University of Gdańsk

Subject card

Subject name and code	Introduction to phytopathology, PG_00196965		
Field of study	Biotechnology		
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	6	ECTS credits	2.0
Learning profile	academic	Assessment form	credit
Conducting unit	Intercollegiate Faculty of Biotechnology UG-MUG -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr n. med. Dorota Pomorska	
	Teachers		

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	16.0	0.0	0.0	0.0	0.0	16
	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	16	5.0	29.0	50

Subject objectives	The course aims to introduce students to the field of phytopathology. During the course, students will become familiar with the history of plant disease research and the latest scientific advancements, familiarize themselves with the specific terminology and processes associated with plant infection mechanisms. They will also become familiar with the biological characteristics of selected plant pathogens, their significance, and methods for their identification.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOTECHL3_W07] The graduate has advanced knowledge of the rules of operation and the possibilities of using research techniques and tools used in biotechnology.	The student explains the principles of operation of modern tools and techniques used in the diagnosis of plant pathogens (microscopy, PCR, ELISA, serological tests) and the possibilities of applying biotechnological methods in the identification and control of plant diseases.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW5] implementation of a problem task
[BIOTECHL3_K03] The graduate is willing to understand risks and dilemmas, including ethical dilemmas related to conducting scientific research and introducing advanced technologies using the achievements of biotechnology; understand and appreciate the importance of intellectual property; behave ethically.	The student understands the need for an ethical approach to scientific research in phytopathology and responsibility for the consequences of introducing new technologies in plant protection and is ready to comply with the principles of ethics and biosafety in research work and to reliably present research results.	[SK1] oral statement/conversation/ discussion [SK4] test/exam - oral or written [SK5] implementation of a problem task [SK8] observation of student's independent or team work
[BIOTECHL3_K05] The graduate is willing to understand the need to inform the society about the achievements of biotechnology important for the improvement of health and quality of life.	The student understands the need to provide the public with reliable information on plant diseases and methods of their control, including biotechnological methods, and is ready to responsibly communicate issues related to plant biotechnology, taking into account their importance for human health, agriculture and the environment.	[SK1] oral statement/conversation/ discussion [SK4] test/exam - oral or written [SK5] implementation of a problem task
[BIOTECHL3_W03] The graduate possesses structured and advanced knowledge of organism-environment relationships and their importance for understanding biological processes and biotechnological applications.	The student is be able to characterize the interactions between plants and their pathogens and the impact of the environment on the development of plant diseases. The student is also able to explain the importance of environmental factors (temperature, humidity, soil composition) in shaping pathogen population dynamics, and to provide examples of the role of ecological phenomena in designing plant protection strategies and in biotechnological applications of disease control.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW5] implementation of a problem task

Subject contents

- introduction to the concept of plant cultivation and diseases, including the therms used in the field of studies of plant diseases
- history (Polish and foreign phytopathologists, key discoveries and observations in phytopathology) and future of phytopathology (latest discoveries, research methods and concepts)
- biology of plant pathogens, including bacterial, fungal, viral pathogens, phytoplasmas, plant pathogenic nematodes and parasitic plants (development cycle, host range, transmission vectors, examples of diseases)
- methods for detection and identification of plant pathogens (Koch's postulates in relation to plant pathogens, disease symptoms caused by selected plant pathogens, methods based on nucleic acids, antibodies, detection of plant pathogens in the XXI century)
- plant pathogen control methods (chemical, physical methods)
- biological protection of plants
- plant pathogens as useful molecular tools (*Agrobacterium tumefaciens*), research models of plant-pathogen interactions, source of useful biological compounds, food source

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
	51.0%	80.0%
	51.0%	20.0%

Recommended reading	Basic literature	A.1. Analysed during classes L. Garbowski - "Outline of phytopathology" S. Kryczyński - "Basics of phytopathology" A.2. studied independently by the student P. Sobiczewski, M. Schollenberger "Bacterial diseases of horticultural plants"
	Supplementary literature	H. S. Chaube, R. Singh Introductory plant pathology
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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