University of Gdańsk

Subject card

Subject name and code	Physical methods of investigating traces of crimes - laboratory classes, PG_00132813						
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			
Semester of study	3		ECTS credits	2.0			
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	0.0	0.0	30.0	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	20.0	50	
Subject objectives	Presentation of common forensic trace examination methods. Presentation of the whole range of scientific methods for the detection of criminal offences serving as scientific evidence in areas of forensic identification such as: dactyloscopy, chemical ballistics, handwriting and document examination, micro-trace examination, DNA analysis. Learning to interpret the results obtained and to draw conclusions from them in terms of their usefulness in commissioning forensic expertise and in analysing the results of the conclusions therein. Preparing future judges, prosecutors, police services 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 use knowledge databases and repositories nationally and internationally , as well as independently search supplementary literature in national and international journals.	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written [SU8] observation of student's independent or team work
	[KRYMMU2_UW04] He/she can apply legal and professional principles and norms in taking up the activity of criminologist	The student is able to use the learned legal and professional norms during professional work related to the competence of the Criminologist.	[SU1] oral statement/conversation/ discussion [SU8] observation of student's independent or team work
	[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	- principles of sample preparation for analytical measurements by modern testing methods. - apparatus systems used in modern scientific laboratories for forensic science. - the wide range of possibilities of modern research techniques used in forensic science. - links between research techniques in physics and research techniques in related sciences. - current developments in experimental techniques in physics with a view to their usefulness in forensic science.	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report [SW5] implementation of a problem task
	[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	Is ready to prepare projects addressing aspects of forensic science and the application of physical methods in forensic science.	[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	1.The student knows the limitations of his/her own knowledge due to deficiencies in physics , its achievements and applications; 2.Student understands the need for further education and skills training; 3.Student associates the achievements and development of forensic science with the use in it of scientific analysis of crime evidence. 4.Student is aware of the helpful role of physical and chemical analysis of traces in identification of criminals. 5.The student will consciously use the scientific analysis of crime evidence in future professional work.	[SK1] oral statement/conversation/ discussion [SK3] text preparation/written work [SK4] test/exam - oral or written
	[KRYMMU2_KR08] He/ she is aware of the level of own knowledge and skills, and understands the need for lifelong learning	The student has the ability to use additional scientific sources, e.g. international scientific journals.	[SK1] oral statement/conversation/ discussion [SK8] observation of student's independent or team work
	[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 a given type of evidence. - match a specific research method to a specific required (e.g. in an expert's commission). - distinguish between forensic evidence in the form of results obtained from different physical-chemical testing methods, make a selection of these and order additions.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU8] observation of student's independent or team work

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 has the ability to participate in active scientific groups (e.g. Polish Forensic Society) and scientific seminars in Forensic Science of national and international scope.	[SK1] oral statement/conversation/ discussion
[KRYMMU2_UW07] He/she has skills in understanding and analyzing social phenomena and utilizing the analysis in professional work	The student has the ability to analyse social phenomena and uses it in work.	[SU1] 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 the motives and patterns of human behaviour.	[SU1] oral statement/conversation/ discussion

Subject contents

Analysis of evidence by molecular spectroscopy and optical and electron microscopy research methods:UV/ VIS spectrophotometrySpectrofluorimetryRaman spectroscopyScanning electron microscopyStereo microscope with fluorescenceStereoscopic microscopeThe apparatus is dedicated to the analysis of, among other things, gunshot residues (GSR), document, glass, fibres, drugs...

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
report/forensic report	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 .A. Barbacki - Mikroskopia elektronowa", Wydawnictwo Politechniki Poznańskiej, Poznań 2007;
4.J. Sadlej - Spektroskopia molekularna" , Wydawnictwo Naukowo - Techniczne, Warszawa 2002;
5. Józef Wójcikiewicz (redakcja), Ekspertyza Sądowa, Kantor Wydawniczy ZAKAMYCZE 2002.

Supplementary literature

1. M. Kulicki, V. Kwiatkowska - Wójcikiewicz, L. Stępka - Kryminalistyka. Wybrane zagadnienia teorii praktyki śledczo - są- dowej", Wydawnictwo Uniwersytetu Mikołaja Kopernika, 2009;

2. J. Widacki - Kryminalistyka" , Wydawnictwo C.H. Beck, 2012;
3. W. Szczepaniak - Metody instrumentalne w analizie chemicznej", PWN, Warszawa 1994;

4. J. Zięba - Palus - Ekspertyza fizykochemiczna. Eksperyza sądowa, Zagadnienia wybrane" pod redakcją J. Wójcikiewicza,Wolters Kluwer, Warszawa 2007;

eResources addresses

Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed

Presentation of test methods and test procedures for the analysis of evidence, e.g. in the form of sent aluminium plates with carbon adhesives on the surface of which there are micro traces. Giving an opinion on the question sent by the trial authority: Does the submitted evidence contain gunshot residues?

Work placement

Not applicable

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