

Subject card

Subject name and code	Structural analysis of marine natural products - laboratory classes, PG_00192705						
Field of study	Marine Biotechnology						
Date of commencement of studies	October 2026	Academic year of realisation of subject			2027/2028		
Education level	Master'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			English		
Semester of study	3	ECTS credits			1.0		
Learning profile	academic	Assessment form			credit		
Conducting unit	Zespół Laboratoriów Dydaktycznych MWB UG i GUMed -> Intercollegiate Faculty of Biotechnology UG-MUG -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Wioletta Żmudzińska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	15.0	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		1.0		9.0	25
Subject objectives	<p>The aim of the laboratory/practical training classes is to:</p> <ul style="list-style-type: none"> gain practical skills to plan and conduct the structural analysis of natural marine products using UV, IR, MS and NMR spectroscopy, document activities and research results gain the ability to analyze data obtained from UV, IR, MS or NMR spectroscopy, formulate a conclusion based on the obtained / available spectra 						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[MBMU2-KU01] Can plan and conduct research in the laboratory and at sea, and to document procedures and results. Independently or under the supervision of an authorized staff member, carries out work using specialized equipment. Complies with occupational health and safety regulations.	The student is able to plan and conduct structural analysis of natural marine products using UV, IR, MS and NMR spectroscopy.	[SU1] oral statement/conversation/discussion [SU5] implementation of a problem task [SU8] observation of student's independent or team work
	[MBMU2-KK01] Is ready to critically evaluate his knowledge and continuously improve, update and upgrade his skills in the field of marine biotechnology	The student is able to analyze data obtained from UV, IR, MS and NMR spectroscopy and formulate a conclusion based on the obtained spectra.	[SK1] oral statement/conversation/discussion [SK5] implementation of a problem task [SK8] observation of student's independent or team work
	[MBMU2-KU02] Can collect and interpret empirical data; applies statistical methods and computer tools in data analysis; formulates conclusions based on empirical data	The student is able to plan and conduct structural analysis of natural marine products using UV, IR, MS and NMR spectroscopy.	[SU1] oral statement/conversation/discussion [SU5] implementation of a problem task [SU8] observation of student's independent or team work
Subject contents	Division of spectroscopic methods (emission and absorption methods); general principles of absorption spectroscopy, the nature and basic instrumentation in UV, IR, MS and NMR spectroscopy, the principle of signal formation, spectra analysis and structure determination of marine natural compound from: UV spectroscopy IR spectroscopy MS spectrometry NMR spectroscopy Problems solving: spectroscopic analysis and identification of marine natural compounds.		
Prerequisites and co-requisites	Basic knowledge on organic chemistry		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		51.0%	100.0%
Recommended reading	Basic literature	L.D. Field, S. Sternhell, J. R. Kalman, "Organic Structures from Spectra" WILEY R.M. Silverstein, F.X. Webster, D.J. Kiemle, "Spectrometric Identification of Organic Compounds" WILEY J.McMurry "Organic Chemistry" Zielinski W., Rajca A., Metody spektroskopowe i ich zastosowanie do identyfikacji związków organicznych, WNT	
	Supplementary literature	Literature studied independently by the student (scientific articles recently published in specialist journals and other materials provided by the teacher during classes)	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		