

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 2024	Academic year of realisation of subject			2025/2026		
Education level	postgraduate 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 Use of innovative teaching methods e.g. Jigsaw method, fishbowl technique, gamification.		
Semester of study	3	ECTS credits			3.0		
Learning profile	academic	Assessment form					
Conducting unit	Faculty of Law and Administration -> Rektor						
Name and surname of lecturer (lecturers)	Subject supervisor		dr 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 trace examination. Presentation of methods of revealing, securing, quantitative and qualitative analysis of forensic traces at the crime scene and in the forensic laboratory. Learning how to interpret the results obtained and how to draw conclusions from them in terms of their usefulness in commissioning forensic expertise as well as in analysing the results of the conclusions therein. To prepare students for a much wider use of contemporary developments and applications of physics and related sciences in legal forensic procedures.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[KRYMMU2_UK02] He/she is prepared for active participation in groups, organizations and institutions connected with the problem of crime and other related phenomena. He/she is also able to communicate with specialists and non-specialists in criminology	The student is able to actively communicate about the physical methods used to produce forensic reports with forensic and non-forensic professionals.	[SK1] oral statement/conversation/discussion
	[KRYMMU2_KK01] The graduate is aware of the level of his/her knowledge and skills, and also understands the need of lifelong learning	The student knows the limitations of his/her own knowledge in physics and understands the need for further education and skills training;	[SK1] oral statement/conversation/discussion
	[KRYMMU2_UW06] He/she is able to propose solutions of concrete problems and carry out procedures connected with solutions in this respect	The student is able to match a specific research method to the evidence in question and to draw up expert opinion orders.	[SU1] oral statement/conversation/discussion [SU2] presentation/project/paper/report
	[KRYMMU2_UW02] He/she acquires knowledge independently and develops his/her professional skills using various sources (in native and foreign language) and modern technologies	The student is able to acquire knowledge independently using various sources, e.g. international journals.	[SU1] oral statement/conversation/discussion [SU2] presentation/project/paper/report [SU4] test/exam - oral or written
	[KRYMMU2_KR05] The graduate is ready to prepare and participate in the preparation of social projects taking into consideration legal, economic and political aspects, including the preparation and implementation of projects co-financed by the European Union's funds	The student is ready to participate in the preparation of community projects, considering aspects of the application of physical methods in forensic science.	[SK1] oral statement/conversation/discussion
	[KRYMMU2_UU03] The graduate demonstrates deepened skills of observing, diagnosing, sensible assessing of complex psychological situations and analyzing motives and patterns of human behaviours	The student is skilled in analysing patterns of human behaviour.	[SU1] oral statement/conversation/discussion
	[KRYMMU2_WG02] He/she demonstrates deepened knowledge about the character of natural sciences connected with the field of stud, their place in the system of sciences and mutual relations	The student has knowledge of the basic physical laws and phenomena used in forensic science.	[SW4] test/exam - oral or written [SW5] implementation of a problem task
	[KRYMMU2_UW04] He/she can apply legal and professional principles and norms in taking up the activity of criminologist	He or she is familiar with the legal rules and standards for the exercise of forensic physicochemical expertise as well as with the rights and duties of an expert witness.	[SU1] oral statement/conversation/discussion [SU2] presentation/project/paper/report
	[KRYMMU2_KR08] He/ she is aware of the level of own knowledge and skills, and understands the need for lifelong learning	The student knows the limitations of his/her own knowledge in physics and understands the need for further education and skills training;	[SK1] oral statement/conversation/discussion
	[KRYMMU2_UW07] He/she has skills in understanding and analyzing social phenomena and utilizing the analysis in professional work	Knows the applicable forensic procedures for commonly used techniques and methods of revealing forensic traces at a crime scene and understands the complexity of the matter, the environment that significantly affects the process of revealing, visualising a forensic trace.	[SU1] oral statement/conversation/discussion [SU2] presentation/project/paper/report

Subject contents	<p>1 Physics in Forensic Science.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: metallic gunshot residues (GSR), document substrates, covering material, glass, fibres, drugs...</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Oral examination	51.0%	100.0%
Recommended reading	Basic literature	<p>1. D. Halliday, R. Resnick, J. Walker, "Podstawy Fizyki", Wydawnictwo Naukowe PWN, Warszawa 2008;</p> <p>2. P.W. Atkins, Chemia fizyczna, Wydawnictwo Naukowe PWN, Warszawa 2007;</p> <p>3. M. Kulicki, V. Kwiatkowska - Wójcikiewicz, L. Stępa - Kryminalistyka. Wybrane zagadnienia teorii praktyki śledczo - sądowej", Wydawnictwo Uniwersytetu Mikołaja Kopernika, 2009;</p> <p>4. J. Widacki - Kryminalistyka" , Wydawnictwo C.H. Beck, 2012;</p> <p>5. W. Szczepaniak - Metody instrumentalne w analizie chemicznej", PWN, Warszawa 1994;</p> <p>6. J. Zięba - Palus - Ekspertyza fizykochemiczna. Ekspertyza sądowa, Zagadnienia wybrane" pod redakcją J. Wójcikiewicza,Wolters Kluwer, Warszawa 2007;</p> <p>7. A. Filewicz, W. Krawczyk, A. Musiał - Ślady fizykochemiczne. Ślady kryminalistyczne. Ujawnianie , zabezpieczenie, wykorzystanie" pod redakcją M. Goca i J. Moszczyńskiego , Diffin, Warszawa 2007</p> <p>8. Ekspertyza Sądowa, pod red. Józefa Wójcikiewicza, Kantor Wydawniczy Zakamycze, 2022.</p>	
	Supplementary literature	<p>A. Barbacki - Mikroskopia elektronowa", Wydawnictwo Politechniki Poznańskiej, Poznań 2007;</p> <p>J. Sadlej - "Spektroskopia molekularna" , Wydawnictwo Naukowo - Techniczne, Warszawa 2002;</p>	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	Commonly used physical and chemical methods in forensic laboratories.Discussion of different types of forensic expertise.		
Work placement	Not applicable		

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