

Organic Chemistry - course description

General information	
Course name	Organic Chemistry
Course ID	13.3-WB-OS2P-ChemOr-S17
Faculty	Faculty of Biological Sciences
Field of study	Environmental Protection
Education profile	academic
Level of studies	First-cycle studies leading to Bachelor's degree
Beginning semester	winter term 2021/2022

Course information	
Semester	2
ECTS credits to win	5
Course type	obligatory
Teaching language	english
Author of syllabus	<ul style="list-style-type: none">dr inż. Julia Nowak-Jary

Classes forms					
The class form	Hours per semester (full-time)	Hours per week (full-time)	Hours per semester (part-time)	Hours per week (part-time)	Form of assignment
Lecture	30	2	-	-	Exam
Laboratory	30	2	-	-	Credit with grade

Aim of the course

The aim of the course is to require by a student basic knowledge regarding selected classes of organic compounds with particular emphasis on their structure, methods of preparation, reactivity and reaction mechanisms. Furthermore, the goal is to show the relationship between a structure and physicochemical properties of the organic compounds.

Prerequisites

The student must have basic knowledge on chemistry and physics.

Scope

Lecture: Terminology of organic compounds. Electron structure and spatial structure of organic compounds. Stereochemistry: chiral molecules, conformational and configurational isomers. Hydrocarbons (alkanes, alkenes, alkynes, alicyclic, aromatic) and monofunctional organic compounds: halides, alcohols, ethers, aldehydes, ketones, carboxylic acids and their derivatives, amines, nitro- and nitroso- compounds. Reaction mechanisms: nucleophilic and electrophilic substitution, addition, elimination including carbocations and free radicals. Carbohydrates – classification and properties. Amino acids. Lipdes. Relatinoship between chemical structure and biological activity.

Laboratory: Obtaining acetanilide and p-nitroaniline. Melting temperature measurment. Column and TLC chromatography. Distillation. Esters of acetic acid. Caffeine extraction. Obtaining aspirin. Detection of organic compounds.

Teaching methods

- lectures: multimedia presentation

- laboratory exercises using basic laboratory equipment - practice

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
A student can apply research techniques in organic chemistry.	<ul style="list-style-type: none">K1A_U09	<ul style="list-style-type: none">an observation and evaluation of activities during the classesan observation and evaluation of the student's practical skills	<ul style="list-style-type: none">Laboratory
A student understands basic phenomena and chemical processes in the field of organic chemistry.	<ul style="list-style-type: none">K1A_W12	<ul style="list-style-type: none">a quizan exam - oral, descriptive, test and otheran observation and evaluation of activities during the classescarrying out laboratory reports	<ul style="list-style-type: none">LectureLaboratory
A student works in a group and organizes work in a certain area.	<ul style="list-style-type: none">K1A_K01	<ul style="list-style-type: none">an ongoing monitoring during classes	<ul style="list-style-type: none">Laboratory

Outcome description	Outcome symbols	Methods of verification	The class form
A student uses organic chemistry literature, he can use sources of information including electronic ones.	<ul style="list-style-type: none"> • K1A_U10 	<ul style="list-style-type: none"> • an evaluation test • an exam - oral, descriptive, test and other • an ongoing monitoring during classes 	<ul style="list-style-type: none"> • Lecture • Laboratory
A student has knowledge of organic chemistry necessary to understand and describe of physicochemical phenomena and processes, allowing to explain basic concepts, chemical laws.	<ul style="list-style-type: none"> • K1A_W14 	<ul style="list-style-type: none"> • an exam - oral, descriptive, test and other 	<ul style="list-style-type: none"> • Lecture
The student is responsible for the safety of others in the group.	<ul style="list-style-type: none"> • K1A_K02 	<ul style="list-style-type: none"> • an ongoing monitoring during classes 	<ul style="list-style-type: none"> • Laboratory
The student uses the basic organic synthesis laboratory equipment (pipettes, flasks, distillation sets etc.), carry experiments according to the procedures.	<ul style="list-style-type: none"> • K1A_U03 	<ul style="list-style-type: none"> • an observation and evaluation of the student's practical skills • an ongoing monitoring during classes 	<ul style="list-style-type: none"> • Laboratory

Assignment conditions

Lecture - final exam in written. The exam takes 90 minutes and involves 5 problems requiring discussion. In order to get credit for sufficient assessment, it is required to obtain 60 points (60%) out of 100 points possible.

Laboratory - Each student is obligated to prepare a report after each laboratory exercise. Furthermore, the students write one evaluation test. Final assessment is an arithmetic mean of partial assessments.

Recommended reading

- 1) Organic Chemistry, Johnatan Clayden, Nick Greeves, Stuart Warren, Oxford University Press, 2012.
- 2) Organic Chemistry I for Dummies, Arthur Whinter, Wiley, 2014.
- 3) Organic Chemistry II for Dummies, John T. Moore, Richard H. Langley, Wiley, 2010.

Further reading

- 1) Experimental Organic Chemistry, Harwood Laurence, Wiley-Blackviell, 1998.

Notes

Lack

Modified by dr Olaf Ciebia (last modification: 19-05-2021 22:02)

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