

Subject card

Subject name and code	Spectroscopy in Forensics, PG_00188308						
Field of study	Spektroskopia w analizie kryminalistycznej (Wykład)						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2027/2028		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study Subject group related to scientific research in the field of study		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	4		ECTS credits		1.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Laboratory of Biological Inorganic Chemistry -> Department of General and Inorganic Chemistry -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Krzysztof Żamojć				
	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		2.0		8.0	25
Subject objectives	To impart knowledge in the field of spectroscopy. To familiarize students with basic and more advanced spectroscopic methods used in forensic analysis. To develop the ability to select appropriate evidence for specific spectroscopic analyses and to apply appropriate spectroscopic methods to specific forensic and toxicological analyses.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[AKRL3_K07] The graduate is ready to fulfil social obligations and initiate actions in the public interest.	The student understands the need to learn and inspires others to learn. Collaborates in a group, assuming various roles, demonstrates creativity in determining the priorities necessary to complete various tasks, and understands the social aspects of practical application of knowledge and skills and the associated responsibility.	[SK4] test/egzamin - ustny lub pisemny
	[AKRL3_W09] The graduate knows and understands the principles of documentation, securing, and interpreting evidence material, as well as the use of microscopic and spectroscopic methods.	The student understands the history and development of spectroscopic methods for identifying and analyzing the structure of chemical compounds. The student understands the construction and operating principles of UV-VIS spectrophotometers, spectrofluorometers, and IR, NMR, and MS spectrometers. The student can select appropriate spectroscopic methods for specific forensic and toxicological analyses. The student understands the appropriate evidence for specific forensic and toxicological analyses.	[SW4] test/egzamin - ustny lub pisemny
Subject contents	1. History and development of spectroscopic methods; basics of spectroscopy. 2. Theoretical and practical aspects of UV-Vis spectrophotometry. 3. Theoretical and practical aspects of fluorescence spectroscopy. 4. Theoretical and practical aspects of infrared and Raman spectroscopy. 5. Theoretical and practical aspects of nuclear magnetic resonance spectroscopy. 6. Spectroscopic analysis of volatile compounds, poisons, narcotics, medications, doping agents, cosmetics, and household chemicals.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Written test	51.0%	100.0%
Recommended reading	Basic literature	R.M. Silverstein, F.X. Webster, D.J. Kiemle, "Spektroskopowe metody identyfikacji związków organicznych"	
		W. Zieliński, "Metody spektroskopowe i ich zastosowanie do identyfikacji związków organicznych"	
	Supplementary literature	Z. Kęcki, "Podstawy spektroskopii molekularnej"	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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