University of Gdańsk

Subject card

Subject name and code	Structural analysis of marine natural products - lecture, PG_00099381		
Field of study	Marine Biotechnology		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2026/2027
Education level	Master's studies	Subject group	Obligatory subject group 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	2.0
Learning profile	academic	Assessment form	exam
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	dr Wioletta Żmudzińska	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	20.0	0.0	0.0	0.0	0.0	20

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	20	5.0	15.0	40

Subject objectives

The aim of the course is to gain knowledge of advanced research methods allowing for the structural analysis of natural marine products (MS UV, IR, and NMR spectroscopy)

Learning outcomes

Course outcome	Subject outcome	Method of verification
[MBMU2-KW04] Knows and deeply understands advanced research methods used in marine biotechnology and related sciences	The student knows research methods enabling the structural analysis of natural marine products (UV, IR, MS and NMR spectroscopy)	[SW4] test/exam - oral or written

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 spectrometryy

NMR spectroscopy

Problems solving: spectroscopic analysis and identification of marine natural compounds.

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">Basic knowledge on organic chemistry</td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>written exam</td><td>51.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">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</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">studied independently by the student (scientific papers published recently in specialized journals and other materials provided by the teacher during the classes)</td></tr>
<tr><td>eResources addresses</td><td colspan="2"></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3"></td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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