University of Gdańsk

Subject card

Subject name and code	Laboratory of digital macro- and microphotography, PG_00154463		
Field of study	Biology		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2026/2027
Education level	undergraduate studies	Subject group	Optional subject group
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	6	ECTS credits	2.0
Learning profile	academic	Assessment form	
Conducting unit	Faculty of Biology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Joanna Rojek	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	30.0	0.0	0.0	30

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	30	4.0	16.0	50

Subject objectives

-understanding of digital photography and analog photography issues-skill of taking correct macro- and micro-photographs, their preparation in a raster graphics program-skill to make correct scientific photographic documentation in the form of a photo figure, poster-The ability to make a logo in a vector graphics program.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOLL3_W14] The graduate knows the theoretical basis of experimental methods and the most important techniques of the biological sciences	- The graduate has knowledge of basic research techniques and tools used in microscopic image analysis (B_W14)	[SW5] implementation of a problem task
[BIOLL3_U01] The graduate will be able to use basic apparatus and research tools and follow the correct sequence of operations in laboratory and field work	- graduate uses basic apparatus and research tools and maintains the correct sequence of operations in the laboratory work of the laboratory of digital macro- and micro-photography (B_U01)	[SU6] demonstration of practical skills
[BIOLL3_U03] The graduate, under the guidance of a mentor, is able to carry out simple tasks or research expertise typical of the biological sciences	- under the guidance of the supervisor, the student performs research tasks in the field of digital and analog macro and micro photography (B_U03)	[SU5] implementation of a problem task
[BIOLL3_K03] The graduate will be able to organise the work of a small team and work effectively as part of a team	- graduate is able to cooperate and work in a group taking various roles in it (B_K03)	[SK8] observation of student's independent or team work

Subject contents	- the technique of taking photographs digitally (shadowl-free macro photography) and using a stereoscopic microscope equipped with a digital camera,- operation of raster graphics program Gimp (graphic processing of digital photos) and vector graphics program Inkscape (preparation of logos of biological company),- preparation of photos in the form of a poster and figure , using the Gimp graphics program.
Prerequisites and co-requisites	

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Determining the final grade on the basis of partial grades on tasks	51.0%	100.0%

Recommended reading

Basic literature	Available popular science textbooks on macro- and micro-photography and graphics programs, online author's materials/guides, shared on MS Teams
Supplementary literature	Rojek J, Tucker MR, Pinto SC, Rychłowski M, Lichocka M, Soukupova H, Nowakowska J, Bohdanowicz J, Surmacz G, Gutkowska M. 2021. Rabdependentvesicular traffic affects female gametophyte development in Arabidopsis. Journal of Experimental Botany. 72(2): 320-340. doi:10.1093/jxb/eraa430Rojek J, Kozieradzka-Kiszkurno MG, Kapusta MG, Aksmann A, Jacewicz D, Dr E Dzon J, Tesmar A, Amoj K, Wyrzykowski D, ChmurzySki L. 2019.The effect of vanadium(IV) complexes on development of Arabidopsis thaliana subjected to H2O2-induced stress. Funct Plant Biol. 2019Sep;46(10):942-961. doi: 10.1071/FP18262Rojek J, Kapusta M, Kozieradzka-Kiszkurno M, Majcher D, Górniak M, Sliwinska E, Sharbel TF, Bohdanowicz J. 2018. Establishing the cell biology
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	Guidelines for drawing up a scientific board:The board should be A4 in size, with margins in accordance with the thesis / dissertation guidelines. Non-capital font, e.g. Arial, VerdanaThe blackboard should have a biological theme - photos placed together should have some thematic sequence - e.g. Comparison of morphology of secretory hairs in the genus..../ ultrastructural analysis of the suspensor in Sedum maximum / Types of stomatal apparatus in angiosperm plants / effect of 5-azacytidine on cell growth and development..., etc. Please include a minimum of 4 photos on the board, preferably 4-6. We use photos taken independently or from the Internet under certain restrictions (read more):Photos taken on your own - whether with a camera or a cell phone, must be accompanied by a scale (zoom information). Therefore, be sure to take photographs using a ruler or millimeter paper. You can also use photos taken from under a microscope (if you have one) with a scale or taken during exercises from under a magnifying glass (remember to include the scale - it's in a separate folder on your desktop); You can use photos selected from the Internet, but look for those that can be downloaded under a free access license (with the principle of proper citation of the original), and have a pitch; photos from original scientific publications, where the license does not allow free use - they are the property of the author / journal and to use them you need to ask permission. For the purposes of this class - we use rally photos on the basis of free access license and proper citation. We send the work only to the teacher and do not make it public. About how to quote data from the Internet separate fileNOTE- graduation in the form of "bar" yes you need to make it yourself according to the instructions from the exercises; even if the photos from the Internet have a graduation, you create your own on the basis of it (the point is to make it yourself (more about this in class)) 5. after processing the selected photos paste them to the board, according to the instructions (it is important that the photo is with a scale adequate to the magnification of the photo). 6. add arrows/description/symbols (minimum one arrow and one symbol on the board) and numbering. Underneath the photos, put the title of the board and a description for each photo. 7. flatten board in tiff (tif) lzw format and under the name: "scientific board_name" send (upload) to the corresponding task in the group on MSteams8. if you have any questions, you can write to the class instructor9. example of scientific documentation from open access (open access) publications:
Work placement	Not applicable

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