

<b>Course title</b> Preparatyka nieorganiczna / Inorganic synthesis		<b>ECTS code</b> 13.3.0537	
<b>Name of unit administrating study</b> Faculty of Chemistry			
<b>Studies</b>			
<b>Field of study</b>	<b>Type</b>	<b>Form</b>	
Chemistry	Bachelor	Full-time studies	
<b>Teaching staff</b> Dr hab. Dagmara Jacewicz, prof. nadzw.			
<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 – 10 h student's own work – 10 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>  This laboratory will provide an introduction to the synthesis, and characterization of inorganic compounds. The student will conduct basic synthetic laboratory procedures and understand and interpret information from a variety of analytical characterization techniques. Students will complete a series of structured, interconnected laboratory experiments derived from the current literature.		<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>  Students, in the form of small groups, will conduct inorganic synthesis experiments from a discovery approach, and present their results in written reports. The final marks based on the partial marks received during the semester	
		<b>C. The basic criteria for evaluation or exam requirements</b>  Mid-term tests Reports	
<b>Required courses and introductory requirements</b> Completed courses in Inorganic chemistry and coordination chemistry			
<ul style="list-style-type: none"> <li>- an acquaintance of students with the methods of synthesis and purification inorganic and coordination chemistry,</li> <li>- introduce the students into the use of the most common characterization methods in inorganic and coordination chemistry, insisting on the most basic theoretical aspects,</li> <li>- an acquaintance of students with the basic, modern and advanced methods for studying the structure and physicochemical properties of inorganic and coordination compounds,</li> <li>- a presentation the most important contemporary issues of inorganic and coordination chemistry,</li> <li>- a development of the ability for planning and carrying out a single-handed experiment as well as interpreting obtained data,</li> <li>- a development of the ability for using bibliographical sources about inorganic and coordination chemistry.</li> <li>- a development of the ability for interpreting results of the experiments and resolving problems concerning chemical laboratory practice</li> </ul>			

### Course contents

Synthetic methods of coordination and inorganic chemistry, laboratory methods used in the preparation of inorganic and coordination compounds, quantitative and qualitative analysis of the obtained chemical compounds, physicochemical properties of inorganic and coordination compounds, physico-chemical characteristics of inorganic and coordination compounds (instrumental techniques used for assessment of control quality).

### Bibliography of literature

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

Praca zbiorowa – Ćwiczenia laboratoryjne z chemii nieorganicznej - skrypt UG, Gdańsk 2011

#### B. Extracurricular readings

A. Bielański – Podstawy chemii nieorganicznej, PWN 2002

J.M. Cieślak-Golonka, J. Starosta, M. Wasielewski – Wstęp do chemii koordynacyjnej

L. Jones, P. Atkins – Chemia ogólna, PWN 2004

B. Literatura uzupełniająca

Coordination Chemistry Reviews – czasopismo naukowe

### Knowledge

Know the chemical composition, structure, and properties of substances and of the chemical processes and transformations that they undergo. Knowledge of the Principles of Chemical Nomenclature (inorganic and coordination compounds), know the nomenclature of Coordination Complexes and inorganic compounds, know the synthetic principles of generating elements, coordination compounds and complex inorganic architectures, have a knowledge about inorganic catalysis, be able to apply the appropriate analytical techniques for the identification and characterization of inorganic compounds, be able to plan experimental work according to timeframe given and look after tidiness and safety of working area, know the application of the most important inorganic substances and coordination compounds in various branches of industry, protection of human health and everyday life.

### Skills

This skills will focus in the synthesis and analysis of inorganic compounds, focusing primarily on coordination compounds and their spectroscopy, syntheses in aqueous solution "soft chemistry", structural and physical properties characterizations, use a range of physical methods to characterize chemical compounds, determine the appropriate characterization techniques for different classes of inorganic materials, determine the appropriate separation/isolation techniques for different classes of inorganic materials.

### Social competence

Takes care of entrusted equipment, respects the work of his/her own and others, is ready for teamwork and substantive discussion. Has the appropriate habits of work in the inorganic chemistry laboratory, in particular with toxic and caustic substances, with the gas torch work, is acting in accordance with the principles of occupational health and safety, knows the principles of proceedings in emergency. Upgrading his/her own competences in basic level according to classes content. Has awareness of need improving own competences. Participate actively in discussions. Improves his/her social competences above program of classes. Extremely effectively participates in discussion. Creates a climate of openness and solidarity in the group