

**Subject card**

<b>Subject name and code</b>	Non-native Species in the Marine Environment - lecture, PG_00204929						
<b>Field of study</b>	Oceanography						
<b>Date of commencement of studies</b>	October 2026	<b>Academic year of realisation of subject</b>			2027/2028		
<b>Education level</b>	Master's studies	<b>Subject group</b>			Obligatory subject group in the field of study Optional subject group Subject group related to scientific research in the field of study		
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	2	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	3	<b>ECTS credits</b>			1.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>			credit		
<b>Conducting unit</b>	Laboratory of Ecophysiology and Bioenergetics -> Department of Marine Ecology -> Faculty of Oceanography and Geography -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	Subject supervisor		prof. dr hab. Monika Normant-Saremba				
	Teachers						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	15.0	0.0	0.0	0.0	0.0	15
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	<b>Number of study hours</b>	15		1.0		9.0	25
<b>Subject objectives</b>	Raising knowledge about alien species in marine ecosystems, with particular emphasis on their impact on biodiversity and ecosystem services, both on a local and global scale.						
<b>Learning outcomes</b>	<b>Course outcome</b>		<b>Subject outcome</b>		<b>Method of verification</b>		
	[OCEANMU2-W04] has an in-depth understanding of the latest research trends in oceanography, as well as the possibilities for practical application of related achievements; evaluates their usefulness and limitations in solving scientific research problems, and critically analyzes and assesses their applicability		Knows and understands in depth the latest trends in research related to alien species in the marine environment, as well as the possibilities of practical application of scientific achievements in this field.		[SW4] test/exam - oral or written		
	[OCEANMU2-W06] knows and identifies potential threats to the marine environment on a local and global scale resulting from strong anthropopressure, predicts their effects on various time and space scales		Knows and identifies potential threats to the marine environment on a local and global scale resulting from the introduction of alien species, and predicts their effects.		[SW4] test/exam - oral or written		
	[OCEANMU2-W07] knows and understands legal regulations, principles of sustainable development of the marine environment, its protection and management of the marine environment and its resources		Knows and understands the basic legal regulations regarding alien species and methods of dealing with them in order to protect and manage the marine environment and its resources.		[SW4] test/exam - oral or written		

Subject contents	Terminology and legal aspects (national, regional, EU and international regulations); Pathways and vectors of introduction of alien species into the marine environment; Examples of the most invasive alien species in the marine environment; The Baltic Sea as a sea of alien species; Factors determining the success of introduction and the establishment of an alien species outside native range; Effects on biodiversity and related ecosystem services resulting from the introduction of alien species; Management of alien species.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test/ exam	51.0%	100.0%
Recommended reading	Basic literature	<p>Głowaciński Z., Okarma H., Pawłowski J., Solarz W. (ed.), 2011. Gatunki obce w faunie Polski. Instytut Ochrony Przyrody PAN, Kraków.</p> <p>Keller R.P., Lodge D.M., Lewis M.A., Shogren J.F., 2009. Bioeconomics of Invasive Species. Oxford University Press.</p> <p>Leppäkoski E., Gollasch S., Olenin S. (eds), 2002. Invasive Aquatic Species of Europe. Distribution, Impacts and Management. Kluwer Academic Publishers, The Netherlands.</p> <p>Rilov G., Crooks J.A. (eds), 2009. Biological Invasions in Marine Ecosystems. Ecological, Management, and Geographic Perspectives. Springer-Verlag Berlin Heidelberg, ISBN: 978-3-540-79235-2, 641 pp.</p> <p>Ruiz G.M., 2003. Invasive Species : Vectors and Management Strategies. Island Press.</p>	
	Supplementary literature	Lockwood J.L., Hoopes M.F., Marchetti M.P., 2007. Invasion Ecology. 4th Edition. Blackwell Publishing.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Alien species, invasive alien species and naturalized species, primary and secondary introduction, invasion process model, international conventions and guidelines and EU directives, monitoring and early detection, methods of removing alien species from the environment, control and management, alien species in aquaculture and their use by humans, the hundred most invasive species in the world, impact on biodiversity and human economy, alien species in the Baltic Sea and their origin.		
Work placement	Not applicable		

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