

Course title Diploma lecture – Why are chemical reactions running? / Wykład dyplomowy – Dlaczego biegają reakcje chemiczne?		ECTS code 13.3.1231	
Name of unit administrating study Faculty of Chemistry			
Studies			
Field of study	Type	Form	
Chemistry	Bachelor	Full-time studies	
Teaching staff Dr. hab. Elżbieta Jankowska, Professor of the University of Gdańsk			
Forms of classes, the realization and number of hours		ECTS credits 2	
A. Forms of classes, in accordance with the UG Rector's regulations Lecture		Classes - 30 h Tutorial classes – 10 h Student's own work – 10 h	
B. The realization of activities In-class learning		Total: 50 h - 2 ECTS	
C. Number of hours 30 h			
The academic cycle Third year, summer semester			
Type of course Obligatory / elective		Language of instruction Polish	
Teaching methods <ul style="list-style-type: none"> • Discussion • Problem tasks • Lecture with multimedia presentation 		Form and method of assessment and basic criteria for evaluation or examination requirements	
		A. Final evaluation, in accordance with the UG study regulations Course credit with a grade	
		B. Assessment methods - presentation of a subject developed by the student / solution of a problem task - exam with closed (test) and open questions	
		C. The basic criteria for evaluation or exam requirements To complete the course, the following is required: - development and presentation by the student of a theoretical problem / solving the problem task, individually or in a group - obtaining a positive result ($\geq 51\%$) of the final test	
Required courses and introductory requirements No requirements			
Aims of education The lecture combines general, organic and physical chemistry. It helps to understand the pathways and mechanisms of organic reactions. The lecture aims to: <ul style="list-style-type: none"> - explaining to students why chemical reactions take place; - familiarizing students with the importance of the energy of valence orbitals in substrates and products for the course of the reaction; - familiarizing students with the importance of electronic and steric effects in the course of chemical reactions - explaining to students what factors affect the reactivity of molecules and determine the course of the reaction as well as its spontaneity, reversibility and irreversibility; - familiarizing students with the role of the solvent in chemical reactions; 			
Course contents Atomic and molecular orbitals. Interactions leading to the formation of chemical bonds. Equilibrium of a chemical reaction, reactions reversible and irreversible. Addition, substitution and elimination reactions. The influence of the solvent on the course of the reaction. The role of the group departing in chemical reactions. Competing reactions.			

Bibliography of literature

A. Literature required to pass the course

Unpublished materials, prepared by the teacher

J. Keeler, P. Wothers, Why chemical reactions happen, Oxford University Press 2003

B. Extracurricular readings

M. Jones Jr., S.A. Fleming, Organic chemistry

J. Clayden, N. Greeves, S. Warren, Organic chemistry

Knowledge

Student:

- lists and characterizes the factors deciding about the course of the reaction and its speed and emerging products;
- defines the equilibrium constant of the reaction and determines the factors influencing it;
- knows the basic types of reaction mechanisms and methods of their determination.
- uses the terms 'electronic effect', 'steric effect' for explanation reactivity of particles and the course of a chemical reaction.

Skills

Student:

- discusses the factors determining the possibility of a chemical reaction;
- uses chemical terminology, which makes it possible to discuss the content of the lecture
- independently searches for information in scientific literature

Social competence

Student:

- shows creativity in independent work and the ability to cooperate during group work;
- knows how to discuss and support his/her theses with substantive arguments;