

## Microbiology Bachelor Studies Programme, 2025

Institution		Department/Laboratory	Themes
Life Sciences Center	Institute of Biosciences	Department of Microbiology and Biotechnology	Natural Phenolic Compounds Effect on Single and Mixed <i>Streptococcus mutans</i> and <i>Candida albicans</i> Biofilms
			Biosynthesis of New Lantibiotics in <i>E. coli</i> Cells
			Optimisation of the Biosynthetic Process of Pectate Lyase P1
			Development of a Gene Expression System for Thermophilic Bacteria
			Analysis of Antibiotic Resistance, Virulence Genes and Phenotypic Characteristics of <i>Pseudomonas aeruginosa</i>
			Development and Improvement of Genetic Tools for <i>Parageobacillus thermoglucosidasius</i> DSM 2542T
			Effect of Enzymes on the Antimicrobial Properties of Silver Nanoparticles Produced by <i>Geobacillus</i> Genus Bacteria
			Assessment of <i>Streptomyces scabiei</i> 87.22 L80A and L80F Mutants Properties and Determination of Their Polymer Degradation Potential
			Selection of Levan Producing Bacterial Isolates
			Effect of Microgravity on the Resistance of <i>Saccharomyces cerevisiae</i> Yeast with Different Telomere Lengths to Cosmetic Acids
			Evaluation of the Effect of Terahertz Radiation on <i>Escherichia coli</i> and <i>Bacillus mycoides</i> Viability and Stress Response Gene Expression
			Analysis of Sporulation in Thermophilic Food Spoilage Bacteria and Antimicrobial Photoinactivation of Spores
			Analysis of Antibiotic-resistant <i>Enterococcus faecium</i> Clinical Isolates
			Evaluation of Antimicrobial Activity of <i>Paenibacillus</i> sp. 23TSA30-6 and 28ISP30-2 Strains and Construction of Heterologous Expression System of the Class II Lanthipeptide in <i>Lactococcus lactis</i>
			Antifungal Activity Against <i>Aspregillus fumigatus</i> of Silver Nanoparticles Produced Using <i>Geobacillus</i> sp. 612 Bacteria

			<p>Taxonomic Characterization of Bacteria Isolated from the Insect Adelges (Aphrastasia) Pectinatae</p> <p>Antimicrobial Effect of Acids Used in Cosmetics on Skin Pathogens</p> <p>Characterisation of Mutant Variants of <i>Streptomyces scabiei</i> 87.22 Cutinase</p> <p>Studies on the Carboxylesterase Synthesised by <i>Geobacillus</i> sp. PT-5</p> <p>Heterologous Expression of the GrtB Protein Encoded by <i>Granulicella tundricola</i> MP5ACTX9T in <i>E. coli</i> Cells</p> <p>Optimization of Bacterial Cellulose Production by <i>Komagataeibacter xylinus</i></p>
		Department of Biochemistry and Molecular Biology	Construction of <i>pmrB</i> Gene Deletion Mutants in the Opportunistic Pathogen <i>Acinetobacter baumannii</i>
		Center of Ecology and Environment	<p>Toxicity Assessment of Nemėža River Sediments using <i>Aliivibrio fischeri</i> and <i>Escherichia coli</i> Bacteria</p> <p>Toxicity Assessment of Wastewater Discharged into the Neris River Using <i>Aliivibrio fischeri</i> and <i>Escherichia coli</i> Bacterial Tests</p>
	Institute of Biochemistry	Department of Molecular Microbiology and Biotechnology	<p>Optimization of YqfB Amidohydrolase for Targeted Enzyme-prodrug Therapy</p> <p>Characterisation of Thermophilic Bacteriophages PK2.1 and PK5.2 Infecting <i>Geobacillus</i> Bacteria</p>
	Institute of Biotechnology	Sector of Applied Biocatalysis	Investigation of Recombinant Lipoxygenase Expression in <i>Pichia pastoris</i>
VU Faculty of Physics	Institute of Photonics and Nanotechnology	Lighting Research Group	Inactivation of the Plant Pathogen <i>Pseudomonas syringae</i> by Riboflavin-induced Antimicrobial Photodynamic Inactivation
State Scientific Research Institute Nature Research Centre		Laboratory of Genetics	Viability Analysis of <i>Sarcocystis</i> spp. Parasitic Protozoa
		Laboratory of Plant Pathology	Vegetative Compability Between Pathogenic Fungi of the Species of <i>Diaporthe oncostoma</i>

		Laboratory of Algology and Mikrobial Ecology	<p>Bioactive Compounds with Antioxidant Activity in Wild Cyanobacterial Biomass</p> <p>Stability of Phycocyanin Extracted from the Wild Biomass of the Cyanobacterium <i>Aphanizomenon flos-aquae</i> Under Different Environmental Conditions</p> <p>Impact of Salinization on the Establishment of Alien Cyanobacteria and Biodiversity Shift in Phytoplankton Communities in Freshwater Ecosystems</p>
		P. B. Šivickis Laboratory of Parasitology	<p>Examination of hemosporidian parasites (<i>Plasmodium</i>) in vectors by microscopy and DNA analysis methods</p> <p>Local Transmission of Haemosporidian Parasites (Apicomplexa: Haemosporidia) in Juvenile Birds</p>
<b>National Cancer Institute</b>		Laboratory of Immunology	Modeling the Immune Tumor Microenvironment in Syngeneic Triple-negative Breast Cancer Mouse Models
		Biomedical Physics Laboratory	<p>Transfer of Nanoparticles to Cancer Cells by Mesenchymal Stem Cells</p> <p>Studies on Iron Oxide Nanoparticles Decorated with Gold Nanoclusters in Cancer Cells</p>
<b>Vilnius Santaros klinikos</b>	<b>Biobank</b>		<p>Optimization of the RT-RT-LAMP Method for the Detection of SARS-CoV-2 and Influenza A and B Viruses</p> <p>Prediction of COVID-19 Disease Course Based on Blood Biomarkers</p>
<b>Center for physical sciences and technology</b>	<b>Department of Functional Materials and Electronics</b>	Bioelectrics Laboratory	Methylene Blue Based Hydrogel Effects on <i>S. aureus</i> and <i>E. coli</i> Biofilms
<b>Thermo Fisher Scientific Baltics</b>			Studies on the Stabilization of Competent Cells
<b>UAB Droplet Genomics</b>			<p>RT-PCR Optimization of Fixed Bacterial Samples For Single-Cell Transcriptomics Studies</p> <p>Development of a High-throughput Microfluidic System for the Analysis of Single Microorganisms</p>