

# Study Programme

## Compulsory courses

Course	Lectures	Practicals	ECs
Metabolism of Prokaryotes	30	30	4
Taxonomy of Microorganisms	45	45	8
Food Microbiology	30	30	4
Molecular biology of Prokaryotes and Eukaryotes	45	30	6
Fermentation and Processing	0	90	7
Applied Microbiology	45	45	8
Environmental Microbiology	30	45	5
Sanitary Microbiology	45	45	6
Summer Research Seminar	0	60	4
Pre-Diploma Practicum	0	90	15

## Optional Courses

Course	Lectures	Practicals	ECs
Antibiotics and Antibiotic Resistance	30	15	4
Bioinformatics Methods in Microbiology	30	15	4
Biology of Extreme Microorganisms	30	15	4
Biology of Chemolitotrophic Bacteria	30	15	4
Biosynthesis and Control of Biologically Active Substances	30	15	4
Ecotoxicological Tests for Environmental Assessment and Control	30	15	4
Industrial Stress Resistance of Yeast Microorganisms	30	15	4
Fermentation Technologies with Recombinant Microorganisms	30	15	4
Phytopathogenic Bacteria	30	15	4
Hydrochemistry of Natural Waters – Main Biotopes of Microorganisms	30	15	4

## Contacts

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Department of  
"General and Industrial Microbiology"

Master programme  
"Microbiology and Microbiological  
Control"



Faculty of Biology



## The Master programme

**'Microbiology and Microbiological Control'** aims to enrich and enlarge students' knowledge in biology of microorganisms (both pro- and eukaryotes). The training is focused on detailed study of the physiology, metabolism and genetics of saprophytic and pathogenic microorganisms as well as on the methods applied for microbiological control of soil, water, air and food products.

**The programme applicants** must possess BSc degree in biological and other related sciences, as follows: Biological Sciences, Biotechnology, Pedagogy in Biology and Chemistry, Geography and Biology, Food Technologies; from higher education areas Agricultural Sciences and Veterinary Medicine (Veterinary Medicine, Plant Protection); MSc degree from professional area Medicine and Pharmacy.

The students must pass successfully exams in Microbiology, Biochemistry and Genetics in the corresponding educational degree.

**The official length of the programme** is 3 semesters full-time study. The first and second comprise lectures and laboratory practice, while the third one is devoted to development of diploma thesis. The study curriculum includes 10 compulsory and 2 optional courses (chosen among 10).

Upon successful completion of the study programme the Master students upgrade their knowledge and practical skills with selected subjects of contemporary science, concerning microbiology and microbiological control. They will receive the following competencies:

- ▶ Upgraded knowledge and skills for the main physiological groups of microorganisms in respect to microbial identification, detection and proving in various natural habitats, foods, other products and materials;
- ▶ Upgraded knowledge for microorganisms as producers and destructors as well as possibilities for control and manipulation of their metabolism;
- ▶ Skills for practical application of microorganisms in solving global biological and social / economic problems;
- ▶ Application of innovative approaches and methods in microbiology and microbiological control research;
- ▶ Wide competence for team working, decision making and innovation support.

The Master programme 'Microbiology and Microbiological Control' is realized on modular principle and ensures a high adaptability of the Master students completing it in respect to their professional realization.

Those, completed the curriculum, can rely on career prospects in:

- ▶ Various educational and research institutions performing fundamental studies;
- ▶ Industrial enterprises and other production facilities within food/feed industry;
- ▶ Human and veterinary medicine departments;
- ▶ The system for public health control;
- ▶ The system for environmental control and protection;
- ▶ Different agricultural units.