



UNIwersYTET  
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W POZNANIU

## Introduction to Organic Chemistry

### Educational subject description sheet

#### Basic information

<b>Study programme</b> Chemia (General Chemistry)	<b>Didactic cycle</b> 2023/24
<b>Speciality</b> -	<b>Subject code</b> 02CENS.12K.01816.23
<b>Organizational unit</b> Faculty of Chemistry	<b>Lecture languages</b> English
<b>Study level</b> First-cycle programme	<b>Course type</b> Obligatory
<b>Study form</b> Full-time	<b>Block</b> Major subjects
<b>Education profile</b> General academic	
<b>Subject coordinator</b>	Jakub Grajewski
<b>Lecturer</b>	Jakub Grajewski, Tomasz Cytlak
<b>Period</b> Semester 2	<b>Activities and hours</b> • Laboratories: 15, Graded credit
	<b>Number of ECTS points</b> 1

## Goals

Code	Goal
C1	Naming organic compounds using the IUPAC rules.
C2	Introducing the concept of a formal charge.
C3	Knowledge of carbocations and carbanions.
C4	Consolidating knowledge of electronegativity.
C5	The concept of carbon radical and bond polarization.
C6	Basic ideas of writing mechanisms of organic reactions.
C7	Basic organic stereochemistry.

## Entry requirements

No prerequisites required.

## Subject learning outcomes

Code	Outcomes in terms of	Learning outcomes	Examination methods
<b>Knowledge - Student:</b>			
W1	explains the properties of compounds depending on their structure.	CEN_K1_W01, CEN_K1_W02, CEN_K1_W13	Written colloquium
W2	understands the consequences of carbon atom hybridization and their impact on the type of bonds formed.	CEN_K1_W01, CEN_K1_W06	Written colloquium, Oral statement
W3	understands reaction mechanisms.	CEN_K1_W05, CEN_K1_W06	Written colloquium, Oral statement
<b>Skills - Student:</b>			
U1	formulates systematic names correctly.	CEN_K1_U01, CEN_K1_U03	Written colloquium
U2	demonstrates knowledge of common names of compounds.	CEN_K1_U01, CEN_K1_U03	Written colloquium
U3	distinguishes between electrophilic and nucleophilic molecules.	CEN_K1_U03	Written colloquium, Oral statement

## Study content

No.	Course content	Subject learning outcomes	Activities
1.	Introduction to organic chemistry, hybridization of carbon atom, chemical bonds, their types, atomic and molecular orbitals.	W1, W2, U1, U2	Laboratories
2.	Polarity of molecules, influence of structure on properties, intermolecular interactions.	W2, W3, U3	Laboratories

No.	Course content	Subject learning outcomes	Activities
3.	Acids and bases in organic chemistry, basic theories of acidity (Bronsted, Lewis), protic and aprotic solvents.	W2, W3, U3	Laboratories
4.	Aliphatic hydrocarbons, structure and properties, isomerism, radical substitution reactions, radical stability and structure.	W2, W3, U3	Laboratories

### Additional information

Activities	Teaching and learning methods and activities
Laboratories	Lecture with a multimedia presentation of selected issues, Discussion, Solving tasks (e.g. computational, artistic, practical), Classes method

Activities	Credit conditions
Laboratories	Examination methods: oral and written colloquiums. Grading scale with applied percentage distribution. <ul style="list-style-type: none"> <li>• excellent (A; 5,0): achievement by the student of the assumed learning outcomes of at least 95%</li> <li>• very good (B; 4,5): achievement by the student of the assumed learning outcomes of at least 85%</li> <li>• good (C; 4,0): achievement by the student of the assumed learning outcomes of at least 75%</li> <li>• satisfactory (D; 3,5): achievement by the student of the assumed learning outcomes of at least 65%</li> <li>• sufficient (E; 3,0): achievement by the student of the assumed learning outcomes of at least 55%</li> <li>• fail (F; 2,0): failure to achieve the assumed learning outcomes by the student</li> </ul>

### Literature

#### Obligatory

1. J. Clayden, N. Greeves, S. Warren "Organic Chemistry, 2nd edition" Oxford, 2012
2. J. Clayden, N. Greeves, S. Warren "Solutions Manual to accompany Organic Chemistry" Oxford, 2013
3. J. Mc Murry "Organic chemistry, 11th edition" McGraw Hill; 2019

#### Optional

1. J. Mc Murry "Organic Chemistry, 9th edition Textbook solution" Cengage, 2016
2. R.T. Morrison, R.N. Boyd "Organic Chemistry 6th edition" Prentice Hall, 1992

### Calculation of ECTS points

Activities	Activity hours*
Laboratories	15
Preparation for classes	10
Preparation for the assessment	5

<b>Student workload</b>	<b>Hours</b> 30
<b>Number of ECTS points</b>	<b>ECTS</b> 1

\* academic hour = 45 minutes

## Efekty uczenia się dla kierunku

Kod	Treść
CEN_K1_U01	The graduate can use basic chemical terminology according to IUPAC and PTChem recommendations
CEN_K1_U03	The graduate can identify and justify the properties of a substance on the basis of its structure
CEN_K1_W01	The graduate knows and understands basic chemical laws and issues
CEN_K1_W02	The graduate knows and understands basic physics and their relationship to chemical laws
CEN_K1_W05	The graduate knows and understands the mechanisms of basic chemical reactions
CEN_K1_W06	The graduate knows and understands structure of molecules and crystals
CEN_K1_W13	The graduate knows and understands processes and relationships in the environment