University of Gdańsk

Subject card

Subject name and code	Inorganic synthesis, PG_00082040						
Field of study	Chemistry						
Date of commencement of studies	October 2024		Academic year of realisation of subject	2026/2027			
Education level	Bachelor's studies		Subject group	Obligatory subject group in the field of study			
Mode of study	full-time studies		Mode of delivery	at the university			
Year of study	3		Language of instruction	Polish			
Semester of study	5		ECTS credits	3.0			
Learning profile	academic		Assessment form	credit			
Conducting unit	Laboratory of Physicochemistry of Coordination Complexes -> Department of General and Inorganic Chemistry -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor	dr Aleksandra Tesmar					
	Teachers						

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	45.0	0.0	0.0	45
	E-learning hours included: 0.0						

Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
	Number of study hours	45	8.0	22.0	75

Subject objectives	
	learning the principles of synthesis of inorganic and complex compounds presentation of basic methods for determining the purity of chemical preparations learning basic, modern and advanced methods of examining the structure and physico-chemical properties of inorganic and coordination compounds presentation of the most important contemporary issues in inorganic chemistry that constitute progress in this field developing the ability to independently experiment and interpret the obtained results and solve problems when conducting chemical experiments

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[CHEML3_K03] Establishes priorities in the right way for the implementation of tasks specified by herself/himself and/or by others.	The student is ready to critically evaluate his knowledge and received content recognizing the importance of knowledge in solving cognitive problems and practical, and seeking expert opinion in case of difficulties with solving the problem yourself.	[SK8] observation of student's independent or team work
	[CHEML3_W10] Enumerates and describes the basic aspects of the construction, operation and use of measuring apparatus and equipment used in experimental works in the field of chemistry and related sciences.	- Student: lists and describes methods of analysis and/or methods of computer theoretical calculations used during the implementation of a research project. Distinguishes and characterizes individual experimental/IT techniques used during the implementation of a research project. Identifies scientific and research equipment used during the implementation of a research project and explains the principles of their use. principles of their operation.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW3] text preparation/written work
	[CHEML3_W05] Has basic knowledge of the chemical specialisation studied.	- The student is able to discuss specialized topics both in Polish and English, correctly arguing his or her conclusions in the field of chemistry at an advanced level in the research topic in which he or she is involved. - The student knows how to correctly interpret and analyze related information related to basic chemical laws and issues.	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report [SW3] text preparation/written work
	[CHEML3_W12] Characterises the basic principles of health and safety at work in a chemical laboratory; knows and describes the hazards associated with working with hazardous substances, ways to counteract these hazards and rules of conduct during an accident.	- The student understands the need to exercise due caution when using laboratory equipment and working with chemical reagents; - The student knows the applicable regulations and guidelines regarding occupational health and safety in his field. He is aware of how to prevent accidents and knows the appropriate equipment for his workstation.	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
	[CHEML3_U04] Plans and performs simple chemical experiments and analyses the results obtained.	The student is able to use the acquired knowledge - formulate and solve problems related to planning and performing chemical experiments and analyze the obtained results.	[SU1] oral statement/conversation/ discussion [SU5] implementation of a problem task [SU8] observation of student's independent or team work
	[CHEML3_U03] Selects the appropriate equipment and laboratory apparatus for conducting uncomplicated chemical experiments.	The student is able to plan and organize individual and team work cooperate with other people as part of team work (also of a nature interdisciplinary).	[SU1] oral statement/conversation/ discussion [SU5] implementation of a problem task [SU8] observation of student's independent or team work
	[CHEML3_W03] Explains the relationship between the structure of matter and its observed properties.	The student is able to use the acquired knowledge - formulate and solve problems related to the relationships between the structure and properties of chemical compounds.	[SW4] test/exam - oral or written [SW3] text preparation/written work
	[CHEML3_K05] Observes established procedures in laboratory work and is responsible for the safety of her/his and others' work.	The student is ready to perform responsible professional roles, including: • compliance with the principles of professional ethics and demanding the same from others, • care for the achievements and traditions of the profession.	[SK8] observation of student's independent or team work
Subject contents	Laboratory techniques used in the preparation of inorganic compounds and complex compounds; quantitative and qualitative analysis of the obtained chemical preparations; testing the physicochemical properties of the obtained inorganic and coordination compounds using various instrumental techniques widely used in various industries and in-house quality control laboratories.		
Prerequisites and co-requisites	completed inorganic chemistry course		

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Preparation of reports from exercises</td><td>100.0%</td><td>50.0%</td></tr>
<tr><td>Preparation of laboratory preparations</td><td>100.0%</td><td>50.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>Kleinberg, J.; Argersinger, W J; Grisworld E. Inorganic Chemistry.; D. C. Heath and Company: Boston, MA, 1960; Chapter 6.

Martell, Arthur E. Chemistry of the metal chelate compounds.; Prentice-Hall inc: New York, NY, 1952.</td></tr>
<tr><td>Supplementary literature</td><td>L. Jones, P. Atkins General chemistry</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">Synthesis and chemical analysis of tin(IV) iodide, Determination of the molar absorption coefficient of tetraaminecopper(II) sulfate(VI)</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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