

Subject card

Subject name and code	Pharmaceutical botany, PG_00154251						
Field of study	Medical Biology						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2026/2027		
Education level	Bachelor'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	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		2.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Department of Plant Taxonomy and Nature Conservation -> Faculty of Biology -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. Martin Kukwa				
	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		6.0		14.0	50
Subject objectives	1. To equip the student with the knowledge of the structure and function of plant cells, tissues and organs and structure of fungi 2. To develop ability to identify and describe plant tissues and organs using microscopic methods 3. To equip students with knowledge of biologically active substances produced by fungi and plants 4) Developing the ability to recognize species of medicinal and poisonous plants on the basis of fresh and herbarium specimens 5. To review selected representatives of individual systematic groups of plants (including algae) and fungi, including pharmacopoeial species						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[BIOLMEDL3_K01] understands the need for lifelong learning and to update his/her knowledge of medical biology and related disciplines		Student understands the need for lifelong learning and updating knowledge in medical biology and related disciplines (BM_K01)		[SK8] observation of student's independent or team work		
	[BIOLMEDL3_U15] learns independently, in a focused manner		Strudent learns autonomously, in a targeted manner (BM_U15)		[SU6] demonstration of practical skills		
	[BIOLMEDL3_W10] understands and describes the physicochemical and biological basis of health sciences		Student dcribes the structure of plants and fungi and understands and describes the biological basis for the use and action of biologically active compounds and phytopharmaceuticals (BM_W10)		[SW4] test/exam - oral or written		

Subject contents	1. Basics of botanical systematics (type, cluster, class, order, family, genus, species) and binominal nomenclature. 2. Plant cell structure. Plant biologically active substances (e.g. alkaloids, glycosides, flavonoids, minerals, antibiotics and lichen acids, plant cytostatics). 3. The structure of the basic types of plant tissues: creative tissues; crumb tissues, strengthening tissues, conductive envelopes. 4. Morphology of vascular plants (roots, shoots, stems, leaves, flowers, inflorescences, fruits) and fungi. 5. Taxonomic overview of plants (including algae) and fungi including species of pharmacopoeial importance - includes knowledge of the most important features of the groups mentioned and recognition of selected medicinal plant species from the following systematic groups: kingdom Fungi with special emphasis on lichens; kingdom Plantae: angiosperms (Pinophyta), angiosperms (Magnoliophyta Magnoliopsida: Ranunculales, Rosales, Lamiales, Apiales, Asterales; Liliopsida: Poales Liliales). 6. Poisonous and medicinal plants and fungi in the Polish flora. 7. Biological activity of lichen substances.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Attendance and active participation in all classes (making preparations and experiments in accordance with health and safety rules) is prerequisite for the passing grade; 1 excused absence is allowed	100.0%	0.0%
	colloquia: written form in the form of test questions and open questions, verifying the degree of mastery of the material covered	51.0%	50.0%
	practical tests on identifying medicinal raw materials and plants, verifying the degree of mastery of the material covered	51.0%	50.0%
Recommended reading	Basic literature	Szweykowska A., Szweykowski J. 2009. Botanika. Tom 1 i 2. PWN, Warszawa. Broda B. 2002. Zarys Botaniki Farmaceutycznej. Wyd. Lekarskie PZWL, Warszawa. Broda B., Mowszowicz J., 2000. Przewodnik do oznaczania roślin leczniczych, trujących i użytkowych, Wyd. Lekarskie PZWL, Warszawa. A.2 studiowana samodzielnie przez studenta: Szweykowska A., Szweykowski J. 2009. Botanika. Tom 1 i 2. PWN, Warszawa.	
	Supplementary literature	Bystrek J. 1997. Podstawy lichenologii. Wydaw. Uniwersytetu Marii Curie-Skołodowskiej Guzow-Krzemińska B., Kukwa M. 2013. Metody badawcze we współczesnej taksonomii porostów. Kosmos 62(1): 95-103. Kubiak D., Kukwa M. 2011. Chromatografia cienkowarstwowa (TLC) w lichenologii. W: Dynowska M., Ejdys E. (red.). Mikologia laboratoryjna. Przygotowanie materiału badawczego i diagnostyka. Wydawnictwo Uniwersytetu Warmińsko-Mazurskiego w Olsztynie, s. 176190. Kukwa M. 2012. Chemical and molecular methods and their impact on the estimation of threat status of lichens in Poland. W: Lipnicki L. (red.). Lichen protection Lichen protected species. SONAR Sp. z o.o., Gorzów Wielkopolski, s. 93100. Müller E., Loeffler W. 1987. Zarys Mykologii. PWRiL, Warszawa. Purvis W. 2000. Lichens. Natural History Museum, London/ Smithsonian Institution, London, Washington D.C. 112 pp. Maciąg-Dorszyńska M., Węgrzyn G, Guzow-Krzemińska B. 2014. Antibacterial activity of lichen secondary metabolite usnic acid is primarily caused by inhibition of RNA and DNA synthesis. FEMS Microbiol Lett. 353(1):57-62. doi: 10.1111/1574-6968.12409	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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