

DESCRIPTION OF A STUDY COURSE – SYLLABUS

Title of a course	Biochemistry				
Head of course	PhD Siniša Petrović, College Professor				
Study programme	Professional undergraduate study Mediterranean Agriculture				
Status of a course	Obligatory				
Year of study	1	Semester	II	ECTS credits	5
Teaching plan (L + E + S+ Pr)	L+E				
Goals of a course					
To acquaint students with the basic chemical structures in the body, to explain the functioning of the organism at the molecular level and to show students the biochemical basis of the processes that occur during the processing of the most important Mediterranean cultures. Exercises allow developing the ability to solve tasks, experiment, record results, and draw conclusions from the measurements performed.					
Conditions for enrolling course					
No conditions					
Learning outcomes on a level of a study programme which includes course					
<p>Outcome 3: Prepare a plan for the cultivation of Mediterranean crops, including economic and cultivation elements.</p> <p>Outcome 8: Conduct correction of crushed grapes, grape must and wine on the basis of chemical composition and apply new technologies in wine production, care, stabilization and finalization.</p> <p>Outcome 9: Recommend raw materials, tools and method of preserving Mediterranean crops and bee products.</p> <p>Outcome 10: Interpret virgin olive oil production technology.</p>					
Expected learning outcomes on a level of a course					
<ol style="list-style-type: none"> 1. Describe the principles of construction and the role of macromolecules in biochemical processes. 2. Distinguish and explain useful and harmful biochemical processes occurring in the processing of Mediterranean crops. 3. Explain the basic metabolic pathways and functioning of the organism at the molecular level. 4. Use laboratory techniques applied in the organic matter analysis. 5. Explain the meaning of a genetic message and describe the basic biochemical processes of its transmission and protein synthesis. 					
Content of a course					
<p>Biochemistry as a study of molecular structures and chemical reactions in the organism. Macromolecules: principles of organisation, conformation and molecular interactions. Amino acids and peptides: properties and functions. Proteins: structure and function, enzymes as biological catalysts. Action of biocides as enzyme inhibitors. Coenzymes, prosthetic groups and vitamins. Carbohydrates: structure and function, main categories in grapes. Lipids: structure and function. Neutral fats, oils and lipids in Mediterranean cultured plants and products. Waxes and complex lipids. Metabolism: basic concepts and regulation. Photosynthesis: reactions on the light and the dark reactions. Glycolysis. Alcoholic, lactic and glycerol-pyruvic fermentation. Biochemical transformations that occur during wine production and in cases of wine defects. Citric acid cycle and oxidative phosphorylation. Nitrogen fixation and biosynthesis of amino acids. Nucleic acids and the genetic code. Protein synthesis and genetic engineering. Characteristics of GMO and problems associated with their production and utilisation.</p>					
Teaching modes	<input checked="" type="checkbox"/> lectures <input type="checkbox"/> auditory exercises <input checked="" type="checkbox"/> seminars and workshops <input type="checkbox"/> distance learning <input type="checkbox"/> field classes		<input checked="" type="checkbox"/> individual assignments <input type="checkbox"/> multimedia and network <input type="checkbox"/> laboratory <input type="checkbox"/> supervisor's work <input type="checkbox"/> other _____		
Comments					

Students' obligations						
Grading, evaluation and monitoring of students' work continuously during lectures and exams						
Grading is based upon evaluation of course's learning outcomes' adoption. Grading is performed continuously during lectures and/or during exam, in compliance with the provisions of Regulation on the assessment of students.						
Continuous check-up:						
Outcomes	Pre-exam I	Pre-exam 2	Laboratory exercises	Home assignment	Threshold	Max
Outcome 1	20		4	2	13	26
Outcome 2	18		4	2	12	24
Outcome 3		24		2	13	26
Outcome 4	2		8		5	10
Outcome 5		14			7	14
Percentage of ECTS	2	1.9	0.8	0.3		
Total	40	38	16	6	50 %	100 %
A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.						
Exam term:						
Outcomes	Written exam	Oral exam	Max			
Outcome 1	22	4	26			
Outcome 2	20	4	24			
Outcome 3	22	4	26			
Outcome 4	4	6	10			
Outcome 5	12	2	14			
Percentage of ECTS	4	1				
Total	80	20	100 %			
A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.						
Grading:						
A student has passed the exam if he has acquired at least 50% of anticipated credits of a specific learning outcome.						
If a student has passed learning outcomes of all courses, the accomplished credits (percentages) of all passed learning outcomes are being added, while the final grade is defined upon following table:						
Range of credits (percentages)		Numerical grade	ECTS grade			
90,00 – 100,00		Excellent (5)	A			
75,00 – 89,99		Very good(4)	B			
60,00 – 74,99		Good(3)	C			
50,00 – 59,99		Sufficient (2)	D			
0,00 – 49,99		Insufficient (1)	F			
Obligatory literature						
1. Petrović S. (2008) Uvod u biokemiju. Futura, Rijeka.						
2. Petrović S. (2010) Vježbe iz biokemije. Futura, Rijeka.						
3. Amiđ, D. (2008) Organska kemija za studente agronomске struke. Školska knjiga, Zagreb.						
Additional literature						

1. Karlson, P. (1993) Biokemija. Školska knjiga, Zagreb.
2. Stryer, L. (1991) Biokemija. Školska knjiga, Zagreb.
3. Pine, H. S. (1993) Organska kemija. Školska knjiga, Zagreb

