Course title	New concepts in microbiology		
Course code	**Semester**	**ECTS**	**Lectures/ classes**
13.1.1457	winter	3	Lectures: 15 hours + Lab class: 15 hours
Name of the lecturer and contact	prof. dr hab. Tadeusz Kaczorowski; dr Magdalena Płotka; tadeusz.kaczorowski@ug.edu.pl		
Prerequisites	none		
Course description	Lecture content: The lecture will cover a broad range of topics in microbiology, including antibiotic-related research, development and application of a molecular methods to quantify common food pathogens, bacterial communities and microbiome, bacterial pathogenesis Emphasis will be placed on novel approaches that have the potential to revolutionise future research in microbiology. The lecture will cover topics on: Biofilm-Associated Infections Gut microbiota and obesity: Concepts relevant to clinical care. Laboratory training content: Evaluation of human CCR5 genetic polymorphism from students' own epithelial cells. CCR5 is a receptor involved in inflammatory processes, which has been misused by HIV, to enter host cells. As a result, a defective allele CCR5-Δ32 has been enriched in some populations. Learning new methods to differentiate bacteria. Understanding basic principles of Gram staining, growing bacterial cells on different media. In the course students will learn basic molecular biology techniques including genomic and		

	plasmid DNA isolation and PCR amplification of the 16S rRNA gene and ligation into a prepared vector.
Learning outcomes	Knowledge: - recognizes the dynamic development of biological sciences and the emergence of new research directions and disciplines - understands the natural phenomena and processes at various levels of complexity - recognizes the wealth of contemporary approaches and experimental techniques in biological sciences and properly plans to use them to solve given tasks Skills: - selects and applies research techniques and tools adequate to the problems of the biological specialty studied - proficiently uses scientific literature of the studied biological specialty - demonstrates an ability to critically analyze and select biological information, especially that obtained from electronic resources - plans and performs research tasks or scientific assessment in the field of studied biological specialty, under supervision of a supervisor - critically confronts biological information from various sources and draws reasonable conclusions on this basis