

(faculty stamp)

COURSE DESCRIPTION

Z1-PU7

WYDANIE N1

Strona 1 z 2

1. Course title: ORGANIC CHEMISTRY II		2. Course code		
3. Validity of course description: 2014/2015				
4. Level of studies: BSc programme				
5. Mode of studies: intramural studies				
6. Field of study: BIOTECHNOLOGY		(FACULTY SYMBOL)		
7. Profile of studies: academic				
8. Programme: Biotechnology				
9. Semester: 5				
10. Faculty teaching the course: Department of Organic Chemistry, Bioorganic Chemistry and Biotechnology; Faculty of Chemistry				
11. Course instructor: prof. dr. Krzysztof Walczak				
12. Course classification: Basic				
13. Course status: compulsory				
14. Language of instruction: English				
15. Pre-requisite qualifications: Organic chemistry, knowledge of basic organic reactions and their mechanisms, knowledge of notation for chemical equations and naming of organic compounds				
16. Course objectives: Introduction into bioorganic chemistry. Knowledge about the types and methods for the synthesis of different types of nucleosides and nucleotides. Cognizance about the bioactivity of nucleosides and their analogues in living systems.				
17. Description of learning outcomes:				
Nr	Learning outcomes description	Method of assessment	Teaching methods	Learning outcomes reference code
1.	He/She has detailed and established knowledge in the field of organic and bioorganic chemistry	Test	Lecture	K_W04 (++)
2.	He/She has knowledge in the field of preparation of particular groups of chemicals useful in biotechnology	Test	Lecture	K_W05 (++)
3.	He/She has knowledge in the field of mechanisms of chemical and biochemical reactions	Test	Lecture	K_W24 (++)
4.	He/She has skill of self-education	Test	Lecture	K_U04 (+++)
5.	He/She recognizes types of chemical reactions and possesses skills for their selection in accomplished processes	Test	Lecture	K_U10 (++)
6.	Student knows typical engineering technologies in area of his graduating course	Examination	lecture	InzA_W05 (+)
18. Teaching modes and hours				
Lecture, 30 h				
19. Syllabus description:				
1. Nucleosides, structure, conformations, tautomeric forms. Types of nucleosides (4h)				
2. Biochemical and chemical methods for nucleoside synthesis (2h)				
3. Protecting groups in a praxis of nucleosides synthesis (2h)				
4. Modified nucleosides: modifications of sugar ring (2h)				
5. Modified nucleosides: modification of heterocyclic ring (2h)				
6. C-Nukleosides (2h)				
7. Acyclic nucleosides, methods of synthesis (2h)				
8. Phosphorylation methods (2h)				
9. Nucleic acids, types and analogues (2h)				
10. Oligonucleotides synthesis (2h)				
11. Nucleic acids with established conformation (LNA) (2h)				
12. Peptides nucleic acids (PNA) (2h)				

13. Nucleotides with special properties. Nucleotides containing the fluorofore fragments (2h)

14. Nucleosides and their analogues with therapeutic significance (2h)

20. Examination: No

21. Primary sources:

1. Chemistry of nucleosides and nucleotides, Ed. L. B. Townsend, Plenum Press, 1988

2. Modified Nucleosides in Biochemistry, Biotechnology and Medicine, Ed. P. Herdewijn, Wiley-VCH 2008

22. Secondary sources:

1. Jeremy M. Berg, Lubert Stryer, John L. Tymoczko, Biochemia , PWN 2003

2. Wilson and Gisvold's textbook of organic medicinal and pharmaceutical chemistry, J. H. Block, J. M. Beale, Lippincott Williams & Wilkins 2004

23. Total workload required to achieve learning outcomes

Lp.	Teaching mode :	Contact hours / Student workload hours
1	Lecture	30/0
2	Classes	/
3	Laboratory	/
4	Project	/
5	BA/ MA Seminar	/
6	Other	/15
	Total number of hours	30/15

24. Total hours:30/15 (45)

25. Number of ECTS credits: 1

26. Number of ECTS credits allocated for contact hours: 1

27. Number of ECTS credits allocated for in-practice hours (laboratory classes, projects):0

26. Comments: To get a credit the sum of scores collected by student should be higher than 50% of maximal

Approved:

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(date, Instructor's signature)

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(date, the Director of the Faculty Unit signature)