University of Gdańsk

Subject card

Subject name and code	Biodiversity and fundamentals of taxonomy, PG_00157842		
Field of study	Bioinformatics		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2025/2026
Education level	Bachelor's studies	Subject group	
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	1	ECTS credits	5.0
Learning profile	academic	Assessment form	exam
Conducting unit	Laboratory of Molecular Evolution and Bioinformatics -> Department of Evolutionary Genetics and Biosystematics -> Faculty of Biology -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. Marek Ziętara	
	Teachers	prof. dr hab. Marek Ziętara dr Aleksandra Naczk dr Natalia Olędrzyńska prof. dr hab. Martin Kukwa dr Agata Jurczak-Kurek dr hab. Mateusz Ciechanowski dr Joanna Dzido	

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	20.0	0.0	30.0	0.0	0.0	50
	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	50	10.0	65.0	125

Subject objectives	The aim of the course is to familiarize students with the diversity of life forms and the principles of their taxonomic classification. As part of the course, students learn about representatives of the most important groups of organisms, with particular emphasis on model species (KW_02). Students will acquire the ability to recognize typical representatives of the discussed groups of organisms and the ability to assign them a taxonomic position (KW_04, KU_05).Students will also acquire the ability to interpret the diversity of organisms in the context of their phylogenetic relationships.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOINL3_U05] Graduate has the ability to use scientific literature, including English-language sources on bioinformatics; has ability to use appropriate databases	The student is able to: 1. Recognize representatives of groups of organisms discussed during classes. 2. Determine the taxonomic position of any representative of the groups of organisms discussed in class. 3. Map the key diagnostic features of the organisms discussed on phylogenetic trees. 4. Can use scientific publications and electronic resources, including databases in English, to determine the taxonomic position of organisms.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU3] text preparation/written work
[BIOINL3_W02] Has the scientific knowledge necessary to understand the basic processes in living organisms.	The student knows: 1. Various forms of life and the principles of their taxonomic classification. 2. The most important model organisms belonging to the groups of organisms discussed in the classes.	[SW4] test/exam - oral or written
[BIOINL3_K04] Is aware of the importance of the principles of safety and ergonomics at work; applies the principles of safety at work; is responsible for the safety of himself and others; is able to act in situations of danger	The student is aware of the importance of safety and ergonomics of work; applies the principles of occupational safety; is responsible for their own safety and the safety of others; can act in emergency situations.	[SK1] oral statement/conversation/ discussion [SK8] observation of student's independent or team work
[BIOINL3_W04] Has knowledge of basic research techniques and tools used in bioinformatics	The student knows: 1. The student distinguishes the principles of taxonomy from the phylogenetic relationship of organisms.	[SW4] test/exam - oral or written

Subject contents

Lecture 20 hours

A review of selected representatives and rules of taxonomic classification (2 hours): viruses (2 hours), archaea (1 hour), bacteria (1 hour), plants (4 hours), invertebrates (4 hours), vertebrates (including humans) (4 hours) and fungi (2 hours). Explanation of the concept of a model organism and an overview of the most important model organisms belonging to the above-mentioned groups of organisms.

Laboratory exercises 30 hours

Getting to know selected representatives of groups of organisms discussed in the lecture on their own - practical knowledge of the principles of their taxonomic classification. Acquiring the ability to determine the taxonomic position of any organism belonging to the group of organisms discussed during the course. Construction of phylogenetic trees illustrating the relatedness of the discussed organisms, taking into account the mapping of key diagnostic features on the phylogenetic tree.

Prerequisites and co-requisites	1. Attendance at classes is obligatory, and in the event of absence, it must be justified in accordance with paragraph 12 of the UG Study Regulations. 2. The condition for passing the lecture is attendance at least 80% of classes, while the condition for passing the classes is participation in at least 85% of classes. 3. The condition for admission to the exam is passing the exercises. In the case of test questions, the student will choose one of the possible answers and briefly justify their choice or synthetically answer open questions. The questions can be illustrated with an appropriate chart, diagram, etc. The exam will test both the student's knowledge and skills. 4. A negative grade in the written exam must be corrected during the resit exam held on the basis of the same rules as the exam on the first date. 5. The skills acquired during the exercises will be verified on an ongoing basis by the lecturers. During the exercises, the facilitator will also check the students' knowledge directly related to the acquired skills (questions, discussion). The teacher will assess the skills and knowledge of each student so that at the end of the exercises each student will have a minimum of 4 grades.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Written exam	51.0%	60.0%
Laboratory - average of partial marks	51.0%	40.0%

Recommended reading

Basic literature	Literatura wymagana do ostatecznego zaliczenia zajęć (zdania egzaminu): • Maćkowiak M. Michalak A. Biologia: jedność i różnorodność. PWN, Warszawa 2008 • Szwejkowska A Szejkowski J. Botanika I i II PWN, Warszawa 2006 • Markery molekularne, historia naturalna i ewolucja. JC Avise Uniwersytet Warszawski, Warszawa, 2008 • Wijayawardene N.N. i inni 2020. Outline of Fungi and fungi-like taxa. Mycosphere 11(1): 10601456. https://doi.org/10.5943/mycosphere/11/1/8 • Guzow-Krzemińska B., Kukwa M. 2013. Metody badawcze we współczesnej taksonomii porostów. Kosmos 62(1): 95103. • Baj J., Markiewicz Z. Biologia molekularna bakterii. PWN, Warszawa 2012 • Piekarowicz A. Podstawy wirusologii molekularnej. PWN, Warszawa 2013 • Xiong Jin. Podstawy bioinformatyki. Uniwersytet Warszawski, Warszawa, 2010 • Hall Barry. Łatwe drzewa filogenetyczne. Uniwersytet Warszawski, Warszawa, 2008 • Douglas Futuyma. Ewolucja, Uniwersytet Warszawski, Warszawa, 2005
Supplementary literature	Lack
eResources addresses	

Example issues/ example questions/ tasks being completed	Not applicable
Work placement	Not applicable

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