University of Gdańsk

Subject card

Subject name and code	Marine Pharmacology - laboratory classes, PG_00192674						
Field of study	Marine Biotechnology						
Date of commencement of studies	October 2026		Academic year of realisation of subject	2026/2027			
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	1		Language of instruction	English			
Semester of study	2		ECTS credits	4.0			
Learning profile	academic		Assessment form	credit			
Conducting unit	Laboratory of Marine Biotechnology -> Department of Marine Biology and Biotechnology -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. Hanna Mazur-Marzec				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	55.0	0.0	0.0	55
	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	55		5.0	40.0	100	
Subject objectives	Familiarizing with main methods used for activity and drugability assessment of drug candidates; Acquisition by students understanding of threats and ethical dilemmas related to in vivo assays						

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 will be able to design and safely perform basic bioassays evaluating marine bioproducts as potential drugs and perform experiments with model organisms and microorganisms.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[MBMU2-KK04] Is ready to assess and understand the risks and dilemmas, including ethical dilemmas associated with conducting scientific research and introduction of advanced technologies; understands and appreciates the importance of intellectual property; acts ethically	The students can evaluate the ethical dilema related to clinical trials.	[SK1] oral statement/conversation/ discussion [SK2] presentation/project/paper/ report
[MBMU2-KW04] Knows and deeply understands advanced research methods used in marine biotechnology and related sciences	The student will understand and will be able to describe the principles of advanced methods used to evaluate pharmaceutical potential of marine natural products, including toxicity, enzymatic, stability and activity assays, mammalian cell cultures, organoid cultures, nematode C. elegans, animal models.	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report

Subject contents

Familiarizing with main methods used for biological activity assessment and the assessment of pharmaceutical potential of marine natural products.

Prerequisites and co-requisites

Knowledge about cell structure and functioning. Basic knowledge about marine natural products.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
tests	51.0%	40.0%
activity during laboratories	51.0%	30.0%
reports	51.0%	30.0%

Recommended reading

Basic literature	Schumacher Alexander, Hinder Markus, Gassmann Oliver, 2016. Value Creation in the Pharmaceutical Industry: The Critical Path to Innovation, Wiley-VCH, ISBN-10: 3527339132; ISBN-13: Tozer N. Thomas, Rowland Malcolm, 2006. Introduction to Pharmacokinetics and Pharmacodynamics: The quantitative basis of drug therapy. Lippincott Williams & Wilkins; ISBN-13 : 978-0781751490
Supplementary literature	Marine Pharmacology https://www.marinepharmacology.org/
eResources addresses	

Example issues/ example questions/ tasks being completed

In vitro assessment of cytotoxic activity, enzymatic assays, antimicrobial activity, quorum quenching, assessment of drug stability under physiological conditions, selected ADME assays, effect on cytochrome P450 enzymes, from discovery to commercialization, principles of mammalian cell culture, principles of work with a model organism *C. elegans*, antiviral activity of marine bioproducts

Work placement

Not applicable

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