

Course code																																	
Type and description	EC – elective subjects from the discipline of Chemical sciences																																
ECTS credit	1																																
Course name	Organocatalysis – a shortcut to chemical diversity																																
Course name in Polish	Organokataliza – na skróty do chemicznej różnorodności																																
Language of instruction	English																																
Course level	8 PRK																																
Course coordinator	prof. dr. hab inż. Łukasz Albrecht																																
Course instructors	prof. dr. hab inż. Łukasz Albrecht																																
Delivery methods and course duration	<table border="1"> <thead> <tr> <th></th> <th>Lecture</th> <th>Tutorials</th> <th>Laboratory</th> <th>Project</th> <th>Seminar</th> <th>Other</th> <th>Total of teaching hours during semester</th> </tr> </thead> <tbody> <tr> <td>Contact hours</td> <td>0</td> <td>0</td> <td>0</td> <td>5</td> <td>0</td> <td>0</td> <td>5</td> </tr> <tr> <td>E-learning</td> <td>no</td> <td>no</td> <td>no</td> <td>no</td> <td>no</td> <td>no</td> <td>no</td> </tr> <tr> <td>Assessment criteria (weightage)</td> <td>0</td> <td>0</td> <td>0</td> <td>100%</td> <td>0</td> <td>0</td> <td>100%</td> </tr> </tbody> </table>		Lecture	Tutorials	Laboratory	Project	Seminar	Other	Total of teaching hours during semester	Contact hours	0	0	0	5	0	0	5	E-learning	no	no	no	no	no	no	no	Assessment criteria (weightage)	0	0	0	100%	0	0	100%
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Course objective	The aim of the subject is to introduce PhD students to organocatalysis - a relatively new approach to asymmetric synthesis. During the lecture different catalytic activation modes employed in asymmetric organocatalysis will be discussed and summarized. Cascade reactivities and multicatalytic approaches employing organocatalysis will be also outlined.																																
Learning outcomes	A PhD student after completing the course (<i>W1 P8S_EG, U1 P8S_UW, K1 P8S_KK</i>): 1. knows the mechanisms of selected organocatalytic reactions and has the ability to apply the knowledge to write feasible reaction mechanism for new transformations; 2. has knowledge on the structure and properties of selected organocatalysts; 3. can predict and discuss stereochemical outcome of selected organocatalytic transformations; 4. can search chemical databases to find scientific information and critically analyzes the data in order to prepare a presentation on a topic related to contemporary asymmetric organocatalysis; 5. has the ability to present and discuss topics related to contemporary asymmetric organocatalysis.																																
Assessment methods	Verification methods of learning outcomes effects <i>W1 P8S_EG, U1 P8S_UW, K1 P8S_KK</i> - project presentation The final grade consists of: Project presentation - 100%																																
Prerequisites	Advanced organic chemistry																																
Course content with delivery methods	During the course different catalytic activation modes employed in asymmetric organocatalysis will be discussed and summarized including aminocatalysis, NHC-catalysis, nucleophilic catalysis, H-bonding catalysis, chiral base catalysis and PTC catalysis. Different catalytic cycles will be discussed with special emphasis on the approaches employed for the control of stereochemical outcome of organocatalytic reactions. Applications of organocatalytic strategies for the preparation of natural products and biologically relevant molecules will be shown. Cascade reactivities and multicatalytic approaches employing organocatalysis will be also outlined and discussed.																																
Basic reference materials	1. Dalko, Peter I. (ed.) Comprehensive Enantioselective Organocatalysis Catalysts, Reactions, and Applications, 2013, Wiley-VCH, Weinheim 2. Dalko, Peter I. (ed.) Enantioselective Organocatalysis Reactions and Experimental Procedures, 2007, Wiley-VCH, Weinheim																																
Other reference materials	Current scientific articles																																

Average student workload outside classroom	15h
Comments	
Last update	July 2020