

<b>Course title</b> Chemiczne metody identyfikacji leków / Chemical methods of pharmaceutical identification		<b>ECTS code</b> 13.3.0446	
<b>Name of the unit administrating the study</b> Faculty of Chemistry			
<b>Studies</b>			
<b>Field of study</b>	<b>Type</b>	<b>Form</b>	
Chemistry	Bachelor studies	Full-time studies	
<b>Teaching staff</b> Dr Marta Spodzieja			
<b>Forms of classes, the realization and number of hours</b>		<b>ECTS credits</b> 3	
<b>A. Forms of classes, in accordance with the UG Rector's regulations</b> laboratory classes		classes - 45 h tutorial classes – 5 h student's own work – 25 h	
<b>B. The realization of activities</b> in-class learning		Total: 75 h - 3 ECTS	
<b>C. Number of hours</b> 45 h laboratory classes			
<b>The academic cycle</b> Third year, winter semester			
<b>Type of course</b> obligatory		<b>Language of instruction</b> Polish	
<b>Teaching methods</b>  Laboratory classes - solving problems encountered during chemical experiments; investigative work related to the analysis of obtained experimental results and the use of acquired knowledge (solving analytical puzzles); Developing the results of chemical experiments Designing the experiments Performing the experiments		<b>Form and method of assessment and basic criteria for evaluation or examination requirements</b>	
		<b>A. Final evaluation, in accordance with the UG study regulations</b> course completion (with a grade)	
		<b>B. Assessment methods</b> a final grade determined based on partial grades received during the semester	
		<b>C. The basic criteria for evaluation or exam requirements</b> To pass the subject it is necessary to complete all the classes covered by the syllabus and to prepare collected experimental results in the form of reports. Partial grades are awarded for: <ul style="list-style-type: none"> <li>• the quality and organization of the experimental work,</li> <li>• demonstrating the ability to plan an experiment and solve analytical puzzles based on the acquired knowledge (preparation for lab classes) and obtained experimental results,</li> <li>• development and analysis of results obtained in the experimental part (reports).</li> </ul>	
<b>Required courses and introductory requirements</b>  completed course of "Organic Chemistry" with laboratory classes <ul style="list-style-type: none"> <li>• knowledge of the most important reactions, properties, and structure of basic groups of organic compounds;</li> <li>• knowledge of basic OHS rules in a chemical laboratory;</li> <li>• ability to work with the equipment, dishes, and basic laboratory apparatus used in chemical preparation and analysis.</li> </ul>			
<b>Aims of the course</b>  <ul style="list-style-type: none"> <li>• familiarizing students with the topics mentioned in the curriculum;</li> <li>• acquainting students with the micromolar scale laboratory technique used in organic qualitative analysis;</li> <li>• developing students' skills of independent experimental work planning, performing chemical analyzes and solving problems encountered during their implementation.</li> </ul>			

### Course contents

- basics of chemical qualitative analysis of organic compounds;
- characteristic reactions used to identify compounds with pharmacological activity, belonging to derivatives of the following groups: steroids, tetracyclines, alkaloids, sulfonamides, peptides;
- designing and conducting diagnostic staining tests for a series of several substances from the same structural group;
- using thin-layer chromatography to identify complex (multi-component) drugs;
- methods of separation of complex drugs into components by means of subsequent chemical extractions.

### Bibliography of literature

#### A. Literature required to pass the course

- R. Kasprzykowska, A.S. Kołodziejczyk, Chemiczna analiza środków leczniczych. Leki proste, Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2009.
- R. Kasprzykowska, Instrukcje do ćwiczeń - procedury doświadczeń i zagadnienia wprowadzające, materiały niepublikowane.
- R. Walczyna, J. Sokołowski, G. Kupryszewski, Analiza związków organicznych, Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 1996.

#### B. Extracurricular readings

- A. Zejc, M. Gorczyca (red.), „Chemia leków”, Wydawnictwo Lekarskie PZWL, Warszawa 2004.
- Z. Jerzmanowska, Analiza jakościowa związków organicznych, PZWL, Warszawa 1967.
- A. Kołodziejczyk, Naturalne związki organiczne, PWN, Warszawa 2005 .

### Knowledge

- describes the general properties of chemical compounds from the groups subjected to individual analyzes;
- characterizes the basic methods of detecting and identifying individual pharmacological compounds from the groups specified in the curriculum;
- explains the principles of the separation of simple mixtures of organic compounds by chemical extraction considering the acid-base properties and solubility;
- explains the principles of designing simple diagnostic tests (analysis schemes) aimed at identifying a series of organic compounds from the same structural group.

### Skills

- detects and identifies individual chemical compounds, having the appropriate set of literature experimental procedures and choosing the right equipment and chemical apparatus;
- conducts chemical experiments on a micromolar scale;
- designs the order of performed experiments (analysis scheme) to solve problems posed in individual tasks;
- compares and evaluates the usefulness of known methods of identifying drug substances in relation to a specific structural group;
- identifies prescription mixtures using thin-layer chromatography;
- separates simple mixtures of organic compounds by means of chemical extractions;
- based on collected experimental results arguments judgments, draws conclusions through logical reasoning, and prepares a report;

### Social competence

- understands the need to broaden the knowledge in the field of analysis of organic compounds;
- appreciates the importance of work diligence on the quality of the results and the accuracy of the conclusions drawn;
- works both independently and in a small team, while showing creativity;
- is cautious in formulating conclusions;
- is aware of the responsibility for jointly implemented tasks related to teamwork