Eds., Taylor & Francis Group LLC, Boca Raton, 2006, p. 107–197. 3. D. E. Levy: <i>Functionalization of Sugars, y The Organic Chemistry of Sugars</i> , D. E. Levy & P. Fügedi, Eds., Taylor & Francis Group LLC, Boca Raton, 2006, p. 240–283. 4. Recent works from appropriate journals or monographs		
Weekly Contact Hours: 10 (150)	Lectures: 5 (75)	Practical work: 5 (75)
Teaching Methods: Lectures, laboratory work, seminar(s)		
Knowledge Assessment (maximum of 100 points): 100		

Pre-exam obligations	points	Final exam	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.