University of Gdańsk

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

The aim of the laboratory/practical training classes is to:

- 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-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
[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-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

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