Vilnius University

BIOCHEMISTRY

Programme type	Master studies
Field of study	Biochemistry
Study area	Life Sciences
Degree	Master of Life Sciences
Duration	2 years
Workload	120 ECTS credits
Language of instruction	English
Location	Life Sciences Centre
Starting date	September 1st

PROGRAMME DESCRIPTION

- *The objective*
  The goal of this programme is to deepen and broaden knowledge in biochemistry and related sciences as well as to understand the achievements and perspectives of biochemistry. Programme provides with research skills needed to know and understand modern methods and technologies necessary for creative development and implementation of scientific ideas.

- *Career opportunities*
  A graduate is able to work at biochemical and chemical laboratories, industry and trading companies.

- *Access to further studies*
  Analytical knowledge could be improved in doctoral studies in fields of biochemistry and related areas.

KEY LEARNING OUTCOMES

A holder of a Master's degree in Biochemistry has knowledge in biochemistry necessary for independent scientific research, uses modern methods and technologies of experimental biochemistry and related sciences *in vivo*, *in vitro* and *in silico*, has an ability to integrate the knowledge of different sciences, apply methods and technologies of biochemistry and related sciences in research and practical work, select appropriate methods of research and interpret reasonably the results obtained through those methods, work in the interdisciplinary areas and use the knowledge of different scientific fields in solving problems of the research, perform research and practical work requiring analytical and innovative thinking, plan and conduct research in the field of biochemistry and related fields. The programme provides with ability to be responsible for the decisions taken, evaluate critically the novelties in the field of biochemistry and related sciences as well as improve and update knowledge and skills.

COURSE INFORMATION

The programme has the following structure:

Course Type	1st Semester (30 ECTS credits)	2nd Semester (30 ECTS credits)	3rd Semester (30 ECTS credits)	4th Semester (30 ECTS credits)
Compulsory Courses	Term Research Project (10) Mechanisms of Organic Reactions (5)	Term Research Project (15)	Term Research Project (15)	Master Thesis (30)
Elective Courses	Genetics of Micororganisms (5) Bionanotechnologies (5) Management in Modern Biotechnology Company (5) Ecological Biochemistry (5) Synthetic Biology (5) Systems Biology (5) Cancer Molecular Biology (5)	Mechanisms of Nucleic Acids and Protein Interaction (5) Bioethics (5) X-ray Crystallography of Biological Macromolecules (5) CRISPR-Cas Biology and Applications (5) Mechanisms of Enzymatic Reactions (5) Nucleic Acids Chemistry (5) Advanced Biochemical Methods (5) Principles of Molecular Virusology (5)	Protein Physical Chemistry (5) Ecological Biochemistry (5) Synthetic Biology (5) Systems Biology (5) Cancer Molecular Biology (5)	

GRADUATION REQUIREMENTS

Studies are finished by defending of Final Master Degree Project.

EXAMINATION AND ASSESSMENT REGULATIONS

The main form of evaluation is an examination. However, course units may be evaluated by the pass/fail evaluation as well. Every course unit is concluded with either a written or written-oral examination or pass/fail evaluation.

Student's knowledge and general performance during the exam are evaluated using grading scale from 1(very poor) to 10 (excellent), or by pass or fail evaluation in the cases when pass/fail evaluation is foreseen as a final evaluation of the course unit.

ENTRY REQUIREMENTS

- Applicants for Biochemistry master programme should have a Bachelor or equivalent degree in one of these fields: Biochemistry, Molecular Biology, Biotechnology, Bioengineering.
- English Language requirements: applicant has to present document providing the level not lower than B2 (following the common European Framework of Reference Languages (CEFR), or TOEFL score 75/IELTS score 6

APPLICATION AND SELECTION REQUIREMENTS

The grade for admission (K) is calculated by the following formula:

K= 0,4V+0,3E + 0,3D

E = Motivation letter **0.3**
V = Average of the grades of the following subjects or their close equivalents (in bachelor or equivalent degree diploma): Biochemistry, Bioorganic Chemistry, Organic Chemistry, General Chemistry, Analytical Chemistry, Physical Chemistry**.**
D = Grade of bachelor thesis in biochemistry or related sciences.

Academic contact	Admission contact
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