

DESCRIPTION OF A STUDY COURSE – SYLLABUS

Title of a course	Agrarian microbiology				
Head of course	PhD Urška Kosić, Lecturer				
Study programme	Professional undergraduate study Mediterranean Agriculture				
Status of a course	Obligatory				
Year of study	1	Semester	II	ECTS credits	4
Teaching plan (L + E + S+ Pr)	2+1+0+0				
Goals of a course					
Introducing students to the role and importance of microorganisms in the circulation of substances in nature. Classification of microorganisms and their meaning and role in food production and spoilage.					
Conditions for enrolling course					
No conditions					
Learning outcomes on a level of a study programme which includes course					
Outcome 6: Determine economically significant pests and implement preventative and curative methods of plant protection with respect to the production system. 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. Outcome 9: Recommend raw materials, tools and method of preserving Mediterranean crops and bee products.					
Expected learning outcomes on a level of a course					
1. Adopt basic concepts related to microbiology. 2. Distinguish cell types. 3. Adopt basic microscopy methods. 4. Classify microorganisms significant in food production. 5. Adopt the basic concepts of elements circulation in nature					
Content of a course					
Introduction into role and importance of microorganisms. Structure of prokaryotic and eukaryotic ones. Metabolism of microorganisms (catabolic and anabolic reactions, catabolism of carbohydrates, aerobic respiration, anaerobic respiration, fermentation). Growth and propagation of microorganisms (ways of their nourishing, bacterial growth curve). Microorganisms important in wine making (yeasts, moulds and bacteria). Yeasts: Classification of yeasts. Bacteria with special reference to lactic acid and acetic bacteria. Moulds causing food of spoiled food. Microorganisms in circulation of elements in nature. Circulation of carbon, nitrogen and other elements. Role of microorganisms in soil fertility. Basics of HACCP. HACCP of plan in family farm.					
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	Independent task	Threshold	Max
Outcome 1	20 %		10 %	20 %
Outcome 2	20 %	5 %	12,5 %	25 %
Outcome 3	10 %		5 %	10 %
Outcome 4	25 %	10 %	17,5 %	35 %
Outcome 5	10 %		5 %	10 %
Percentage of ECTS	3,4	0,6	-	-
Total	85 %	15 %	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	Threshold	Max
Outcome 1	20 %		10 %	20 %
Outcome 2	20 %	5 %	12,5 %	25 %
Outcome 3	10 %		5 %	10 %
Outcome 4	25 %	10 %	17,5 %	35 %
Outcome 5	10 %		5 %	10 %
Percentage of ECTS	3,36	0,6	-	-
Total	85 %	16 %	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.

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. Duraković S. i Redžepović S. (2003) **Uvod u opću mikrobiologiju** – knjiga prva
2. Duraković S. i Redžepović S. (2003) **Uvod u opću mikrobiologiju** – knjiga druga

Additional literature

1. Duraković S. i Duraković L. (2001) **Mikrobiologija namirnica – osnove i dostignuća** – knjiga prva
2. Duraković S. i Duraković L. (2001) **Mikrobiologija namirnica – osnove i dostignuća** – knjiga druga

