University of Gdańsk

Subject card

Subject name and code	Physical methods of investigating traces of crimes - lecture, PG_00132642						
Field of study	Criminology						
Date of commencement of studies	October 2026		Academic year of realisation of subject	2027/2028			
Education level	Master's studies		Subject group	Optional subject group			
Mode of study	part-time studies		Mode of delivery	at the university			
Year of study	2		Language of instruction	Polish			
Semester of study	3		ECTS credits	3.0			
Learning profile	academic		Assessment form	exam			
Conducting unit	Faculty of Law and Administration -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Aneta Lewkowicz					
	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	60.0	75	
Subject objectives	Presentation of common methods of forensic trace investigation. Presentation of methods of revealing, preserving, quantitative and qualitative analysis of forensic traces at the crime scene and in the forensic laboratory. Studying how to interpret the results obtained and how to draw conclusions from them in terms of their usefulness in ordering forensic expertise as well as when analysing the results of the conclusions contained therein. To prepare students to make much wider use of modern achievements and applications of physics and related sciences in legal forensic procedures.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[KRYMMU2_WG02] Has an in-depth knowledge of the nature of natural sciences related to the studied major, their place in the system of sciences and their mutual relations	The student is able to use theoretical knowledge in the field of criminology and related scientific disciplines (in particular physics, chemistry and biology) to analyse and interpret problems related to the identification, examination and evaluation of forensic evidence using physical and physicochemical methods in forensic laboratories and at crime scenes.	[SW4] test/exam - oral or written [SW5] implementation of a problem task
[KRYMMU2_K05] Is able to independently and critically complement knowledge and skills, extended by the interdisciplinary dimension	The student is able to independently and critically supplement their knowledge and improve their skills in the field of physical and physicochemical methods used for forensic analysis, taking into account interdisciplinary links with natural and legal sciences.	[SK1] oral statement/conversation/ discussion
[KRYMMU2_WG05] Has an in-depth knowledge of methods and tools, including data and information extraction techniques, specific to criminology and forensic science	The student has the ability to independently propose solutions to specific problems related to the analysis of forensic evidence and the evaluation of evidence. They are able to carry out the procedure of identification, preservation and interpretation of evidence at the scene of the incident and provide a proposal for a forensic expert opinion, as well as formulate precise and substantive questions to the procedural authority, taking into account the applicable methodological standards and legal regulations.	[SW4] test/exam - oral or written [SW5] implementation of a problem task

Subject contents

1 Physics in Criminalistics.2. forensic expert.3. Forensic Expertise.4. Analysis of evidence by molecular spectroscopy and optical and electron microscopy research methods:UV/VIS spectrophotometrySpectrofluorimetryRaman spectroscopyScanning electron microscopyExploring stereo microscope with fluorescenceStereoscopic microscopeApparatus dedicated to the analysis of, inter alia, metallic gunshot residues (GSR), document surface, covering material, glass, fibres, drugs...

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
oral exam/written exam	51.0%	100.0%

Recommended reading	Basic literature	Literatura wykorzystywana podczas zajęć: 1. D. Halliday, R. Resnick, J. Walker, "Podstawy Fizyki", Wydawnictwo Naukowe PWN, Warszawa 2008; 2. P.W. Atkins, Chemia fizyczna, Wydawnictwo Naukowe PWN, Warszawa 2007; 3. M. Kulicki, V. Kwiatkowska - Wójcikiewicz, L. Stępka - Kryminalistyka. Wybrane zagadnienia teorii praktyki śledczo - sądowej", Wydawnictwo Uniwersytetu Mikołaja Kopernika, 2009; 4. J. Widacki - Kryminalistyka" , Wydawnictwo C.H. Beck, 2012; 5. W. Szczepaniak - Metody instrumentalne w analizie chemicznej", PWN, Warszawa 1994; 6. J. Zięba - Palus - Ekspertyza fizykochemiczna. Eksperyza sądowa, Zagadnienia wybrane" pod redakcją J. Wójcikiewicza,Wolters Kluwer, Warszawa 2007; 7. A. Filewicz, W. Krawczyk, A. Musiał - Ślady fizykochemiczne. Ślady kryminalistyczne. Ujawnianie , zabezpieczenie, wykorzystanie" pod redakcją M. Goca i J. Moszczyńskiego , Diffin, Warszawa 2007 8. Ekspertyza Sądowa, pod red. Józefa Wójcikiewicza, Kantor Wydawniczy Zakamycze, 2022.
	Supplementary literature	A. Barbacki - Mikroskopia elektronowa", Wydawnictwo Politechniki Poznańskiej, Poznań 2007; J. Sadlej - "Spektroskopia molekularna" , Wydawnictwo Naukowo - Techniczne, Warszawa 2002;
	eResources addresses	
Example issues/ example questions/ tasks being completed	The common physical and chemical methods used in forensic laboratory.Discuss various types of forensic expertise.	
Work placement	Not applicable	

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