

Subject card

Subject name and code	Fundamentals of Chemistry - lecture, PG_00132592						
Field of study	Criminology						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
Education level	postgraduate studies		Subject group		Optional subject group		
Mode of study	part-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish		
Semester of study	1		ECTS credits		2.0		
Learning profile	academic		Assessment form				
Conducting unit	Katedra Chemii Bionieorganicznej -> Faculty of Chemistry -> Rektor						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Agnieszka Chylewska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	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	15		0.0		35.0	50
Subject objectives	getting acquainted with the basic chemical laws and concepts used in forensic research methods						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[KRYMMU2_KK01] Is aware of the level of his knowledge and skills, and understands the need for lifelong learning	1. It can assess the level of their knowledge in chemistry and its applications in forensic science, and identify areas requiring further improvement, which motivates them to continuously deepen their knowledge. 2. Understands the dynamic development of chemical methods used in forensic analysis and recognizes the need to continuously monitor scientific progress and changes in legal regulations concerning chemical examinations. 3. Demonstrates readiness for independent expansion of knowledge in chemistry and its applications in forensic science by utilizing scientific literature, research, and modern analytical technologies.	[SK4] test/exam - oral or written
	[KRYMMU2_WG03] Has an enhanced knowledge of the subject matter of the regulation of individual branches of law related to the studied major	1. Has an advanced knowledge of legal regulations concerning chemical substances, their trade, and their application in forensic science, with particular emphasis on regulations regarding hazardous materials, drugs, and controlled substances. 2. It is familiar with the basic legal regulations related to the use of chemical methods in forensic analysis and their significance in evidentiary proceedings, including the legal aspects of trace identification and preservation. 3. Understands the importance of legal regulations concerning chemical examinations in the context of forensic expertise and knows the changes and development of regulations related to modern chemical analysis methods used in forensic science.	[SW4] test/exam - oral or written
	[KRYMMU2_WG01] Has an in-depth knowledge of the nature of legal and related penal sciences, their place in the system of sciences and their interrelationships	1. Understand fundamental chemical laws and concepts and their application in penal sciences, particularly in forensic and evidentiary analysis. 2. Possesses in-depth knowledge of the classification and characteristics of chemical substances and their use in research methods applied in forensic science, including trace analysis and the identification of substances related to criminal activities. 3. Is familiar with quantitative chemical analysis methods used in forensic investigations, including calculating chemical compositions as potential crime traces and developing analytical techniques in this field.	[SW4] test/exam - oral or written
Subject contents	Basic chemical laws and concepts; general classification and characterization of chemical substances along with their applications in research methods; the use of quantitative composition calculations of compounds as crime traces; general outline and classification of research methods with particular emphasis on physical phenomena and laws applied in equipment used for forensic analysis; examples of chemical applications and reactions in forensic analysis; microtrace analysis based on basic inorganic compounds; and the development of chemical research methods in forensic science over the past decade.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Exam	51.0%	100.0%

Recommended reading	Basic literature	Wykaz literatury A. Literatura wymagana do ostatecznego zaliczenia zajęć (zdania egzaminu): A.1. wykorzystywana podczas zajęć: Hanausek T. (2000) Kryminalistyka. Zarys wykładu. Zakamycze. Kraków. Bader H. J., Rothweil M., Maciejowska I., Wietecha-Postuszny R. (2008) Chemia sądowa. Chemia w szkole, 5/2008: 14-21. De Wael K., Lepot L., Gason F., Gilbert B. (2008) In search of blood Detection of minute particles using spectroscopic methods. Forensic Science International, 180: 37-42. Wood M., Laloup M., Samyn N., Morris M. R., De Bruijn E. A., Maes R. A., Young M. S., Maes V., De Boeck G. (2004) Simultaneous analysis of gammahydroxybutyric acid and its precursors in urine using liquid chromatographytandem mass spectrometry. Journal of Chromatography A, 1056: 83-90. Ruffell A., McKinley J. (2005) Forensic geoscience: applications of geology, geomorphology and geophysics to criminal investigations. Earth- Science Reviews, 69: 235-247. Kaplan I.R., Galperin Y., Lu S.T. & Lee R.P. (1997) Forensic Environmental Geochemistry: differentiation of fuel types, their sources and release time. Organic Geochemistry, 27: 289-317. A.2. studiowana samodzielnie przez studenta Kulicki M. (1994) Kryminalistyka. Wydawnictwo UMW. Toruń. Migaszewski Z. M., Gałuszka A. (2006) Geologiczny dowód zbrodni - geologia sądowa w postępowaniu karnym, Przegląd Geologiczny, 54: 484- 487. Sołtyszewski I., Polak P. (2007) Badania kryminalistyczne. Wyd. UMW. Olsztyn. Wójcikiewicz J. (2002) Ekspertyza sądowa, Zakamycze. Kraków.
	Supplementary literature	B. Literatura uzupełniająca Gałuszka A., Zelek M. (2008) Geolog detektywem? Mente et malleo w kryminalistyce. Materiały z konferencji II Dni Kryminalistyki Wydziału Prawa Uniwersytetu Rzeszowskiego. Migaszewski Z. M., Gałuszka A. (2007) Podstawy geochemii środowiska. WNT. Warszawa. Pikulski S. (1997). Podstawowe zagadnienia taktyki kryminalistycznej. Wyd. TEMIDA 2. Białystok
	eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	
Work placement	Not applicable

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