

Course title Mikrobiologia/Microbiology		ECTS code 7.2.0620	
Name of unit administrating study			
Faculty of Chemistry			
Studies			
Field of study	Type	Form	
Environmental Protection	Bachelor	Full-time studies	
Teaching staff Dr hab. Marian Sęktas, prof. UG			
Forms of classes, the realization and number of hours		ECTS credits	
A. Forms of classes, in accordance with the UG Rector's regulations lecture, laboratory classes		classes - 60 h tutorial classes - 10 h Student's own work - 55 h TOTAL: 125 h - 5 ECTS	
B. The realization of activities In-class learning			
C. Number of hours lecture 30 h, audytorium classes 30 h			
The academic cycle 2020/2021			
Type of course optional subject		Language of instruction Polish	
Teaching methods Lectures including multimodal presentations Laboratory experiments		Form and method of assessment and basic criteria for evaluation or examination requirements	
		A. Final evaluation, in accordance with the UG study regulations Course completion (with a grade), exam	
		B. Assessment methods written test exam lecture: first date - written test with closed questions, correction date - written test or oral test Exercises: written credit for part of material (opening tests): final grade based on average of partial grades	
		The basic criteria for evaluation The exam includes material from lectures and exercises The written exam is assessed according to the percentage rate (University of Gdansk Studies Regulations) Oral exam - the grade covers the presented degree of completeness of substantive knowledge for the question/issue Admissions - the grade includes the degree of mastery of the material from the previous exercise	
Required courses and introductory requirements			
A. Formal requirements Basic biology			
Prerequisites Knowledge of basic concepts in general biology			

Aims of education

1. Introduction of basic concepts in the field of microbiology. 2. Understanding the structure of the bacterial cell and knowledge of its basics. 3. Understanding the role of microbes in maintaining the biological balance of the environment. 4. Mechanisms of bacterial pathogenesis and understanding of the fundamental importance of genetic recombination

Course contents**A. Problems of the lecture**

Lecture issues: introduction to microbiology and bacterial cell structure, cell shields and virulence factors in bacteria, bacterial metabolism, methods of obtaining matter and energy, replication of genetic material and para-sexual processes (recombination, transformation, conjugation), identification of bacteria and the basis of bacterial systematics, viruses bacterial, antibacterial factors and their mechanisms of action, mechanisms of bacterial resistance to antibiotics and chemotherapeutics, physiological and pathogenic flora in humans, soil and water flora, the contribution of microorganisms in biodegradation and circulation of elements, the use of genetically modified bacteria.

Laboratory issues: culture media, bacterial colony characterization, cell staining and observation, knowledge of bacterial structure and knowledge of its basic physiological processes, knowledge of bacterial pathogens, knowledge of the basics of microbial identification, isolation skills and methods of culturing microorganisms from various environments, transformation and transduction of cells

Bibliography of literature**A. Literature required to pass the course****A.2. Literature for individual studies:**

Kunicki-Goldfinger "Życie bakterii" (red. J. Baj., Z. Markiewicz), PWN, Warszawa 2005; "Biologia molekularna bakterii" (red. J. Baj, Z. Markiewicz), PWN, Warszawa 2007

Extracurricular readings

prezentacja multimedialna wykładów (program PowerPoint)

Jawetz E., Melnick J., Adelberg E., "Przegląd mikrobiologii lekarskiej", PZWL, Warszawa 1991; Kotelko K., Sedlaczek L., Lachowicz T.M., " Biologia bakterii", PWN, Warszawa 1984