

Subject card

Subject name and code	Pharmaceutical botany, PG_00203428						
Field of study	Medical Biology						
Date of commencement of studies	October 2026	Academic year of realisation of subject			2027/2028		
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_W10] has an advanced knowledge and understanding of the physicochemical and biological basis of health sciences		Student describes 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		
	[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		Student learns autonomously, in a targeted manner (BM_U15)		[SU6] demonstration of practical skills		

Subject contents	<p>1. Basics of botanical systematics (type, cluster, class, order, family, genus, species) and binominal nomenclature.</p> <p>2. Plant cell structure. Plant biologically active substances (e.g. alkaloids, glycosides, flavonoids, minerals, antibiotics and lichen acids, plant cytostatics).</p> <p>3. The structure of the basic types of plant tissues: creative tissues; crumb tissues, strengthening tissues, conductive envelopes.</p> <p>4. Morphology of vascular plants (roots, shoots, stems, leaves, flowers, inflorescences, fruits) and fungi.</p> <p>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).</p> <p>6. Poisonous and medicinal plants and fungi in the Polish flora.</p> <p>7. Biological activity of lichen substances.</p>														
Prerequisites and co-requisites															
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="459 483 786 517">Subject passing criteria</th> <th data-bbox="802 483 1137 517">Passing threshold</th> <th data-bbox="1153 483 1487 517">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="459 528 786 689">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</td> <td data-bbox="802 528 1137 689">100.0%</td> <td data-bbox="1153 528 1487 689">0.0%</td> </tr> <tr> <td data-bbox="459 701 786 790">colloquia: written form in the form of test questions and open questions, verifying the degree of mastery of the material covered</td> <td data-bbox="802 701 1137 790">51.0%</td> <td data-bbox="1153 701 1487 790">50.0%</td> </tr> <tr> <td data-bbox="459 801 786 902">practical tests on identifying medicinal raw materials and plants, verifying the degree of mastery of the material covered</td> <td data-bbox="802 801 1137 902">51.0%</td> <td data-bbox="1153 801 1487 902">50.0%</td> </tr> </tbody> </table>	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%		
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Recommended reading	<p>Basic literature</p> <p>Supplementary literature</p> <p>eResources addresses</p>	<p>Szweykowska A., Szweykowski J. 2009. Botanika. Tom 1 i 2. PWN, Warszawa.</p> <p>Broda B. 2002. Zarys Botaniki Farmaceutycznej. Wyd. Lekarskie PZWL, Warszawa.</p> <p>Broda B., Mowszowicz J., 2000. Przewodnik do oznaczania roślin leczniczych, trujących i użytkowych, Wyd. Lekarskie PZWL, Warszawa.</p> <p>A.2 studiowana samodzielnie przez studenta: Szweykowska A., Szweykowski J. 2009. Botanika. Tom 1 i 2. PWN, Warszawa.</p> <p>Bystrek J. 1997. Podstawy lichenologii. Wydaw. Uniwersytetu Marii Curie-Skłodowskiej</p> <p>Guzow-Krzemińska B., Kukwa M. 2013. Metody badawcze we współczesnej taksonomii porostów. Kosmos 62(1): 95-103.</p> <p>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.</p> <p>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.</p> <p>Müller E., Loeffler W. 1987. Zarys Mykologii. PWRiL, Warszawa.</p> <p>Purvis W. 2000. Lichens. Natural History Museum, London/ Smithsonian Institution, London, Washington D.C. 112 pp.</p> <p>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</p>													
Example issues/ example questions/ tasks being completed															
Work placement	Not applicable														

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