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 2024		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	2		Language of instruction	Polish Apply innovative didactic 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	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_UW02] He/she acquires knowledge independently and develops his/her professional skills using various sources (in native and foreign language) and modern technologies	Students will be able to acquire independently knowledge and develop it, using a variety of sources, e.g. literature of international	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[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
[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	Takes into account legal, forensic aspects and physical methods in forensic science when preparing external projects.	[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_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	Develops communication on the use of physical methods in forensic science with forensic and non-forensic professionals.	[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	Ability to analyse 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	-Student has knowledge of 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	The student is familiar with the legal principles and norms of forensic physicochemical examination as well as with the rights and duties of expert forensic expert.	[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	1.The student knows the limitations of own knowledge in physics and understands the need for further education and skills training;	[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	Students are aware of their knowledge and skills and understand the need for lifelong learning	[SK1] oral statement/conversation/ discussion

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	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	Adresy na platformie eNauczanie:

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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