BACHELOR 'S PROGRAMME
METABOLIC BIOCHEMISTRY
3RD YEAR OF STUDY, 1ST SEMESTER

COURSE TITLE	**MEDICAL BIOCHEMISTRY**
COURSE CODE	31010030020SL1223110
COURSE TYPE	full attendance/ tutorial
COURSE LEVEL	1st cycle (bachelor's degree)
YEAR OF STUDY, SEMESTER	3rd year of study,1st semester
NUMBER OF ECTS CREDITS	4
NUMBER OF HOURS PER WEEK	4 (2 hours lecture + 2 laboratory hours)
NAME OF LECTURE HOLDER	Assoc. Prof. PhD Brindusa Alina PETRE
NAME OF SEMINAR HOLDER	Assoc. Prof. PhD Brindusa Alina PETRE
PREREQUISITES	Advanced level of English

A	**GENERAL AND COURSE-SPECIFIC COMPETENCES**
	General competences: → Performing professional tasks efficiently and responsibly in compliance with the law and field-specific deontology under qualified assistance. → Carrying out multidisciplinary team activities using interpersonal communication skills to meet the proposed objectives of learning and experimental work. → Efficient use of information sources and communication and training resources assisted in a language of international circulation (English) **Course-specific competences**: → Operating with notions on the relationship between the structure and biochemical activity and pathways of biological compounds. → Performing analyzes and ensuring quality control through methods and techniques specific to bioanalytical analyzes procedures in compliance with the rules of good practice in the laboratory of biochemistry. → Carrying out experimental bioanalytical procedures for analysing metabolits and their action. → Application of biochemical technologies in various fields, in compliance with normal and diseases metabolic conditions.
B	**LEARNING OUTCOMES**
	→ After completing and promoting the discipline, students acquire a consistent body of theoretical and practical knowledge in the field of Metabolic Biochemistry. → Students will be able to answer theoretical problems for aproaching biomedical aspects of peptide/proteins and carbohydrates and lipids and to perform a series of bioanalytical analyzes (qualitative and quantitative) to determine the structures of biololecules in body and their rols. → Students will also be able to interpret and correlate the role of proteins, enzymes, antibodies and metabolites.
C	**LECTURE CONTENT**
	• Introduction to biomolecules with physiological role (nucleotides, nucleic acids, peptides, proteins, enzymes, antibodies, metabolites). • Fat-soluble vitamins: metabolic role; • Soluble vitamins and metabolism; • Alcoholic fermentation and glycolysis;

	• Gluconeogenesis pathways; • Photosynthesis; • Fatty acid biosynthesis and fatty acid catabolism; • Biochemistry of amino acids; • Peptide: metabolic role; • Protein biosynthesis; • Introduction to bioenergetics
D	**RECOMMENDED READING FOR LECTURES**
	1. Voet, D., Voet, J., Pratt, C. W., Fundamental of Biochemistry (2nd Edition), (2006). 2. Nelson, D. L., Cox, M. M Lehninger, Principles of Biochemistry (2nd Edition), (2004). 3. T.P. Mommsen, P. Hochachka, Metabolic Biochemistry, Volume 4, (1st Edition), (1995).
E	**LABORATORY CONTENT**
	1. Labor Protection Rules. Getting started. Specific calculations regarding the laboratory topics. 2. Extraction, separation and dosing of chlorophylls and carotenes. 3. Determination of alpha-amylase activity. 4. Determination of amino acids. 5. Alcoholic fermentation in the presence of bread yeast. 6. Determination of creatinine. 7. Laboratory test. Literature review - presentation of a topic of interest in the field of Metabolic Biochemistry.Students reports (ppt presentation) and laboratory activity evaluation
F	**RECOMMENDED READING FOR LABORATORY – EXPERIMENTAL PART**
	1. Ioannis S. Patrikios, Book of Laboratory Techniques, 2013 2. Bishop M., Dubin-Engelkirk J.L.D., Fody E.P., Clinical chemistry. Principle, procedure, correlation, Ed. Lippincott Williams & Wilkins, 1999 3. Metabolism at a Glance 4th Edition by J. G. Salway, (2020) 4. http://www.biology.arizona.edu/biochemistry/problem_sets/metabolism/metabolism.html
G	**EDUCATION STYLE**
LEARNING AND TEACHING METHODS	Narration, demonstrated examples, knowledge synthesis, discovery learning, conversation, description of some case studies, online platform working
ASSESSMENT METHODS	Continuous assessment during the course and laboratory. Power-point presentation on a selected topic from the course and assessment of results obtained during laboratory. Final evaluation (written exam). The assessment grades are from 1 to 10.
LANGUAGE OF INSTRUCTION	English