

Subject card

Subject name and code	Physical methods of investigating traces of crimes - lecture, PG_00132818						
Field of study	Criminology						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2026/2027		
Education level	Master's studies		Subject group		Optional subject group		
Mode of study	full-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	30.0	0.0	0.0	0.0	0.0	30
	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	30		0.0		45.0	75
Subject objectives	Presentation of common methods of forensic examination. Presentation of methods of disclosure, securing, quantitative and qualitative analysis of forensic evidence at the scene of the crime and in the forensic laboratory. Learning how to interpret the results obtained and draw conclusions from them in terms of their usefulness in commissioning forensic expertise and in analysing the conclusions contained therein. Preparing students for a much broader use of contemporary 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 [SW1] oral statement/conversation/discussion [SW3] text preparation/written work [SW5] implementation of a problem task
	[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, securing and interpretation of evidence at the scene of the incident, provide a proposal for a forensic expert opinion, and formulate precise and substantive questions to the trial authority, taking into account the applicable methodological standards and legal regulations.	[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion
	[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 sciences.	[SK1] oral statement/conversation/discussion [SK5] implementation of a problem task [SK8] observation of student's independent or team work
Subject contents	1. Physics in Forensic Science. 2. Forensic expert. 3. Forensic expertise. 4. Analysis of evidence using research methods in the field of molecular spectroscopy and optical and electron microscopy: UV/VIS spectrophotometry Spectrofluorimetry Raman spectroscopy Scanning electron microscope Stereoscopic research microscope with fluorescence Stereoscopic microscope Equipment dedicated to the analysis of, among others, gunshot residue (GSR), document substrates, covering materials, 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	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. Stępa - 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. Ekspertyza 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	Common physical-chemical methods used in forensic laboratories. Discussion of various types of forensic expertise.	
Work placement	Not applicable	

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