

Study program: Organic crop and livestock production			
Type and level of study: Bachelor academic studies			
Course Title: BASICS OF BIOCHEMISTRY			
Professors: Dr. Panković M. Dejana, Full Professor			
Status: Compulsory, semester II			
ECTS: 8			
Prerequisite: None			
The goal of the course Acquiring knowledge about the basic biochemical processes in living organisms and their changes under the influence of abiotic and biotic stressors from the environment.			
The outcome of the course Acquired knowledge should provide the understanding of interactions between organisms and their environment in respect to current climatic changes			
Syllabus <i>Theoretical study</i> - Importance of biochemistry in agriculture. Carbohydrates: definition, classification, structure, properties of glucose, biological significance of carbohydrates. Proteins: introduction, definition, classification, properties and structure of proteins. Amino-acids: definition, structure, classification and properties of amino acids. Lipids: introduction, definition, classification of lipids, properties of fats and oils, biological significance, purines, pyrimidines and nucleic acids. Minerals and their biochemical functions. Enzymes: definition, classification, chemical nature of enzymes, factors affecting enzyme activity, biological role of enzyme as a catalyst. Vitamins: introduction, classification, properties, functions and deficiency symptoms of vitamin A, D, E, K, B complex (B1 and B12) and vitamin C (ascorbic acid). Nutrition: definition, nutritional components of food, importance of the energy needs, nutritional importance of carbohydrates, proteins, fats and fatty acids, minerals, water and fibre. Biochemical changes in the course of germinating seeds. Biochemical changes during ripening fruits. Fermentation processing of nutrients in animals, regulation of growth and development in animals. <i>Practical lessons</i> - Preparation for laboratory work, introduction to laboratory equipment, making solutions, determination of pH, colorimetry and spectrophotometry (carbohydrates and proteins).			
Literature David L. Nelson and Michael M. Cox. Lehninger Principles of Biochemistry. 2012. W.H. Freeman; 6 edition, 140p Denise R. Ferrier. Biochemistry (Lippincott Illustrated Reviews Series) Sixth, North American Edition, LWW pub. 560 p. Chesworth J.M., Stuchbury T. & Scaife J.R. (1998). An Introduction to Agricultural Biochemistry, Chapman & Hall.			
Number of lectures: 6			Other Lessons
Lectures: 3	Practices: 3	Other forms of teaching: Student research work:	
Teaching methods:			
Score (maximum 100 points)			
Pre-commitments	Points	The final exam	Points
Activity during lectures	10	Written exam	40
Practical lessons	10	Oral examination	
Preliminary exam	20		
Seminars	20		
<i>Total</i>	60		40