Γ	Course: ENOLOGY	7		
Code	Status of the	Semester	ECTS	Lecture classes
	course			
291107093	Required	VI	4	2P+1L
Academic Study Pro	gram: Basic academ	ic studies - Fruit g	growing and Viticulture (stu	idies last 2 semesters, 180
ECTS credits)				
Prerequisites: No				
			ion, the chemical compos	
			fermentation process, win	e stabilization, care and
treatment of wine and			-	
Teacher and assistant				
			actical work in the winery	of Biotechnical faculty,
colloquiums, consulta	ation, seminar paper a			
		Course cont		
Week for preparation	·····	a enrollment of stu		
I week			and importance of wine cul	
II week			oducing with the major w	vine-growing regions and
	wine countries in		1 fooulty for inter 1	with toohnoli1
Practical			al faculty for introducing w	ath technological process
	¹ of wine producti		e for wine production; N	Achanical and chamical
III week	composition of g		e for while production, w	rechanical and chemical
Practical		hanical composition	on of grapos:	
IV week			imary processing of grapes	•
Practical	·····	<u> </u>	of must (density and conte	
V week			on; The strains of wine yeas	
Practical			(total acidity and pH);	505,
VI week	Colloquium I;	ity must and write	(total actually and p11),	
VII week	·····	of SO ₂ in wine pro	duction:	
Practical		and free SO_2 in v		
VIII week		roducing white wi		
Practical			ent of alcohol - fast method	s:
IX week	~	roduction red and		
	Analyses of wi		content of alcohol by us	ing distillation unit and
Practical	7: hydrostatic balar	•		
X 7 1			e wine; Technological proc	edures and operations and
X week	equipment;	U		1
D	Visit to winery	"13 Jul Plantaz	e" for introducing with t	echnological procedures,
Practical	8: operations of fin	alization wine and	equipment;	
XI week	Spoilage and def	ects of wine; Prev	enting the emergence of the	ese processes in wine;
Practical			d in wine (fast method and	
XII week			Process of producing of lique	eurs and sparkling wines;
Practical 1		ent of residual suga	ar in wine;	
XIII week	Colloquium II;			
XIV week	- •		Sensory evaluation and	analysis of the chemical
	composition of v			
Practical 1			n assessment of wines (C	DIV official <i>method</i>) and
	Buxbaum method		- C	
XV week		nations and origin		
Practical 1	·····.	rameters of the ch	emical composition of wine	e;
XVI week	Final exam;	1 11	mant of and 1.	
End week		emester and enroll		
XVIII-XXI week	Additional lesso	ns and extra exam		
		Student oblig	gation:	

<u>Weekly</u>	In semester
4 credits x $40/30 = 5$ hours 20 min	Teaching and the final exam: (5 hours 20 min) x $16 = 85$ hours 20 min
Structure:	Preparation before the beginning of the semester (administration,
- 2 hours of teaching	enrollment, etc) $2x(5 \text{ hours}) = 10 \text{ hours } 40 \text{ min}$
- 1 hours of practical work including	Total work hours for the course: $4 \times 30 = 120$ hours
colloquiums	Additional hours for preparing of examines in additional examination's
- 1 hour 20 min of individual work	period 0-24 hours
	Structure: 85 hours 20 min (lectures), 85 hours (preparation) and 24
	hours (additional work)
Literatura:	
	ija vina, Građevinska knjiga, Beograd.
	na – Praktikum, Poljoprivredni fakultet Beograd – Zemun.
	gija vina«Agron <i>omski fakultet, Zagreb</i>
	ements scientifiques et technologiques Tech.& Doc./Lavoisier, Paris.
	, Handbook of enology, Vol 2. The Chemistry and wine stabilization and
treatments, Chapman&Hall Dunoc	
 B. W. Zoecklein, K. C. Fugelsang Enology Library, June 1995. 	g, B. H. Gump, F. S. Nury, Wine Analysis and Production, The Chapman-Hall
The forms of knowledge testing and gr	rading:
- Class attendance: 3 points	
- Colloquiums 2x20 40 points	
- Attendance at practices 3 points	
- Seminar 5 points	
-Final exam 49 points	
Passing grade gets after cumulative colle	ect at least 51 points.
	ation: Prof. Dr Radmila Pajović-Šćepanović
	rse: The teaching is organized in their native language with the help of
audio-visual devices	
Note:	
·	
Learning outcomes:	
Learning outcomes.	
Learning outcomes.	
The student have demonstrated the abil	ity to:

- Being familiar with culture of wine (wine regions, types and categories of wine);
- Analyze the parameters of the mechanical composition of grape and chemical composition of must;
- Determine the best moment for harvesting;
- Analyze the process of fermentation;
- Organize technological process in the producing of red and white wine;
 Organize technological process during the treatment, care, storage and aging of wine;
- Analyze the sensory properties of wine;
- Recognize the primary defects and spoilage of wine;
- Analyze the chemical properties of wine in laboratory.

Γ	Course: ENOLOGY	WITH GRAPE	PROCESSING	
Code	Status of the course	Semester	ECTS	Lecture classes
291107093	Required	Ι	5	3L+2L
Academic Study Pro	ogram: Master acade	mic studies - Fru	it growing and Viticulture (studies last 4 semesters,
240 ECTS credits)				
Prerequisites: No				
Course aims: Acqui	ring knowledge abo	ut: wine product	on, the chemical composit	tion of must and wine,
procedures of prima	ry processing of gr	apes and must,	fermentation process, wine	stabilization, care and
treatment of wine and	determination of qua	lity of wine.	_	
Teacher and assistants	s: Prof. Dr Radmila P	ajović-Šćepanovi	6	
The course consists	of: Lectures, labora	tory analyses, pr	actical work in the winery	of Biotechnical faculty,
colloquiums, consulta	tion, seminar paper a	nd final exam.		
		Course con	tent:	
Week for preparation	Preparation and	a enrollment of stu	idents;	
I week			and importance of wine cult	ure;
π 1			oducing with the major wi	
II week	wine countries in	0	6 3	
ъ. <u>1</u> 1	Visit to the wine	ery of Biotechnica	al faculty for introducing wi	th technological process
Practical	1: of wine producti		, , , , , , , , , , , , , , , , , , , ,	
111 1			e for wine production; M	echanical and chemical
III week	composition of g		L ,	
Practical		hanical compositi	on of grapes;	
IV week			imary processing of grapes;	
Practical			of must (density and conten	
V week			on; The strains of wine yeast	
Practical			(total acidity and pH);	~ ,
VI week	Colloquium I;			
VII week	·····	of SO ₂ in wine pro	duction.	
Practical		and free SO_2 in vine pro-		
VIII week		roducing white wi		
Practical			ent of alcohol - fast methods	•
IX week		roduction red and		,
	Analyses of wi		content of alcohol by using	ng distillation unit and
Practical	7: hydrostatic balar		content of alcohol by ush	ig distillation unit and
			e wine; Technological proce	dures and operations and
X week	equipment;	una storage or in	, vine, reemiorogrea proces	autos ana operations ana
	Visit to winerv	"13 Jul Plantaz	e" for introducing with te	chnological procedures.
Practical	x	alization wine and	•	,
XI week			enting the emergence of the	se processes in wine:
Practical			d in wine (fast method and w	
XII week			Process of producing of liqueu	
Practical 1		nt of residual sug		
XIII week	Colloquium II;	0		
	······	on of the wines:	Sensory evaluation and a	nalysis of the chemical
XIV week	composition of v		-	-
D 11	Techniques of s	ensory evaluation	n assessment of wines (OI	V official <i>method</i>) and
Practical 1	1: Buxbaum method	•		,
XV week		nations and origin	of names wines;	
Practical 1			emical composition of wine;	•
XVI week	Final exam;			
End week		emester and enrol	ment of grade;	
XVIII-XXI week		ns and extra exam		
		ena enam		

	Student obligation:
Weekly	In semester
5 credits x $40/30 = 6$ hours and 40 min	Teaching and the final exam: (6 hours and 40 min) x $16 = 160$ hours
Structure:	and 40 min
- 3 hours of teaching	Preparation before the beginning of the semester: 2x(6 hours and 40
- 2 hours of practical work including	$\min(m) = 13$ hours and 20 min
colloquiums	Total work hours for the course: $5 \times 30 = 150$ hours
- 2 hours and 40 min of individual work	Additional hours for preparing of examines in additional examination's period 0-30 hours
	Structure: 106 hours and 40 min. (lectures), 13 hours and 20 min. (preparation) and 32 hours (additional work)
Literatura:	
	ija vina, Građevinska knjiga, Beograd.
	na – Praktikum, Poljoprivredni fakultet Beograd – Zemun.
	gija vina«Agron <i>omski fakultet, Zagreb</i>
	ements scientifiques et technologiques Tech.& Doc./Lavoisier, Paris. , Handbook of enology, Vol 2. The Chemistry and wine stabilization and
treatments, Chapman&Hall Dunoc	
	g, B. H. Gump, F. S. Nury, Wine Analysis and Production, The Chapman-Hall
Enology Library, June 1995.	,, _ · · · · · · · · · · · · · · · · · ·
The forms of knowledge testing and gr	ading:
- Class attendance: 3 points	
- Colloquiums 2x20 40 points	
- Attendance at practices 3 points	
- Seminar 5 points	
-Final exam 49 points	
Passing grade gets after cumulative colle	ect at least 51 points.
Teacher, which gave informa	ation: Prof. Dr Radmila Pajović-Šćepanović
Special remarks for the cour	se: The teaching is organized in their native language with the help of
audio-visual devices	

Learning outcomes:

The student have demonstrated the ability to:

- Being familiar with culture of wine (wine regions, types and categories of wine);
- Analyze the parameters of the mechanical composition of grape and chemical composition of must;
- Determine the best moment for harvesting;
- Analyze the process of fermentation;
- Organize technological process in the producing of red and white wine;
- Organize technological process during the treatment, care, storage and aging of wine;
- Analyze the sensory properties of wine;
- Recognize the primary defects and spoilage of wine;
- Analyze the chemical properties of wine in laboratory.

	Course: QUALITY	WINE AND WI	NE STORAGE	
Code	Status of the	Semester	ECTS	Lecture classes
	course			
	optional	2	5	3P+2L
Academic Study Pr	rogram: Master acade	emic studies - Fru	it growing, Viticulture and	1 Enology (studies last 4
semesters, 240 ECTS	•			
Prerequisites: No				
	roduce students with:	wine production.	methods of determining the	quality of wine (physico-
		1	as, conditions and techniqu	1 0 10
wine	·			0
Teacher and assista	nts: Prof. Dr Radmila	Pajović-Šćepanov	vić	
The course consists	s of: Lectures, practic	cal work – prepa	ration wines in the winery	of Biotechnical faculty,
	seminar paper and fina		·	•
		Course con	tent:	
Week for preparation	n Preparation and	a enrollment of stu	idents;	
I week	÷	ents with course, 1		
II week			mposition of grape, must ar	ıd wine;
D	Crushing of the		of SO_2 in crashed grape	
Practical	fermentation;			C C
III week	Factors of wine's	s quality; Physico-	-chemical analysis paramete	ers of wine quality;
Practical	2: Analyses of cher	nical composition	must: sugar, total acidity a	nd pH;
IV week	Instrumental met	hods of analysis p	parameters in wine (spectro	photometry and HPLC);
Practical	3: Monitoring of th	e fermentation (m	easuring the specific densit	y of must);
V week	Quality evaluation	of wine;		.
Practical	4: Analysis of the f	ermentation proce	ss; Racking wine from the	mark;
VI week	Seminar paper I;			
VII week	Sensory evaluati	on characteristic c	of wine;	
Practical	-	-	nt of alcohol - fast methods;	
VIII week			vine; the terms of the sensor	
Practical		nsory evaluation as	sessment of wines (OIV offi	cial method) and Buxbaum
IX week	<u><i>method;</i></u> Legislation in the	e field of wine's q	uality control.	
Practical			aeration and it's filling in th	e closed vessels:
	<u> </u>		ic operations in the prepar	
X week	impact to the qua		ie operations in the propu	
т	Analyses of densit		nt of alcohol by using distillati	on unit and hydrostatic
Practical	8: balance;		, ,	,
XI week	Treatment of wir	ne during maturing	g and aging; Techniques of	stabilization of wine;
Practical	9: Spectrophotomet	tric analysis of pol	lyphenol compounds in win	e;
XII week	Chemical change	es in the wine duri	ng maturation and aging; W	/ine bottling;
Practical	1 1		emical and sensorial compo	
XIII week		ne barrels ; Equip	ment and installations in the	e winery;
Practical				
XIV week			ine, Storing wine in barrels	bariqque;
Practical		wine from the sedi	iment;	
XV week	Seminar paper II	!;		
XVI week	Final exam;			
End week		emester and enroll	Ŧ	
XVIII-XXI week	Additional lesson	ns and extra exam	ination session.	

	Student obligation
Weekly	In semester
5 credits x $40/30=6$ hours and 40 min	Teaching and the final exam: (6 hours and 40 min) x $16 = 160$ hours
Structure:	and 40 min
- 3 hours of teaching	Preparation before the beginning of the semester: $2x(6 \text{ hours and } 40)$
- 2 hours of practical work including	min) = 13 hours and 20 min
colloquiums	Total work hours for the course: $5 \times 30 = 150$ hours
- 2 hours and 40 min of individual work	Additional hours for preparing of examines in additional examination's period 0-30 hours
WOIR	Structure: 106 hours and 40 min. (lectures), 13 hours and 20 min.
	(preparation) and 32 hours (additional work)
Literature:	(propulation) and 52 hours (additional work)
	na – Praktikum, Poljoprivredni fakultet Beograd – Zemun;
	B. H. Gump, F. S. Nury, (1995): Wine Analysis and Production, The Chapman-
	B. H. Ounip, F. S. Nury, (1995). White Analysis and Floduction, The Chapman-
Hall Enology Library, New York.;	: Osnovne kemijske analize mošta i vina; Laboratorijske vežbe za predmet
Tehnologija vina, Biotehnički falu	
	, Handbook of enology, Vo1 2. The Chemistry and wine stabilization and
treatments, Chapman&Hall Duno	
	ija vina, Građevinska knjiga, Beograd.; .
The forms of knowledge testing and g	rading:
- Class attendance: 3 points	
- Colloquiums 2x20 40 points	
- Attendance at practices 3 points	
- Seminar 5 points	
-Final exam 49 points	
Passing grade gets after cumulative colle	ect at least 51 points.
	mation: Prof. Dr Radmila Pajović-Šćepanović
Special remarks for the co	ourse: The teaching is organized in their native language with the help of
audio-visual devices	
Note:	
Learning outcomes:	
The students have demonstrated the abil	ity to:
Being familiar with procedure of prepara	ation red wines in the winery.
Analyze the parameters of the chemical	
	composition of crusticu grape/musi,
Analyze the process of fermentation;	
Analyze the parameters of the chemic	cal composition of wine (classical - reference methods and fast

Analyze the parameters of the chemical composition of wine (classical methods in cellar); reference methods and fast

Analyze the sensory properties of wine; Organize technological process of producing white and red wines Organize technological process during the treatment, care, storage and aging of wine.

Phytopathological Society, USA. Material from Internet; Lecture presentations.		0	Course:	Fruit tree and grapevine dis	eases
Master academic studies: Plant production – Plant protection Course description The aim of the course is to enable students to adopt scientific knowledge about the most important fruit tree and grapevine diseases, their distribution and economic importance, mai symptoms, causal agents, pathogenesis and spread of the disease, in relation with possible protection measures. Learning outcomes After passing the exam, the student will acquire knowledge that allows him to: define the role and significance of diseases in the cultivation of fruit trees and yraecteristic life cycle development and possible control measures in the most significant diseases pome and stone fruits, berries, nuts, subtropical fruits, diseases caused by polifago pathogens and diseases of grapevine choose the most adequate control measures of pathogens in fruit and vineyard productio Learning methods: Lectures, Laboratory practice, Field work, Seminars Week Lectures Introduction to fruit tree and grapevine diseases Practicum Lab exercise: basic characteristics of fruit and grape pathogens II week Lectures Pome fruit diseases Practicum Lab exercise: basic characteristics of fruit and grape pathogens III week Lectures Pome fruit diseases Practicum Lab exercise: basic characteristics of fruit and grape pathogens II week Lectures Pome fruit diseases Practicum Deservation on herbarized material V week Lectures Pome fruit diseases Practicum Deservation on herbarized material Viewek Lectures Stone fruit diseases<!--</th--><th></th><th>Semester</th><th></th><th></th><th></th>		Semester			
Course description The aim of the course is to enable students to adopt scientific knowledge about the most important fruit tree and grapevine diseases, their distribution and economic importance, mail symptoms, causal agents, pathogenesis and spread of the disease, in relation with possible protection measures. Learning outcomes After passing the exam, the student will acquire knowledge that allows him to: • define the role and significance of diseases in the cultivation of fruit trees and grapevine • describe the disease distribution and harmfulness, symptoms, pathogen characteristic life cycle development and possible control measures in the most significant diseases or protein a diseases of grapevine • choose the most adequate control measures of pathogens in fruit and vineyard productio Lecturer: Prof. Jelena Latinović, PhD Learning methods: Lectures, Laboratory practice, Field work, Seminars Weekk Lectures Introduction to fruit tree and grapevine diseases Practicum Lab exercise: basic characteristics of fruit and grape pathogens II week Lectures Practicum Lab exercise: basic stone fruit diseases Practicum Lab exercise: basic characteristics of fruit and grape pathogens II week Lectures Pome fruit diseases Practicum Recognizing the symptoms of diseased plants V week Le		II		6	3L + 2P
Course description The aim of the course is to enable students to adopt scientific knowledge about the most important fruit tree and grapevine diseases, their distribution and economic importance, mail symptoms, causal agents, pathogenesis and spread of the disease, in relation with possible protection measures. Learning outcomes After passing the exam, the student will acquire knowledge that allows him to: • define the role and significance of diseases in the cultivation of fruit trees and grapevine • describe the disease distribution and harmfulness, symptoms, pathogen characteristic life cycle development and possible control measures in the most significant diseases or protein a diseases of grapevine • choose the most adequate control measures of pathogens in fruit and vineyard productio Lecturer: Prof. Jelena Latinović, PhD Learning methods: Lectures, Laboratory practice, Field work, Seminars Weekk Lectures Introduction to fruit tree and grapevine diseases Practicum Lab exercise: basic characteristics of fruit and grape pathogens II week Lectures Practicum Lab exercise: basic stone fruit diseases Practicum Lab exercise: basic characteristics of fruit and grape pathogens II week Lectures Pome fruit diseases Practicum Recognizing the symptoms of diseased plants V week Le					
The aim of the course is to enable students to adopt scientific knowledge about the moss important fruit tree and grapevine diseases, their distribution and economic importance, mai symptoms, causal agents, pathogenesis and spread of the disease, in relation with possible protection measures. Learning outcomes After passing the exam, the student will acquire knowledge that allows him to: • define the role and significance of diseases in the cultivation of fruit trees and yrapevine • define the role and significant diseases of fruit trees and grapevine • describe the disease distribution and harmfulness, symptoms, pathogen characteristic life cycle development and possible control measures in the most significant diseases pome and stone fruits, berries, nuts, subtropical fruits, diseases caused by polifagon pathogens and diseases of grapevine • choose the most adeguate control measures of pathogens in fruit and vineyard productio Lecturer: Prof. Jelena Latinović, PhD Learning methods: Lectures, Laboratory practice, Field work, Seminars Weekly Less schedue I week Lectures Practicum Lab exercise: basic characteristics of fruit and grape pathogens II week Lectures Practicum Recognizing the symptoms of diseased plants IV week Lectures Pome fruit diseases Practicum Practicum Recognizing the symptoms of diseased plants VI week Lectures			Plant	production – Plant protection	า
important fruit tree and grapevine diseases, their distribution and economic importance, mail symptoms, causal agents, pathogenesis and spread of the disease, in relation with possible protection measures. Learning outcomes After passing the exam, the student will acquire knowledge that allows him to: define the role and significance of diseases in the cultivation of fruit trees and yrape describe the diseases distribution and harmfulness, symptoms, pathogen characteristic life cycle development and possible control measures in the most significant diseases pome and stone fruits, berries, nuts, subtropical fruits, diseases caused by polifago pathogens and diseases of grapevine choose the most adequate control measures of pathogens in fruit and vineyard productio Lecture: Prof. Jelena Latinović, PhD Learning methods: Lectures Latinović, PhD Learning methods: Lectures Latinović, PhD Lectures Introduction to fruit tree and grapevine diseases Practicum Lab exercise: basic characteristics of fruit and grape pathogens Il week Lectures Pome fruit diseases Practicum Recognizing the symptoms of diseased plants IV week Lectures Stone fruit diseases; None fruit diseases Practicum Recognizing the symptoms of diseased plants Viek Lectures Stone fruit diseases Viek Lectures Stone fruit diseases Practicum Recognizing the symptoms of diseased plants Viek Lectures Stone fruit diseases Practicum Recognizing the symptoms of diseased plants Vieweek Lectures Stone fruit diseases Practicum Recognizing the symptoms of diseased plants Viewek Lectures Stone fruit diseases Practicum Recognizing the symptoms of diseased plants Viewek Lectures					
symptoms, causal agents, pathogenesis and spread of the disease, in relation with possible protection measures. Learning outcomes After passing the exam, the student will acquire knowledge that allows him to: • define the role and significance of diseases in the cultivation of fruit trees and vine • recognize symptoms of the most significant diseases of fruit trees and grapevine • describe the disease distribution and harmfulness, symptoms, pathogen characteristic life cycle development and possible control measures in the most significant diseases pome and stone fruits, berries, nuts, subtropical fruits, diseases caused by polifagor pathogens and diseases of grapevine • choose the most adequate control measures of pathogens in fruit and vineyard productio Lecturer: Prof. Jelena Latinović, PhD Learning methods: Lectures, Laboratory practice, Field work, Seminars Weekly class schedule I week Lectures Introduction to fruit tree and grapevine diseases Practicum Lab exercise: basic characteristics of fruit and grape pathogens II week Lectures Pome fruit diseases Practicum Recognizing the symptoms of diseased plants IV week Lectures Pome fruit diseases. Practicum Observation on herbarized material V week Lectures Pome fruit diseases Practicum Recognizing the symptoms of diseased plants IV week Lectures Stone fruit diseases. Practicum Recognizing the symptoms of diseased plants VII week Lectures Stone fruit diseases Practicum Recognizing the symptoms of diseased plants VII week Lectures Stone fruit diseases Practicum Recognizing the symptoms of diseased plants VII week Lectures Stone fruit diseases Practicum Recognizing the symptoms of diseased plants VII week Lectures Stone fruit diseases Practicum Recognizing the symptoms of diseased plants XII week Lectures Small fruit diseases Practicum Recognizing the symptoms of diseased plants XI week Lectures Cornel fruit diseases Practicum Recognizing the symptoms of diseased plants XI week Lectures Grapevine diseases; Diseases of subtropical					
protection measures. Learning outcomes After passing the exam, the student will acquire knowledge that allows him to: • define the role and significance of diseases in the cultivation of fruit trees and vine • recognize symptoms of the most significant diseases of fruit trees and grapevine • describe the disease distribution and harmfulness, symptoms, pathogen characteristic life cycle development and possible control measures in the most significant diseases pome and stone fruits, berries, nuts, subtropical fruits, diseases caused by polifagor pathogens and diseases of grapevine • choose the most adequate control measures of pathogens in fruit and vineyard productio Lecture: Prof. Jelena Latinović, PhD Learning methods: Lectures, Laboratory practice, Field work, Seminars Week Lectures Lectures Introduction to fruit tree and grapevine diseases Practicum Lab exercise: basic characteristics of fruit and grape pathogens II week Lectures Lectures Pome fruit diseases Practicum Lab exercise: basic characteristics of fruit and grape pathogens II week Lectures Lectures Pome fruit diseases Practicum Laboratory exercises: microscopy VI week Lectures Lectures <td></td> <td></td> <td></td> <td></td> <td></td>					
Learning outcomes After passing the exam, the student will acquire knowledge that allows him to: • define the role and significance of diseases in the cultivation of fruit trees and grapevine • describe the disease distribution and harmfulness, symptoms, pathogen characteristic life cycle development and possible control measures in the most significant diseases pome and stone fruits, berries, nuts, subtropical fruits, diseases caused by polifago pathogens and diseases of grapevine • choose the most adequate control measures of pathogens in fruit and vineyard productio Learning methods: Lectures, Laboratory practice, Field work, Seminars Weekly class schedule I week Lectures I kectures Introduction to fruit tree and grapevine diseases Practicum Lab exercise: basic characteristics of fruit and grape pathogens II week Lectures Pome fruit diseases Practicum Recognizing the symptoms of diseased plants IV week Lectures Pome fruit diseases, stone fruit diseases Practicum Laboratory exercises: microscopy VI week Lectures Stone fruit diseases, stone fruit diseases Practicum Recognizing the symptoms of diseased plants VI week Lectures Stone fruit diseases Practicum Recognizing the s			pathog	jenesis and spread of the di	sease, in relation with possible
After passing the exam, the student will acquire knowledge that allows him to: • define the role and significance of diseases in the cutivation of fruit trees and grapevine • describe the disease distribution and harmfulness, symptoms, pathogen characteristic life cycle development and possible control measures in the most significant diseases pome and stone fruits, berries, nuts, subtropical fruits, diseases caused by polifago pathogens and diseases of grapevine • choose the most adequate control measures of pathogens in fruit and vineyard productio Lecture: Prof. Jelena Latinović, PhD Learning methods: Lectures, Laboratory practice, Field work, Seminars Weekly class schedule I week Lectures Introduction to fruit tree and grapevine diseases Practicum Lab exercise: basic characteristics of fruit and grape pathogens III week Lectures Pome fruit diseases Practicum Recognizing the symptoms of diseased plants IV week Lectures Pome fruit diseases, Stone fruit diseases Practicum Chostroty exercise: microscopy VI week Lectures Stone fruit diseases Practicum Chostroty exercise: microscopy VI week Lectures Stone fruit diseases Practicum Chostroty exercises: microscopy VI week Lectures St					
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Forms of knowledge assessment and grading:					

Activities in lectures a	and exercises: 5	5 points			
Seminar paper: 5 poi	nts	-			
Two colloquia: 40 poi	ints				
Final exam: 50 points	6				
A passing grade is of	otained if at leas	st 50 points are	accumulated cu	mulatively	
Grading	А	В	С	D	E
Number of points	90-100	80-89	70-79	60-69	50-59
Data prepared by: P	Prof. dr Jelena	Latinović			

	Tittle of the course: INSECTS VECTORS OF PLANT PATHOGENS			
Module code	Status of the	Semester	ECTS	Fund of
	module			hours
	Compulsory	Π	4	2P +1L

Study program for which is organized: Academic master studies: **PLANT PROTECTION** (studies lasts 4 semesters, 120 ECTS credits)

Conditionality of other courses: No

Aims of the course: The aim of the course is students to cope and understand the most important groups of insects vectors of plant pathogens (aphids, cicadas, thrips and other insect species) and the morphology and anatomy of vectors of plant pathogens (viruses, phytoplasmas, bacteria, fungi), modes of viral, phytoplasmatic, bacterial and fungal transmission and control measures applying against vector species

Learning outcomes:

After the student passes this exam will be able to:

- Recignize the role of insect vectors and recognize vectors of plant pathogens
- Recognize and connects the symptoms of damage with the appearance of a certain disease
- Acquire knowledge and skills in terms of monitoring of vectors of plant pathogens
- Understand the mechanisms/modes of transmission of plant pathogens by different insect species

- Understand laboratory methods used in the identification of various plant pathogens transmitted by vector species

- Apply appropriate control measures to prevent the spread of certain diseases

Name and surname of the reacher and assistant: prof. dr Sanja Radonjić

Teaching methods used: Lecture, practical work, independent/group student work, consultations

		PLAN:
Weeks		
I week	Lecture	Introductory remarks. Systematics and the main characteristisc of vestors of plant pathodgens
	Practical work/exerecise	Systematic place of insects vectors of plant pathogens
II nedjelja	Lecture	Aphids (Aphididae) – vectors of plant pathogens
	Practical work/exerecise	Morphology and anatomy characteristics of aphids
III nedjelja	Lecture	Whiteflies (Aleyrodidae) - vectors of plant pathogens
	Practical work/exerecise	Morphology and anatomy characteristics of whiteflies
IV nedjelja	Lecture	Leafhoppers and planthoppers – vectors of plant pathogens
	Practical work/exerecise	Morphology and anatomy characteristics of leafhoppers and planthoppers
V nedjelja	Lecture	Psyllids (<u>Hemiptera</u> , <u>Psylloidea</u>) and thrips (Thysanoptera) – vectors of plant pathogens
	Practical work/exerecise	Morphology and anatomy characteristics of psyllids and thrips
VI nedjelja	Lecture Practical	Psyllids (<u>Hemiptera</u> , <u>Psylloidea</u>) and thrips (Thysanoptera) – vectors of plant pathogens
	work/exerecise	Colloquium I
VII nedjelja	Lecture	Other insects vectors of plant pathogens
	Practical work/exerecise	Presentation of independent/group students work
VIII nedjelja	Lecture	Colloquium I - correctional
	Practical work/exerecise	Methods of collecting and growing vector insects in the laboratory

Practical work/exerceise Rearing of aphids, whiteflies and thrips colony X nedjelja Lecture Phytoplasmas VII nedjelja Lecture Phytopathogenic bacteria and fungi VII nedjelja Lecture Phytopathogenic bacteria and fungi VII nedjelja Lecture Transmission of plant pathogens by aphids, whiteflies, leafhoppers, planthoppers, psyllids, thrips XIII nedjelja Lecture Transmission of plant pathogens by aphids, whiteflies, leafhoppers, planthoppers, psyllids, thrips XIV nedjelja Lecture Transmission of plant pathogens by aphids, whiteflies, leafhoppers, planthoppers, psyllids, thrips XIV nedjelja Lecture Molecular techniques used in identification and diagnosis of plant disease transmitted by vectors ZVV nedjelja Lecture Molecular techniques used in identification and diagnosis of plant disease transmitted by vectors XV nedjelja Lecture Molecular techniques used in identification and diagnosis of plant disease transmitted by vectors Tractical Molecular techniques - introduction work/exerceise XV nedjelja Lecture Lecture Molecular techniques used in identification and diagnosis of plant disease transmitted by ve	IX	nedjelja	Lecture	Plant viruses				
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Load structure: 85 hrs and 20 min. (teaching) + 10 hrs and 40 min. (preparation) + 24 hrs (additional work)Literature: Chapman R. F. (1998): The Insects, Structure and Function. Cambridge, University Press.; Blackman, R.L., Eastop, V.F. (2000): Aphids on the world's crops. An identification guide. A Wiley – interscience publication; Maramorosch, K., Harris, K (1979): Leafhopper Vectors and Plant Disease agents. Academic press, INC. New York; Cravedi, P., Mazzoni, E., Pasqualini, G., Pellizzari, G., Rapisarda, C., Russo, A., Suma, P., Tranfaglia, A. (2008): Psille, cocciniglie e aleirodidi- fruttiferi, agrumi, vite, olivo e otricole.Bayer Crop Science. Edizioni L'Informatore Agrario; Lewis, T. (1997): Thrips as Crop Pests. CABI;Forms of knowledge assessment and grading: Activity during teaching and ecerecise: 5 points	mwo	rk of studen	ts (preparations fo	Total load for the course: $4x \ 30 = 120 \text{ hrs}$				
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<i>Literature</i> : Chapman R. F. (1998): The Insects, Structure and Function. Cambridge, University Press.; Blackman, R.L., Eastop, V.F. (2000): Aphids on the world's crops. An identification guide. A Wiley – interscience publication; Maramorosch, K., Harris, K (1979): Leafhopper Vectors and Plant Disease agents. Academic press, INC. New York; Cravedi, P., Mazzoni, E., Pasqualini, G., Pellizzari, G., Rapisarda, C., Russo, A., Suma, P., Tranfaglia, A. (2008): Psille, cocciniglie e aleirodidi- fruttiferi, agrumi, vite, olivo e otricole.Bayer Crop Science. Edizioni L'Informatore Agrario; <u>Lewis</u> , T. (1997): Thrips as Crop Pests. CABI; <i>Forms of knowledge assessment and grading:</i> Activity during teaching and ecerecise: 5 points								
Blackman, R.L., Eastop, V.F. (2000): Aphids on the world's crops. An identification guide. A Wiley – interscience publication; Maramorosch, K., Harris, K (1979): Leafhopper Vectors and Plant Disease agents. Academic press, INC. New York; Cravedi, P., Mazzoni, E., Pasqualini, G., Pellizzari, G., Rapisarda, C., Russo, A., Suma, P., Tranfaglia, A. (2008): Psille, cocciniglie e aleirodidi- fruttiferi, agrumi, vite, olivo e otricole.Bayer Crop Science. Edizioni L'Informatore Agrario; <u>Lewis</u> , T. (1997): Thrips as Crop Pests. <u>CABI</u> ; <i>Forms of knowledge assessment and grading:</i> Activity during teaching and ecerecise: 5 points	.		D E (1000)					
Academic press, INC. New York; Cravedi, P., Mazzoni, E., Pasqualini, G., Pellizzari, G., Rapisarda, C., Russo, A., Suma, P., Tranfaglia, A. (2008): Psille, cocciniglie e aleirodidi- fruttiferi, agrumi, vite, olivo e otricole.Bayer Crop Science. Edizioni L'Informatore Agrario; <u>Lewis</u> , T. (1997): Thrips as Crop Pests. <u>CABI</u> ; <i>Forms of knowledge assessment and grading:</i> Activity during teaching and ecerecise: 5 points	Black	kman, R.L.,	Eastop, V.F. (200	0): Aphids on the world's crops. An identification guide. A Wiley –				
otricole.Bayer Crop Science. Edizioni L'Informatore Agrario; <u>Lewis</u> , T. (1997): Thrips as Crop Pests. CABI; <i>Forms of knowledge assessment and grading:</i> Activity during teaching and ecerecise: 5 points	Acad	lemic press,	INC. New York;	Cravedi, P., Mazzoni, E., Pasqualini, G., Pellizzari, G., Rapisarda, C.,				
Forms of knowledge assessment and grading: Activity during teaching and ecerecise: 5 points	otrico	ole.Bayer Ci	-					
Activity during teaching and ecerecise: 5 points			adaa aggaggmant a	nd grading.				
Colloquium: 30			-	eroe. 5 points				
Final exam: 65								
<i>Marks and grading</i> : A (\geq 90 - 100 points); B (\geq 80 - < 90); C (\geq 70 - < 80); D (\geq 60 - < 70); E (\geq 50 - <				0 points); B (\geq 80 - < 90); C (\geq 70 - < 80); D (\geq 60 - < 70); E (\geq 50 - <				
60); F < od 50			- `					

	Course title :	Microbio	logy	
Course code	Subject Status	Semester	ECTS credits	Number of hours
	Obligatory	II	5	3P + 1L

Study progra	am is organized	a: at undergraduate academic study programme Plant Production			
Prerequisites	other subject	s (recommendation): There are no requirements for reporting and lecture of this course			
		f students to morphology, physiology, ecology, systematics of microorganisms and			
	ns in envoronn				
The name of	teacher and a	ssistant: assis.prof Igor Pajović			
Method of Te	eaching: Lectur	res, seminars, consultations, colloquiums and final exam.			
		WORK PLAN:			
Week					
and date					
Preliminary w	veeks	Preparation and semester enrollment			
I Week	Lecture	Subject, significance and historical development of microbiology			
	Exercises	Microbiological laboratory, types of laboratories and required space			
II Week	Lecture	Morphology of microorganisms			
	Exercises	Description of job place and jobs in the microbiological laboratory			
III Week	Lecture	Ecology of microorganisms			
	Exercises	Instructions for work in the microbiological laboratory			
IV Week	Lecture	Metabolism of microorganisms			
	Exercises	Microbiological utensils and equipment for microbiological laboratory			
V Week	Lecture	Growth, reproduction and movement of microorganisms			
	Exercises	Laboratory apparatus			
VI Week	Lecture	Colloquium I			
	Exercises	Test 1			
VII Week	Lecture	Corrective Colloquium I			
	Exercises	Corrective Test 1			
VIII Week	Lecture	Microorganisms with special characteristics (Energy groups of microorganisms)			
	Exercises	Sterilization and Pasteurization			
IX Week	Lecture.	Pathogenicity of microorganisms			
	Exercises	Nutritious substrates			
X Week	Lecture	The role and distribution of microorganisms in nature			
	Exercises	Cultivation of microorganisms on nutrient media			
	Lecture	Genetics of microorganisms (variability of microorganisms)			
XI Week	Exercises	Microscope			
XII Week	Lecture	Basic characteristics of systematic groups of microorganisms			
AII WEEK	Exercises	Microscopy technique and making microbiological preparations			
VIII XV. 1					
XIII Week	Lecture Exercises	Colloquium II Test 2			
	Lecture	Corrective Colloquium II			
XIV Week	Exercises	Corrective Colloquium II Corrective Test 2			
XV	Lecture	Final Exam			
ΛV	Exercises				
XVI	LACICISES	Semester verification			
XVII-		Additional classes			
XVIII-XXI-		Corrective Final Examination			
луш-лл-					

Consultations: 2 hours during the week					
Load students in hours:					
A week	During the semester:				
$5 \times 40/30 = 6$ hours 40 min.	Teaching and the final exam: $6 h 40 min x 16 = 106 h 40 min$.				
Structure:	Necessary preparation (before semester administration,				
2 hours lectures	enrollment and verification): $2 \times 6 h 40 \min = 13 h 20 \min$				
2 hours exercises and laboratory	Total hours for the course: $5 \times 30 = 150$ hours				
2 hours and 40 minutes	Additional work to prepare the corrective final exam, including the exam				
individual work of student (preparation for	taking $0 - 30$ hours				
exercises, seminar work) including	Structure: 106 h 40 min (teaching) + 13 h 20 min (preparation) + 30 h				
consultation	(additional work)				
0	are required to attend lectures and exercises, seminar work, both tests	s			
and final exam.					
Recommended literature:					
	Mikrobiologija. Poljoprivredni fakultet Novi Sad.				
	ologija za studente animalne proizvodnje, Univerzite Crne Gore.				
Additional literature:					
5. Mirjana Jarak, Simonida Duric (2004): Pra	aktikum iz Mikrobiologije. Poljoprivredni fakultet Novi Sad.				
homeworks 10 points two tests 5 points each (in total 10	() points)				
two tests 5 points each (in total 1) tvo colloquiums 15 points each (ii	n total 30 points)				
final exam 50 points	n total 50 points)				
Passing grade is obtained if the cumulative acc	rumulates at least 51 points				
Learning outcomes:					
	am student will be able to recognize and know:				
1. microbiological scientific disciplines and the					
2. different types of microorganisms					
3. morphological, physiological and ecological characteristics of microorganisms					
4. the role and distribution of microorganisms in nature					
5. the way of infection in plants and the ways of transmitting microorganisms by species					
6. parts of the microbiological laboratory, the purpose of laboratory equipment and apparatus					
7. microscopy techniques					
Teacher who provided the information: as					
e-mail: <u>pajovicb.igor@gmail.com</u> ; <u>igorp@ucg.ac.me</u>					

	Course title:	NEMA	TOLOGY	
Course code	Subject Status	Semester	ECTS credits	Number of hours
291108133	Obligatory	II	3	2P+1V

INFORMATION FOR STUDENTS AND WORK PLAN

Study program							
		Ilture. Study program Plant Production , field of study Plant Protection (duration 2					
		s, after completing undergraduate studies during 3 years and 180 ECTS credits)					
Prerequisites other subjects (recommendation): There are no requirements for reporting and lecture of this course							
Course aims:							
		familiarize students with the morphology, anatomy, ecology, relations with vectors les. Teaching the skills of identifying types and symptoms of damage created by					
		ble students to make a decision about plant protection.					
		ssistant: dr Igor Pajović					
		ures, seminars, consultations, colloquiums and final exam.					
WORK PLA	*						
Week		of lectures (L), exercise (V);					
and date		d form of Assessment (MA: homework, colloquiums, tests)					
Preliminar		Preparation and semester enrollment					
	Lecture	Introduction to Nematology, classification and systematization of nematodes					
I Week	Exercises	Introduction to nematological laboratory, usage of various taxonomies of nematodes					
II Week	Lecture	Morphology and anatomy of nematodes					
,,	Exercises	Microscopy of nematodes, basics					
		The relationship between nematodes and other living beings (parasitism,					
III Week	Lecture	phytoparasitism, antagonists, nematophags, predators, vectors of viruses);					
		Relationship with vectors; Ecology of nematodes					
	Exercises	Demonstration symptoms of nematode attacks on other living beings					
	Lecture	Characteristics of the most important groups, queues, families and genera of					
IV Week	Lecture	phytoparasitic nematodes					
	Exercises	Microscopy nematodes in order to distinguish the most important groups of nematodes, advanced					
V Week	Lecture	Working techniques with nematodes					
V WEEK	Exercises	The systems of fieldwork with nematodes, sampling					
VI Week	Lecture	Working techniques with nematodes, Colloquium I					
VI WEEK	Exercises	The systems of fieldwork with nematodes, processing the samples					
VII Week	Lecture Exercises	Nematodes in orchards and vineyards					
VIII Waala		Demonstration microscopy - nematodes sampled on fruit trees and vineyards Nematodes on crops					
VIII Week	Lecture Exercises	1					
TX 7 XX7 1		Demonstration microscopy - nematodes sampled on field crops					
IX Week	Lecture.	Nematodes of potato plants					
	Exercises	Demonstration microscopy - nematodes sampled on potatoes plants					
X Week	Lecture	Nematodes on vegetable crops					
	Exercises	Demonstration microscopy - nematodes sampled on vegetable crops					
XI Week	Lecture	Nematodes in greenhouses I					
AI WEEK	Exercises	Demonstration microscopy - nematodes sampled from greenhouses					
XII Week	Lecture	Nematodes in greenhouses II, Colloquium II					
	Exercises	Demonstration microscopy - nematodes sampled from greenhouses					
VIII XY 1	Lecture	Nematodes on tobacco, ornamental plants and in forests					
XIII Week	Exercises	Demonstration microscopy - nematodes sampled on tobacco, ornamental and forest plants					

X7XX 7 XX 1	Lecture	Possibilities	of protection against nematodes				
XIV Week	Exercises		rotection from nematodes				
XV	Lecture		Possibilities of protection against nematodes				
XVI	2000010	Final exam					
XVII-			of semester and enrollment rating				
XVIII-XXI-			ssons, correction of exam period				
			ng: the presence of lectures and exercises, doing the homework, tests,				
seminar paper		s during teachi	ng: the presence of fectures and exercises, doing the nonework, tests,				
Consultation	s: 2 hours du	ring the week					
Load studen	ts in hours:						
A week:			During the semester:				
3 x 40/30=4 h	ours		Teaching and the final exam: 4 hours $x \ 16 = 64$ hours.				
Structure:			Necessary preparation (before semester administration,				
2 hours of lec	tures		enrollment and verification): 2×4 hours = 8 hours.				
1 hour of exer			Total hours for the course: $3 \times 30 = 90$ hours.				
	vidual work of		Additional work to prepare the corrective final exam, including the exam				
	or exercises, s	eminar work)	taking 0-18 hours				
including con	sultation		Structure:				
		~ .	64 hours (teaching) + 8 hours (preparation) + 18 hours (additional work)				
		ourse: Student	s are required to attend lectures and exercises, seminar work, both test				
and final exar							
Recommend							
		987). Fitonemato					
		ina nekin povrta	rskih kultura gajenih u zaštićenom prostoru.				
Additional li							
			985). An Advanced Treatise on Meloidogyne: Volume I i II.				
Special rema			nanual for practical work in nematology.				
-			p of 30 students.				
Forms of ass			p of 50 students.				
seminar		10 points	ach (in total 40 nainta)				
two colloquiums 20 points each (in total 40 points)							
final exam50 points							
Passing grade is obtained if the cumulative accumulates at least 51 points.							
Learning outcomes:							
After completing lectures, exercises and the exam student will be able to:							
 Understand morphological and anatomic structure of nematodes; Explain relation between nematodes and other living creatures, above all vectors; 							
3. To determinate most important nematodes pests;							
4. To use knowledge in plant protection and prevention on nematodes;5. Use chemical plant protection measures on nematodes.							
I eacher wh	o provided	the informat	ion: assistant professor Igor Pajović				
			e-mail: pajovicb.igor@gmail.com				

		AND OLIVE OIL TECHNOLOGY				
Study program for which is organized: Master studies in Agriculture Field: Fruit growing and viticulture (studes last 4 semesters, 120 ECTS). Conditionality of other modules: No Aims of the module: Introduce the students with conditions, agro and pomotechnics for temporary olive conditions for the production of good olive oil, and evaluation of its quality. Name and surranne of the reacher and assistant: Prof. Dr. Biljana Lazović, Dr. Mirjana Adakalić Teaching methods used: Lecture, practical work, field excursions, colloquia, and final exam. Module content: I week Botanical affiliation and history of olive cultivation globally and in our country, Biology a morphology II week Assortment of olives, the most important varieties grown in the world, Assortment of olive propagat V week Plantation maintenance: Harvesting of olives, cuble varieties, and oil varietits. Colloquiun VI week Dive oil throughout history, production in the world and in our country. Factors affecting VIII week Olive oil droughout history, production in the world and in our country. Factors affecting XI week Fruit processing: grinding, mixing, phase separation; different processing systems X week Oil storage, oil packaging, cleaning, and maintenance of processing systems XII week Additional classes and remedial exam VIII week Chemical analys	Fund of hours					Module code
Field. Fruit growing and viticuliure (studes last 4 semesters, 120 ECTS). Conditionality of other modules: No Aims of the module: Introduce the students with conditions, agro and pomotechnics for temporary olive conditions for the production of good olive oil, and evaluation of its quality. Name and surname of the reacher and assistant: Prof. Dr. Biljana Lazović, Dr. Mirjana Adakalić Teaching methods used: Lecture, practical work, field excursions, colloquia, and final exam. Module content: I week Botanical affiliation and history of olive cultivation globally and in our country, Biology a morphology III week Assortment of olives, the most important varieties grown in the world, Assortment of olive Monienegro III week Ecological conditions for olive cultivation, Fertility, Ripening, Specifics of olive propagat Vi week Plantation maintenance; Harvesting of olives, table varieties, and oil varieties Colloquiun VII week Dive oil droughout history, production in the world and in our country; Factors affecting VIII week Influence of variety on olive oil quality, ripening, harvesting, transport, and storage of flux processing: grinding, mixing, phase separation; different processing systems XI week Aenoiss and drain gradie and maintenance of processing plants XIII week Chemical analysis of olive oil (uuity standards XIII week Chemical analysis of olive oil (uuity standards	3+1	5 3-	II	mpulsory	Com	
conditions for the production of good olive oil, and evaluation of its quality. Name and surname of the reacher and assistant: Prof. Dr. Biljana Lazović, Dr. Mirjana Adakalć Taeching methods used: Lecture, practical work, field excursions, colloquia, and final exam. Module content: I week Botanical affiliation and history of olive cultivation globally and in our country, Biology a morphology III week Botanical affiliation for olive cultivation, Fertility, Ripening, Specifics of olive propagati IV week Plantation maintenance, Harvesting of olives, table varieties, and ol varieties Colloquian Vi week Plantation maintenance, Harvesting of olives, table varieties, and olivarieties Colloquian VIII week Olive oil throughout history, production in the world and in our country. Factors affecting VIII week Fruit processing: grinding, mixing, phase separation; different processing systems X week Oli storage, oil packaging, cleaning, and maintenance of processing plants XII week Analysis and classification of olive oil quality standards XIII week Analysis and classification of olive oil quality standards XIII week Macheting, labeling, protection of origin; olive oil and health Test 2 XI week Semosrial analysis of olive oil quality standards Test 3 XIII week Analysis and classification of origin; oliv		ECTS).	st 4 semesters, 120 E	ilture (studes la les: No	Fruit growing and viticul ionality of other module	Field: Fruit growing Conditionality of o
Name and surname of the reacher and assistant: Prof. Dr. Biljana Lazović, Dr. Mirjana Adakalić Teaching methods used: Lecture, practical work, field excursions, collequia, and final exam. Module content: I week Botanical affiliation and history of olive cultivation globally and in our country, Biology a morphology II week Botanical affiliation and history of olive cultivation globally and in our country, Biology a morphology II week Assortment of olives, the most important varieties grown in the world, Assortment of olive morphology II week Plantation maintenance; Harvesting of olives, table varieties, and ol varieties colloquiant V week Plantation maintenance; Harvesting of olives, upus, regenerative) Test 1 VIII week Olive oil throughout history, production in the world and in our country; Factors affecting processing grinding, mixing, phase separation; different processing systems X V week Fruit processing grinding, mixing, and maintenance of processing systems X X week Secondary olive processing products. Biomas, Composition, and characteristics of olive oil (upity, origin) XII week Secondary olive processing products. Biomas, Composition, and characteristics of olive oil XII week X week Secondary olive processing products. Biomas, Composition, and characteristics of olive oil XII week Colloquiun II XV week S	ary olive growing,	and pomotechnics for temporary olive g	ith conditions, agro a	e the students w	f the module: Introduce	Aims of the module
Teaching methods used: Lecture, practical work, field excursions, colloquia, and final exam. Module content: Image Motion and history of olive cultivation globally and in our country, Biology a morphology. II week Botanical affiliation and history of olive cultivation globally and in our country, Biology a morphology. III week Assortment of olives, the most important varieties grown in the world, Assortment of olive Montenegro. III week Ecological conditions for olive cultivation, Fertility, Ripening, Specifics of olive propagative V week Prantation maintenance; Harvesting of olives, table varieties, and oil varieties Colloquium VI week Pranting of olives (cultivation forms, young plant, genus, regenerative) Test I VIII week Olive oil throughout history, production in the world and in our country; Factors affecting processing systems X week Fruit processing; grinding, mixing, phase separation; different processing systems X week Fruit processing products, Biomass, Composition, and characteristics of olive of XII week X week Analysis and classification of olive oil quality standards XIII week Analysis of olive oil quality, ripening, harvesting. X week Marketing, labeling, protection of origin; olive oil and health Test 2 XVI week Semester Store of locuring Colloquium II						
Module content: Instruction of a standard and history of olive cultivation globally and in our country, Biology a morphology II week Botanical affiliation and history of olive cultivation globally and in our country, Biology a morphology III week Ecological conditions for olive cultivation, Fertility, Ripening, Specifics of olive propagat PV week Plantation maintenance; Harvesting of olives, table varieties, and oil varieties Colloquium VI week Plantation maintenance; Harvesting of olives, table varieties, and oil varieties Colloquium VI week VII week Plantation maintenance; Harvesting of olives, table varieties, and oil varieties Colloquium VI week Plantation maintenance; Harvesting, phase separation; different processing Practors affecting VIII week Influence of variety on olive oil quality, ripening, harvesting, transport, and storage of frui processing; grinding, mixing, phase separation; different processing paytems X week Coli storage, oil packaging, cleaning, and maintenance of processing plants XII week Analysis of olive oil XIII week Analysis of olive oil XIII week Marketing, labeling, protection of origin; olive oil and health Test 2 XVI week Struberty Marketing, labeling, protection of origin; olive oil and health Test 2 XVI week Struberty Marketing, labeling, protection of origin; olive oil and health Test 2	alić	na Lazović, Dr. Mirjana Adakalić	tant : Prof. Dr. Biljan	acher and assis	and surname of the read	Name and surname
I week Botanical affiliation and history of olive cultivation globally and in our country, Biology a morphology II week Assortment of olives, the most important varieties grown in the world, Assortment of olive Montenegro III week Ecological conditions for olive cultivation, Fertility, Ripening, Specifics of olive propagat V week Plantation maintenance; Harvesting of olives, table varieties, and oil varieties Colloquium VI week VIII week Plantation maintenance; Harvesting of olives, table varieties, and oil varieties Colloquium VI week VIII week Olive oil throughout history, production in the world and in our country; Factors affecting Processing granting, mixing, phase separation; different processing systems X week Fruit processing; grinding, mixing, phase separation; different processing plants XI week Secondary olive processing products, Biomass, Composition, and characteristics of olive of XII week XI week Analysis and classification of olive oil, quality standards XIII week Analysis of olive oil XII week Final exam VII week Final exam VI week Semester verification and grade entry XV week Structure: Structure: Additional work for exam preparation in the remedial exam YIII week Semester v		s, colloquia, and final exam.	ork, field excursions,	ure, practical w	ng methods used: Lectur	Teaching methods
morphology II week Assortment of olives, the most important varieties grown in the world, Assortment of olive Montenegro III week Ecological conditions for olive cultivation, Fertility, Ripening, Specifics of olive propagat IV week Praning of olives (cultivation forms, young plant, genus, regenerative) Test 1 VI week Plantation maintenance; Harvesting of olives, table varieties, and oil varieties Colloquium VI week Pruning of olives (cultivation forms, young plant, genus, regenerative) Test 1 VII week Olive oil throughout history, production in the world and in our country; Factors affecting processing Test 1 VII week Influence of variety on olive oil quality, ripening, harvesting, transport, and storage of frui processing products, Biomass, Composition, and characteristics of olive oil processing products, Biomass, Composition, and characteristics of olive oil XII week Analysis and classification of olive oil, quality standards XII week Chemical analysis of olive oil Colloquium // XV week Marketing, labeling, protection of origin; olive oil and health Test 2 XVI week Final exam Closing week Semester verification and grade entry XVIII-XXI week Additional classes and remedial exam Test 1 VIII-XXI week During the semester Teaching and final exam: (6 hour						Module content:
Montenegro III week Ecological conditions for olive cultivation, Fertility, Ripening, Specifics of olive propagat IV week Establishing new plantations, choosing a place for planting, choosing varieties, planting V week Plantation maintenance; Harvesting of olives, table varieties, and oli varieties Colloquium VI week Pruning of olives (cultivation forms, young plant, genus, regenerative). Test I VIII week Olive oil throughout history, production in the world and in our country; Factors affecting VIII week Influence of variety on olive oil quality, ripening, harvesting, transport, and storage of fruit processing; grinding, mixing, phase separation; different processing plants XI week Fruit processing: grinding, mixing, nhase separation; different processing plants XI week Analysis and classification of olive oil quality standards XIII week Chemical analysis of olive oil (purity, origin) XIV week Marketing, labeling, protection of origin; olive oil and health Test 2 XVI week Semosria analysis of olive and grade entry XVIII-XXI week Additional classes and remedial exam Structure: - - - - - - 3 hours of lexturing - - - - -			-	ogy	morpholo	
III week Ecological conditions for olive cultivation, Fertility, Ripening, Specifics of olive propagat IV week Establishing new plantations, choosing a place for planting, choosing varieties, planting V week Plantation maintenance; Harvesting of olives, table varieties, and ol varieties Colloquium VI week Pruning of olives (cultivation forms, young plant, genus, regenerative) <i>Test 1</i> VII week Plantation maintenance; Harvesting of olives, table varieties, and ol varieties Colloquium VII week Influence of variety on olive oil quality, ripening, harvesting, transport, and storage of frui processing X week Fruit processing; grinding, mixing, phase separation; different processing plants X week Oil storage, oil packaging, cleaning, and maintenance of processing plants XII week Analysis and classification of olive oil, quality standards XIII week Chemical analysis of olive oil Colloquium <i>II</i> XV week Marketing, labeling, protection of origin; olive oil and health Test 2 XVI week Semester verification and grade entry XUIII+XXI week Additional classes and remedial exam Closing week Semester verification and grade entry XUII+XXI week Additional classes and remedial exam Structure: - Touring the semester 16 hours and 40 rol noivedia work	t of olives of	es grown in the world, Assortment of olives	most important varietie			II week
IV week Establishing new plantations, choosing a place for planting, choosing varieties, planting V week Plantation maintenance; Harvesting of olives, table varieties, and oil varieties. Colloquium VI week Pruning of olives (cultivation forms, young plant, genus, regenerative) Test I VII week Olive oil throughout history, production in the world and in our country; Factors affecting IN week Fruit processing: grinding, mixing, phase separation; different processing plants X week Oil storage, oil packaging, cleaning, and maintenance of processing plants XI week Analysis and classification of olive oil, quality standards XIII week Analysis of olive oil (purity, origin) XV week Bensorial analysis of olive oil (purity, origin) XV week Marketing, labeling, protection of origin; olive oil and health Test 2 XVI week Semester verification and grade entry XVIWeek Yul-XXI week Additional classes and remedial exam STUDENT WORKLOAD Weekly During the semester Teaching and final exam: (6 hours and 40 minutes) x 16 = 106 hours and 40 r 2 hours and 40 ¹ individual work Teaching and final exam: (6 hours and 40 minutes) x 16 = 106 hours and 40 r 2 hours and 40 ¹ individual work Teaching and final exam: (6 hours and 40 minutes) x 16 = 10	propagation	lity. Ripening. Specifics of olive propagatic	olive cultivation Fertili			III week
V week Plantation maintenance; Harvesting of olives, table varieties, and oil varieties Colloquiun VI week Pruning of olives (cultivation forms, young plant, genus, regenerative) Test 1 VII week Olive oil throughout history, production in the world and in our country; Factors affecting VII week Influence of variety on olive oil quality, ripening, harvesting, transport, and storage of frui processing; grinding, mixing, phase separation; different processing systems X week Oil storage, oil packaging, cleaning, and maintenance of processing plants XI week Analysis and classification of olive oil, quality standards XIII week Chemical analysis of olive oil (purity, origin) XI week Marketing, labeling, protection of origin; olive oil and health Test 2 XV week Marketing, labeling, protection of origin; olive oil and health Test 2 XVI week Semester verification and grade entry XVIII-XXI week Additional classes and remedial exam Weekly During the semester During the semester Structure: Out all olaf for the subject; 5 x 30 = 150 hours Additional 20 min. 1 buor of practical work Additional work for exam preparation in the remedial period (up to 30 hours) 2 hours and 40° individual work Other subject; 5 x 30 = 150 hours Ohours						
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agro-technical measures, propagation, pruning, specifics of harvest; He is able to use a descriptor	el Olivo, Madrid; B. privnjak (2006): mportance of olive for olive growing the application of	d; Barranco: (2002): El Coltivo del Olivo, M akvoće u Hrvatskoj, Tisak; O. Koprivnjak (2 collected the history, distribution and importanc and the basic requirements for olive establishing olive groves and the appl	pruning, 1-111, Madrid aslinovo ulje visoke kal <u>: least 50 points are co</u> the student: Know t describe the ways a explain the way of e	OC (1989): Olive 096): Maslina i m d.o.o., Poreč nt and grading: nts btained when a ssing the exam, country; Can onditions; Can	ja papir, 1-114, Split; 1000 I. Žužić, M. Bonifačić (199 nsko maslinovo ulje, MIH d of knowledge assessment Attendance: 5 points (8 + 7) 15 points quium: (2 x 15) 30 point exam: 50 points A passing grade is ob ng outcomes : After pass g globally and in our of ng to environmental cor	Dalmacija papir, 1-114 Škarica, I. Žužić, M. E Djevičansko maslinov Forms of knowledge - Attendance: 5 - Test: (8 + 7) 15 pc - Colloquium: (2 x - Final exam: 50 poi A passing Learning outcomes growing globally a according to enviro

oils positive and negative attributes; Knows the factors that affect the conditions required for storing olive oil; He is trained for teamwork, critical thinking, knowledge presentation, and teaching evaluation.

		Course: Phytopharmacy					
	Semester	ECTS	Teaching hours				
	V	5	3L + 1P				
		emic studies: Plant production (6 s	emester, 180 ECTS)				
Course de		basic concepts of pesticides, as	well as issues related to their				
		e environment and the legal basis re					
		ve substances that are on the list of					
		of the course is to instruct stude					
		n of pesticides, as well as measure					
inadequate	application.						
Learning o	outcomes						
After passi	ng the exam, the	student will acquire knowledge that al	lows him to:				
 Define dif 	ferent groups of p	pesticides with special reference to pla	ant protection products				
 Know the 	physical and che	mical properties of pesticides and the	formulations that are applied				
 Describe 	the mechanisms	of pesticides action and all the basic	groups of fungicides, insecticides				
and herbi	cides and active	substances that are classified by grou	ps				
		basic regulations related to plant pro	tection products in the European				
Union and	d Montenegro						
 Choose p 	protective equipment	ent for working with pesticides and kr	now their impact on human health				
	nvironment						
		ncentration of applied fungicides, inse	cticides and herbicides				
	Prof. Nedeljko Lat						
		s, Laboratory practice, Field work, Se	eminars				
	ass schedule						
l week	Lectures	Introduction. Areas of pesticides app					
		products. Control of vector-borne dis					
	Practicum	Instructions for the application of pla					
II week	Lectures	Classification and nomenclature of p					
	Practicum	Calculation of water consumption for					
III week	Lectures	Physical and chemical properties of	pesticides				
	Practicum	Dose and concentration calculation					
IV week	Lectures	Forms of pesticide formulation. Integ					
	Practicum	Organizing the treatment of field cro	ps				
V week	Lectures	Mode of action of pesticides					
	Practicum	Organizing the treatment of vegetab	le crops				
VI week	Lectures	Mode of action of pesticides	1				
V/II	Practicum	Organizing the treatment of vegetab	ie crops				
VII week	Lectures	Fungicides					
VIII week	Practicum	Organizing orchard treatment					
VIII week	Lectures	Fungicides, bactericides					
IX week	Practicum	Organizing orchard treatment Zoocides					
IN WEEK	Lectures Practicum						
X week		Organizing vineyard treatment	in organic ogricultura. Destisides				
∧ week	Lectures	Zoocides. Plant protection products and bees	in organic agriculture. Pesticides				
	Practicum	Use of protective equipment					
XI week	Lectures	Herbicides					
AI WEEK	Practicum		f plant protection products				
XII week		Handling of devices for application of Herbicides					
AII WEEK	Lectures Practicum						
XIII week		Field practice	A application of pasticidas				
AIII Week	Lectures Practicum	Legal bases of production, trade and					
XIV week		Legislation in the field of plant protect	•				
VIA MEEK	Lectures	Pre-harvest interval. MRL. Conseque					
	Practicum	Field practice					

XV week	Lectures	Pesticio	Pesticide toxicology and first aid.				
	Practicum	n Field pr	actice				
Literature:	Matthews	, G. (2016): P	esticides – He	ealth, Safety and	the Environm	ent (sec. ed.).	
Wiley Blac	kwel, UK;	O'Connor-Mar	er, P.J (2000)	: The Safe and	Effective Use	of Pesticides.	
University of	of California	a, Oakland, Cal	ifornia; Materia	al from Internet; L	ectures presen	tation.	
Forms of k	nowledge	assessment a	and grading:				
Activities in	lectures a	nd exercises: 5	points				
Seminar pa	aper: 5 poin	nts					
Two colloq	uia: 40 poir	nts					
Final exam	: 50 points						
A passing g	A passing grade is obtained if at least 50 points are accumulated cumulatively						
Grading		А	В	C	D	E	
Number o	Number of points 90-100 80-89 70-79 60-69 50-59						
Data prepa	ared by Pro	of. dr Nedeljko	Latinović				

_		Course title: PLANT GENETIC RESOURCES					
	Course code	Subject Status	Semester	ECTS credits	Number of hours		
	291106100	Obligatory	II	4	3L + 1E		

The course -	angonized for	Acadamia basia studios of acricultura Stady macrom Chan me tustice				
		Academic basic studies of agriculture, Stady program Crop production				
	(studies last for 6 semesters, 18 ECTS credits) Prerequisites: No prerequisites required					
Course aims: The cours aims to provide students with knowledge about the importance of						
		sity as its most important component, as well as introduce students to				
		or conservation and sustainable use of plant genetic resources for food				
and agricultur		in conservation and sustainable use of plant genetic resources for food				
		assistant: Prof. Dr. Zoran Jovović				
		, exercises, laboratory exercises, field activities, seminar papers,				
consultations		, excluses, indonatory excluses, neid activities, seminar papers,				
WORK PLA						
Preparatory w		Preparation and semester enrollment				
Week 1		Introductory remarks; Biodiversity; The importance of agro-				
Week I	Lectures	biodiversity				
	Exercises	Inventory and collection of plant genetic resources				
Week 2	Lectures	Basic data on Montenegrin agriculture				
	Exercises	Conservation of the collected plant material				
Week 3		State of plant genetic resources in Montenegro; The existing				
	Lectures	collection				
	Exercises	Regeneration of the deposited plant material				
Week 4		Legislation and other relevant documents related to plant genetic				
	Lectures	resources				
	Exercises	Laboratory exercises				
Week 5	Lectures	COLLOQUIUM 1				
	Exercises	Laboratory exercises				
Week 6	T (The program on conservation of plant genetic resources in				
	Lectures	agriculture				
	Exercises	Laboratory exercises				
Week 7	Lectures	Inventory and collection of plant genetic resources; Passport data				
	Exercises	TEST 1				
Week 8	Lectures	Plant Gene Bank				
	Exercises	Characterization and evaluation of conserved samples				
Week 9	Lectures	In situ conservation; On farm conservation				
	Exercises	Assessment of agronomic traits				
Week 10	Lectures	COLLOQUIUM 2				
	Exercises	Montenegrin plant gene bank - a system of functioning				
Week 11	Lectures	<i>Ex situ</i> conservation				
	Exercises	Field collection of plant genes				
Week 12	Lectures	Characterization and evaluation of accessions by applying modern				
		methods; Descriptors				
	Exercises	On farm conservation				
Week 13	Lectures	Information and documentation system; Database				
	Exercises	Documentation				
Week 14	Lectures	Sustainable use of genetic resources for food and agriculture				
	Exercises	Database				
Week 15		Strengthening the public awareness about the importance of				
	Lectures	preserving agro-biodiversity; National and international				
		organizations involved in the conservation and sustainable use of				
		genetic resources for food and agriculture				
	Exercises	TEST 2				
Week 16		FINAL EXAM				
Week 17		Semester verification and enrollment rating				
Weeks 18-21		Additional lessons and corrective exam				

	Cturdante ano no	animal to attend alagans and all athen alagans deatimities				
Obligations of students						
during classes:	and actively pa	rucipate in making set tasks within the group				
Student workload in hours:						
Weekly:		During the semester:				
6 credits $x 40/30 = 8$ hours		Teaching and the final exam: 8 hours $x = 128$				
Structure: 2 hours of lectures, 1		hours				
exercises and 5 hours of student	work including	Necessary preparation (before semester				
consultations		administration, enrollment and verification): 2 x 8				
		hours = 16 hours				
		Total hours for the course: $6 \times 30 = 180$ hours				
		Additional work: 36 hours				
		Structure:				
		128 hours (lectures) + 16 hours (preparation) + 36				
		hours (additional work)				
Recommended literature:						
		Rediscovery of Genetic and Genomic Resources for				
Future Food Security, S						
		Plant Genetic Resources and Traditional Knowledge				
for Food Security. Sprin	•					
		<i>i</i> (izabrani radovi), Beograd				
		olničar (2013): Old potato varieties in Montenegro.				
University of Monteneg						
		ble use under the International treaty, Rome				
	d report on The s	state of the world's plant genetic resources for food				
and agriculture, Rome						
Additional literature:						
		Lloyd, L. Frese, J. Irionado, M.A.A. Pinheirode				
		ervation, securing the diversity of crop wild relatives				
and landraces, CABI, U						
		ynge (1994): A guide to the convention on biological				
diversity, IUCN, Gland,		Cambridge, UK				
Knowledge testing and gradin - Presence 5 poi						
1						
	5, total 30 points					
- Test 10 pc						
- Seminar paper 15 pc - Final exam 40 pc						
- Final exam 40 pc The student passed the exan		collected 50 points				
<u>^</u>	in cumulatively					
Learning outcomes:	am student will	he able to:				
	After successfully passing the exam student will be able to:					
- recognize the importance of biodiversity and the potential that Montenegro has in this area understand the impact of agricultural production on biodiversity.						
- understand the impact of agricultural production on biodiversity						
- apply knowledge in the field of management, access and sustainable use of plant genetic understand the functioning of the system of plant game bank.						
 understand the functioning of the system of plant gene bank to contribute to raising the public awareness about the importance of plant genetic resources 						
- contribute to their conse						
Teacher who provided the info						
	e-ma	il: zoran.jovovic.btf@gmail.com				

		Course: Plant Pathology	
	Semester	ECTS	Teaching hours
	V	6	4L + 1P
Basic und	ergraduate acad	emic studies: Plant production (6 s	emester, 180 ECTS)
Course de	scription		
		enable students to adopt scientific k	
		is, causal agents, interaction of ca	
		s well as on the distribution and eco	
		of pathogens, life cycle developme	nt, hosts and possible control
		tant diseases of cultivated plants.	
Learning o			
		student will acquire knowledge that al	lows him to:
	•	es of plant diseases	
		oms of the most significant diseases of	of agricultural crops
		haracteristics of plant disease agents	
		on of pathogens, host plants and envir	
		nportant fungal, bacterial and viral di	
		ycle development and ways of their tra	
		ures that can be applied in the protec	tion of agricultural crops from the
	st significant dise		
	Prof. Jelena Latin		
		s, Laboratory practice, Field work, Se	minars
	ass schedule		
I week	Lectures	Introduction, significance and causes	
	Practicum	Introduction to work in the plant path	ology laboratory - equipment
II week	Lectures	Non-parasitic, Parasitic diseases	
	Practicum	Work in the plant pathology laborato	
III week	Lectures	Basic characteristics of plant disease	
	Practicum	Work in the plant pathology laborato	ry - microscope and microscopy
IV week	Lectures	Symptomatology, Pathogenesis	
	Practicum	Recognizing the symptoms of diseas	sed plants
V week	Lectures	Epidemiology	
	Practicum	Recognizing the symptoms of diseas	
VI week	Lectures	Plant resistance to diseases, Contro	Imeasures
	Practicum	Observation on herbarized material	
VII week	Lectures	Mycoses: Classification of fungi, King	gdom of Protozoa, Kingdom of
	Drastiaura	Chromista	
\////	Practicum	Observation on herbarized material	nuesta Division Assessments
VIII week	Lectures	Kingdom of Fungi: Division Chytridio	mycota, Division Ascomycota
IVal.	Practicum	Laboratory exercises: microscopy	
IX week	Lectures	Kingdom of Fungi: Division Ascomyo	
Managal	Practicum	Laboratory exercises: microscopy	
X week	Lectures	Kingdom of Fungi: Division Ascomyo	cota
Managal	Practicum	Laboratory exercises: microscopy	
XI week	Lectures	Kingdom of Fungi: Fungi Imperfecti	
VIIali	Practicum	Laboratory exercises: microscopy	
XII week	Lectures	Kingdom of Fungi: Fungi Imperfecti	
VIII was al	Practicum	Field practice	a vente
XIII week	Lectures	Kingdom of Fungi: Division Basidiom	iycota
XIV/ and 1	Practicum	Sample processing and microscopy	
XIV week	Lectures	Plant bacteria and bacterial diseases	
	Practicum	Basic methods in the identification of	
XV week	Lectures	Plant viruses and viral plant diseases	
	Practicum	Basic methods in the identification of	
Literature:	: Agrios, G.N. (20	005): Plant Pathology. Academic Pres	ss, USA. Material from Internet;

Lecture presentations.					
Forms of knowledg	e assessment :	and grading:			
Activities in lectures a	and exercises: 5	5 points			
Seminar paper: 5 poi	nts				
Two colloquia: 40 po	Two colloquia: 40 points				
Final exam: 50 points					
A passing grade is obtained if at least 50 points are accumulated cumulatively					
Grading	А	В	С	D	E
Number of points 90-100 80-89 70-79 60-69 50-59					
Data prepared by: Prof. dr Jelena Latinović					

Course: PLANT PROTECTION PRODUCTS				
Semester		ECTS	Teaching hours	
		6	3L+2P	
		protection (4 semesters, 120 EC	ГS)	
Course descrip				
			of active substances in agricultural	
			al groups of pesticides with active	
			scussed, with special emphasis on	
		nt protection products).		
Learning outco		nt will acquire knowledge that all	we him to:	
		nt will acquire knowledge that allo	special reference to plant protection	
products	ust important are	as of pesticide application with s		
	es for application	in non-agricultural areas		
			active substances that are in these	
groups	iennear groups o			
	substances in or	der to control harmful organisms i	in agriculture	
	Nedeljko Latinović		a grioditaro	
		poratory practice, Field work, Sen	ninars	
Weekly class so				
l week	Lectures	Introduction, areas of pesticide	application	
	Practicum	Introduction to application of pe		
II week	Lectures	Pesticides - biocides		
	Practicum	Application of pesticides in com	munal hygiene	
III week	Lectures	Pesticides - biocides; fungicides		
	Practicum	Laboratory exercises: fungicides		
IV week	Lectures	Fungicides	-	
	Practicum	Laboratory exercises: fungicides	s. bactericides	
V week	Lectures	Fungicides, bactericides	-,	
	Practicum	Laboratory exercises: bactericid	les	
VI week	Lectures	Insecticides		
	Practicum	Laboratory exercises: Insecticid	es	
VII week	Lectures	Insecticides		
	Practicum	Laboratory exercises: insecticid	es	
VIII week	Lectures	Insecticides, nematocides		
	Practicum	Laboratory exercises: Insecticid	es, nematocides	
IX week	Lectures	Nematocides, molluscicides, rep		
	Practicum	Field practice		
X week	Lectures	Rodenticides		
	Practicum	Field practice		
XI week	Lectures	Rodenticides, herbicides		
	Practicum	Laboratory exercises: herbicide	S	
XII week	Lectures	Herbicides		
	Practicum	Laboratory exercises: herbicide	S	
XIII week	Lectures	Herbicides		
	Practicum	Field practice		
XIV week	Lectures	Arboricides, desiccants, growth	regulators	
	Practicum	Field practice		
XV week	Lectures	Pesticide application		
	Practicum	Calculation of dose and concent	tration of various plant protection	
products				
Literatura: MacBean, C. (2012): The Pesticide Manual: A World Compendium. British Crop Protection				
Council; Material from Internet; Lectures presentation.				
Forms of knowledge assessment and grading:				
Activities in lectures and exercises: 5 points				
Seminar paper: 5 points				
Two colloquia: 4				
Final exam: 50 points				

A passing grade is obtained if at least 50 points are accumulated cumulatively						
Grading	A	В	С	D	E	
Number of points	90-100	80-89	70-79	60-69	50-59	

Data prepared by: Prof. dr Nedeljko Latinović

	Со	urse: PLANT PROTECTION TECHNOI	LOGY
S	emester	ECTS	Teaching hours
		5	2L+2P
		Plant protection (4 semesters, 120 E	CTS)
application of is to acquire phenophases protection fro	tudents to Inte f plant protectio knowledge al s of crop develo om harmful org cultivated plan	grated Pest Management programs for on products, as well as non-pesticide me bout the importance of certain control opment. In addition to the use of plant p anisms, the possibilities of agrotechnic ts from diseases, pests and weeds will b	easures. The aim of the course measures in the appropriate protection products in the plant cal and other measures in the
-		student will acquire knowledge that allo	ws him to:
 Select th importance 	e most appro	priate measures of integrated plant	
		regetables and field crops,	
_	-	on measures in organic production.	
	of. Nedeljko La		
		es, Laboratory practice, Field work, Sem	inars
Weekly class		co, Laboratory practice, rield work, Oen	
I week	Lectures	Introduction, Integrated Pest Manager	nent
	Practicum	Introduction to Integrated Pest Manag agricultural crops	
II week	Lectures	Forecasting of diseases and pests	
	Practicum	Introduction to the possibilities of fored harmful organisms	casting the occurrence of
III week	Lectures	Development of a program for the pon	ne fruit protection
	Practicum	Data processing and protection measu application)	ures of fruit trees (practical
IV week	Lectures	Development of a program for the stor	ne fruit protection
	Practicum	Field exercises	
V week	Lectures	Development of a program for the nut	trees protection
	Practicum	Data processing and protection measure application)	
VI week	Lectures	Development of a program for the sma	
	Practicum	Data processing and protection measu	
VII week	Lectures	Development of a grapevine protection	
	Practicum	Data processing and grapevine protect application)	
VIII week	Lectures	Development of a program for the pro	
	Practicum	Data processing and fruit protection m	,
IX week	Lectures	Development of potato protection prog	gram
Variation	Practicum	Field exercises	testion of field eress
X week	Lectures	Development of a program for the pro	
XI week	Practicum	Protection measures and organization	
VI MEEK	Lectures Practicum	Development of outdoor vegetable pro Protection measures and organization	
XII week	Lectures	Development of vegetable protection	
MI WEEK		protected areas	· ·
XIII week	Practicum	Protection measures and organization	
VIII Meek	Lectures Practicum	Development of a program for the pro	lection of vegetables
XIV week		Field exercises	tection of small groups
ATV WEEK	Lectures Practicum	Development of a program for the properties of a program for the properties of the protection measures (practical application)	
XV week		Development of protection programs i	
AV WEEK	Lectures	Development of protection programs i	n organic agriculture

Practicum Field exercises					
Literatura: Strand, L.	Literatura: Strand, L.L. (1999): Integrated Pest Management for Stone Fruits. IPM handbook				
published by Univers	ity of California	; Ohlendorf, B	S.L.P. (1999): Inte	grated Pest M	anagement for
Apples and Pears (s	ec. ed.). IPM	handbook pub	lished by Univers	sity of Californ	nia; Finckh, M.
R., van Bruggen, A.H	I.C., Tamm, L.	(2015): Plant	Diseases and Th	neir Managem	ent in Organic
Agriculture; Wilcox, W	V.F. Gubler, W.	D., Uyemoto,	J. K. (2015): Com	pendium of G	rape Diseases,
Disorders, and Pest	s. American F	hytopathologic	cal Society; Mate	erial from Inte	rnet; Lectures
presentation.					-
Forms of knowledge assessment and grading:					
Activities in lectures and exercises: 5 points					
Seminar paper: 5 points					
Two colloquia: 40 points					
Final exam: 50 points					
A passing grade is obtained if at least 50 points are accumulated cumulatively					
Grading	Α	В	С	D	E
Number of points	90-100	80-89	70-79	60-69	50-59

Data prepared by: Prof. dr Nedeljko Latinović

	Course title :	URBAN Z	ZOOLOGY	
Course code	Subject Status	Semester	ECTS credits	Number of hours
	Obligatory	Ι	4	2P + 1V + 1L

		d: at Master studies, Study program Plant Production, field of study Plant Protection (duration 4 , after completing undergraduate studies during 3 years and 180 ECTS credits)
		s (recommendation): There are no requirements for reporting and lecture of this course
Course aims: of animal spe- urban populat control using	Introducing str cies in urban ar ions of differen pesticidal and r	udents to the basics of zoology in urban areas. Enabling students to assess the state of diversity eas, their impact on humans and domestic animals. Considering the anthropogenic impact on it animal species in order to enable students to make a decision on the manner and time of their non-pesticidal pest control measures.
		ssistant: assis.prof Igor Pajović
Method of T	eaching: Lectur	res, seminars, consultations, colloquiums and final exam.
		WORK PLAN:
Week and date		
Preliminary w		Preparation and semester enrollment
I Week	Lecture	Introduction to Urban zoology
	Exercises	Introduction to laboratory work, use of keys for determination
II Week	Lecture	The concept and characteristics of urban habitats
	Exercises	Field work techniques, sampling
III Week	Lecture	Characteristics of animal populations in urban habitats
	Exercises	Animal groups of importance for urban habitats: Protozoa, Plathelminthes, Nematodes
IV Week	Lecture	Causes and consequences of urban habitats by various animal species important in communal, medical and veterinary hygiene
	Exercises	Animal groups of importance for urban habitats: Annelida
V Week	Lecture	Vector species and their relationship to humans and other organisms in urban areas
	Exercises	Animal groups of importance for urban habitats: Arthropoda
VI Week	Lecture	Animals of importance in urban habitats from the Protozoa, Plathelminthes, Nematode and Annelida groups. Colloquium I
	Exercises	Animal groups of importance for urban habitats: Insecta
VII Week	Lecture Animals of importance in urban habitats from the group Arthropoda I part	
VII WCCK	Exercises	Animal groups of importance for urban habitats: Mollusca
VIII Week	Lecture	Animals of importance in urban habitats from the groups Arthropoda II part and Mollusca
	Exercises	Animal groups of importance for urban habitats: Pisces
IX Week	Lecture.	Animals of importance in urban habitats from the Pisces, Amphibia and Reptilia groups.
	Exercises	Animal groups of importance for urban habitats: Amphibia
X Week	Lecture	Animals of importance in urban habitats from the Aves group.
X WEEK	Exercises	Animal groups of importance for urban habitats: Reptilia
	Lecture	Animals of importance in urban habitats from the group Mammalia II colloquium
XI Week	Exercises	Animal groups of importance for urban habitats: Aves
VII West	Lecture	Monitoring of potential pests and vectors
XII Week		Animal groups of importance for urban habitats: Mammalia
	Exercises	
XIII Week	Lecture	Possibilities of non - pesticidal control of potential pests and vectors
	Exercises	Methods of application of non-pesticide protection measures
XIV Week	Lecture	Use of biocides and pesticides in communal, medical and veterinary hygiene
	Exercises	Methods of application of biocides and pesticides
XV	Lecture	Monitoring of protected species and maintenance of populations in urban areas
XX7I	Exercises	Planning and monitoring of pests, vectors and protected species
XVI		
XVII-		
XVIII-XXI-		

Consultations: 2 hours during the week					
Load students in hours:					
A week During the semester:					
$5 \ge 40/30 = 6$ hours 40 min.	Teaching and the final exam: $6 h 40 min x 16 = 106 h 40 min$.				
Structure:	Necessary preparation (before semester administration,				
2 hours lectures	enrollment and verification): $2 \times 6 h 40 \min = 13 h 20 \min$				
2 hours exercises and laboratory	Total hours for the course: $5 \times 30 = 150$ hours				
2 hours and 40 minutes	Additional work to prepare the corrective final exam, including the exam				
individual work of student (preparation for	taking $0 - 30$ hours				
exercises, seminar work) including	Structure: 106 h 40 min (teaching) + 13 h 20 min (preparation) + 30 h				
consultation	(additional work)				
•	are required to attend lectures and exercises, seminar work, both tests				
and final exam.					
Recommended literature:					
	Arachnids: A Handbook of Urban Entomology. Cambridge University Press.				
	008): Public Health Significance of Urban Pests. World Health Organization.				
Additional literature:					
3. Hickman, Jr. C.P., Roberts, L.S., Keen, S.L., Larson, A., I'Anson, H., Eisenhour, D.J. (2008): Integrated Principles Of					
	Zoology, 14th Ed. McGraw-Hill, New York, USA.				
4. Rajković D. i Kostić D. (1995): Praktikum iz poljoprivredne zoologije. Univerzitet u Novom Sadu, Prirodno-					
matematički fakultet, Institut za biologiju, Novi Sad.					
Forms of assessment and evaluation:					
seminar 10 points					
two colloquiums 20 points each (in total 40 points)					
final exam 50 points					
Passing grade is obtained if the cumulative accumulates at least 51 points.					
Learning outcomes:					
After completing lectures, exercises and the exam student will be able to:					
1. Uses theoretical and practical knowledge of zoology in urban areas					
2. Evaluates the interactive impact of anthropogenic factors on populations of different animal species					
3. Considers the risk to human and domestic animal health from vector animal species					
4. Uses biocides and pesticides against vector species in communal, medical and veterinary hygiene					
5. Uses the acquired knowledge in order to protect the environment from the communal-medical and veterinary aspect					
Teacher who provided the information: assistant professor Igor Pajović					
e-mail: <u>pajovicb.igor@gmail.com</u> ; <u>igorp@ucg.ac.me</u>					