University of Gdańsk

Subject card

Subject name and code	Basic Genetics of Marine Organisms - laboratory , PG_00206166		
Field of study	Oceanography		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2028/2029
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study Optional subject group 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	3	Language of instruction	Polish
Semester of study	5	ECTS credits	3.0
Learning profile	academic	Assessment form	credit
Conducting unit	Department of Marine Ecosystems Functioning -> Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Katarzyna Smolarz, prof. UG	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	45.0	0.0	0.0	45

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	45	3.0	27.0	75

Subject objectives

The aim of the course is to discuss the basic issues of modern genetics using examples of marine organisms and to familiarize students with the basic cytogenetic and genetic techniques used in the genetics of marine organisms.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OCEANL3-U03] is able to process, describe, and present results, and draw conclusions	is able to develop, describe and present the results of genetic and cytogenetic tests and formulate conclusions on this basis (program content: B2-B5)	[SU6] demonstration of practical skills
[OCEANL3-U05] is able to use general-purpose and specialized software, as well as mathematical and statistical methods, in data analysis and the presentation of results	is able to use specialized computer software and mathematical and statistical methods to analyze data and describe phenomena and processes occurring in the marine environment at the genetic level (program content: B2-B5)	[SU8] observation of student's independent or team work
[OCEANL3-K01] is willing to plan and implement, individually or as a team, the subsequent stages of the entrusted task, is willing to take responsibility for the results of these works, effectively cooperates in the team and performs various roles in it	is ready to plan and implement, individually or in a team, subsequent stages of the entrusted task, is ready to take responsibility for the results of this work, cooperates effectively in a team and plays various roles in it (program content: B2, B6)	[SK5] implementation of a problem task [SK8] observation of student's independent or team work
[OCEANL3-W03] has an advanced understanding of the relationships between living and non-living components of aquatic environments, and is aware of the complex nature, intricacy, and natural variability of these environments	knows and understands at an advanced level the relationships between living and non-living elements of the aquatic environment in relation to issues related to genetics, is aware of the comprehensive nature of aquatic environments, their complexity and natural variability (program content: (program content: B3)	[SW4] test/exam - oral or written
[OCEANL3-U11] is able to work individually and collaborate in a team, assuming various roles and performing different tasks	is able to work individually and cooperate in laboratory and field groups, performing various functions and performing various tasks, and properly design basic research in the field of the basic genetics of marine organisms, and recognizes the need for a holistic interpretation of their results (program content: B1-B5)	[SU8] observation of student's independent or team work

Subject contents

B1. The exercises include laboratory and auditorium classes devoted to learning the basic analytical and statistical methods used in broadly understood genetic research.B2. Familiarizing the student with the safety rules used in the laboratory and preparing for group work.B3. Analysis of genetic variability of selected marine species based on basic molecular and/or cytogenetic markers.B4. Practical use of the laws of classical genetics in solving tasks related to genetic crosses and gene mapping (genetic distance), methods of testing the reliability of genetic hypotheses and interpretation of the obtained electrophoregrams.B5. Basic statistical and bioinformatic tools used in genetic research.B6. Basic principles of ethics in genetic research, principles of using literature sources and principles of writing reports on the work performed.

Prerequisites and co-requisites

basic knowledge of biology, organic chemistry and statistics

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Assessment of activity and work directly during classes (assessed: group work, activity)	51.0%	15.0%
Report (assessed: comprehensiveness of the topic, substantive correctness, originality)	51.0%	25.0%
Test	51.0%	60.0%

Recommended reading

Basic literature

Charon K.M., Świtoński M., 2006, Genetyka zwierząt, PWN
Freeland R.J., 2008, Ekologia molekularna, PWNA.
Krzanowska H., Łomnicki A., Rafiński J., Szarski H., Szymura J.M., 2002, Zarys mechanizmów ewolucji, PWN
Freeland R.J., 2008, Ekologia molekularna, PWN

	Supplementary literature	1. Beebee T., 2004, An introduction to molecular ecology, Wyd. Oxford University Press 2. Brown T. A., 2001, Genomy, Wyd. PWN, Warszawa 3. Turner P.C., McLennan A.G., Bates A.D., White M.R.H., 2004, Krótkie wykłady: Biologia molekularna, PWN 4. Winter P.C., Hickey G.I., Fletcher H.L., 2006, Krótkie wykłady: Genetyka, PWN
	eResources addresses	
Example issues/ example questions/ tasks being completed	none	
Work placement	Not applicable	

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