



**SVEUČILIŠTE U ZAGREBU FAKULTET ŠUMARSTVA I DRVNE TEHNOLOGIJE**  
UNIVERSITY OF ZAGREB FACULTY OF FORESTRY AND WOOD TECHNOLOGY

**Undergraduate university study: Urban Forestry, Nature Conservation and Environmental Protection**

## **Methods and evaluation criteria**

**Academic year 2024/25.**



**Learning outcomes of the study program: undergraduate university study Urban Forestry, Nature Conservation and Environmental Protection**

**A - General engineering competence**

- A1. apply approach to experimental observing and mathematical modelling, mathematically solving research and practical problems, statistically process, present and analyze data and conclude individually based on analyzed data
- A2. use relevance in maintaining, area and possibilities of basic technical components
- A3. apply skills in solving practical side of business, either by control measuring, calculations or testing verification

**B - Focused engineering competence**

- B1. identify tree species based on morphological characteristics, identify parts and tree shapes and apply theoretical and practical knowledge of commercially indigenous and foreign tree species and shrubs
- B2. recognize and determine the most important types of xylophage's bacteria, insects and funghi on trees species and detect wood defects incurred due to their activity
- B3. acquire basic principles of protection of forests from abiotic and biotic factors, and apply basic procedures and means in protection of forests
- B4. participate in the realization of programs for the management of protected natural areas
- B5. perform biological and technical works in maintenance of parks and green areas
- B6. perform all arboricultural works
- B7. perform professional field works on protection of plants and trees in urban areas
- B8. perform professional field works in forest nurseries including planting and seeding
- B9. collaborate in preparation of ecological impact studies and spatial plans
- B10. apply knowledge about the machines, techniques and technologies used in professional works in urban areas and protected natural areas

**C - Organizational engineering competence**

- C1. plan and organize integrated management of the environment
- C2. plan and organize professional works in realization of programs for the management of protected natural areas
- C3. apply actual legislation in management of protected natural areas
- C4. conduct monitoring of the environment
- C5. calculate basic indicators of successful business, compose basic financial reports, recognize and analyze types of costs

**D - Developing engineering competence**

- D1. continue perfection on university graduate studies on Forestry section on Faculty of Forestry
- D1. conduct businesses and tasks in publicist writing and media connected with urban forestry, nature conservation and environmental protection
- D2. professionally and scientifically upgrade through different educational ways and postgraduate study
- D3. gather, process and interpret reference sources and prepare simple written professional or scientific paper



**Connection of the courses learning outcomes with the study program learning outcomes**

Course	Course ID	General engineering competence			Focused engineering competence										Organizational engineering competence					Developing engineering competence
		A1	A2	A3	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	C1	C2	C3	C4	C5	D1
Basics of Chemistry	226092	+																		
Mathematics	33780	+																		
Petrology with Geology	33781	+					+				+	+								
Applied zoology	33783					+							+					+		
Sociology of urban and protected areas	33784	+	+	+																
Botany – Plant Morphology	226104				+															
Physical and health education 1	226038																			+
Botany – Plant Systematics	226109				+															
Soil science	33787			+				+						+						+
Biometrics for Spatial Valorizations	33788	+																		
Ground surveying with basics of cartography	226110	+							+										+	+
Introduction to urbanism	33791								+									+		
Heritage of Landscape Architecture	226112								+											
Physical and health education 2	226042																			+
Phytocenology	226115	+			+				+										+	+
Remote sensing and GIS of protected and urban areas	33812			+					+										+	+
General and landscape ecology	226119							+	+					+	+					
Genetics of Forest Trees	226122													+	+	+	+	+	+	
Environmental Microbiology	226124	+							+	+				+						+
Plant physiology	226125				+									+						+
Wildlife Management	226139							+	+					+						+
Physical and health education 3	226043																			+
Applied entomology	226126						+													



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Applied phytopathology	226127						+	+											
Dendrology	33819					+													
Perennial and Annual Ornamental Plants	226128												+						
Landscape design and planning	33820												+					+	
Introduction to physical planning	62455												+						
Physical and health education 4	226045																		+
Environmental protection	33822																	+	+
Environmental economics	33823	+	+	+															+
Silviculture of special purpose forests	33824						+						+						+
Forest regulation of forest for special purposes	33825																	+	+
Technical components of park design	33826																	+	+
Nature protection	33827																	+	+
Mechanisation of forestry in urban and protected areas	33815																		+
Arboriculture	33828	+																	+
Protected areas management and supervision	33830																		+
Ecology of Forest Tree Species	226129																		+
Professional practice	226130	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Bachelor thesis	226131	+	+	+															+
Forest Mushrooms	33833																		+
Tree measurement	33834	+																	+
Floriculture	73814																		+
Exotic Woody Plants	73815																		+
Applied technical graphics	73816																		+
Conservation biology	226133																		+
Allergenic herbaceous plants	226134																		+



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Wood structure properties of park tree species	226135				+					+									
Bioclimatology of forest and urban ecosystem	226136												+					+	
Medicinal Plants	226138																		
Foreign Language-English	226053																		+



## Basics of Chemistry

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
To distinguish extensive and intense physical quantities	Exercises, homework, partial exams, written exams, oral exam	A1
To connect physical quantities for expressing the quantity (mass, quantity, volume, number) of a substance and the composition of mixtures (fractions, concentrations, molality) with SI, some exceptionally permitted and old units of measurement	Exercises, homework, partial exams, written exams, oral exam	A1
To apply the basic settings of the precision calculus when processing experimental results	Exercises, homework, partial exams, written exams, oral exam	A1
To distinguish pure substances and mixtures	Exercises, homework, partial exams, written exams, oral exam	A1
To recognize a substance represented by chemical symbols	Exercises, homework, partial exams, written exams, oral exam	A1
To connect the basic physical and chemical properties of simple inorganic and organic substances with their chemical composition	Exercises, homework, partial exams, written exams, oral exam	A1
To apply the relations between physical quantities for calculation based on a chemical reaction equation	Exercises, homework, partial exams, written exams, oral exam	A1
To distinguish the limiting reactant and the reactant in excess	Exercises, homework, partial exams, written exams, oral exam	A1
To connect names and chemical formulas with the basic chemical and physical properties of simple inorganic and organic substances	Exercises, homework, partial exams, written exams, oral exam	A1
To identify natural organic compounds (carbohydrates, amino acids, lipids, nucleic acids, alkaloids) on the basis of a representation of a structure or structure segment and put it in the relation to the basic properties	Exercises, homework, partial exams, written exams, oral exam	A1



### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	45	0	1.5
Exercises (E)	-	-	-	15		0.5
1 <sup>st</sup> partial exam physical quantities, measuring units, precision calculus) (1PE)	33.3 %	75-79%	Sufficient (2)		20	0.5
		80-89%	Good (3)			
		90-94%	Very good (4)			
		95-100%	Excellent (5)			
2 <sup>nd</sup> partial exam - Chemical calculus - Stoichiometry (2PE)	33.3 %	50-59%	Sufficient (2)		40	1.5
		60-79%	Good (3)			
		80-89%	Very good (4)			
		90-100%	Excellent (5)			
3 <sup>rd</sup> partial exam physical, inorganic and organic chemistry (3PE)	33.3 %	50-59%	Sufficient (2)		90	2
		60-79%	Good (3)			
		80-89%	Very good (4)			
		90-100%	Excellent (5)			
<b>TOTAL</b>	<b>100 %</b>	<b>(1PE × 33.3 + 2PE × 33.3 + 3PE × 33.3)/100</b>		<b>60</b>	<b>150</b>	<b>6</b>

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the	ECTS
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					direct teaching	
Final exam* (FE)		60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)			4
<b>TOTAL</b>	<b>100 %</b>	<b>FE = (WE × 50 + OE × 50)/100</b>				
* The students who do not pass the partial exams during the semester are admitted to the exam in a regular or extraordinary exam period. In such a case, the examination consists of a written and oral part, and both parties participate equally in the final assessment.						

**Detailed description of evaluation elements for lecturer, exercises, partial or final exams:**

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures and exercises	The attendance is regularly checked and recorded. A student may justifiably be absent with a maximum of 15% of direct teaching hours.	semester (60 hours of direct lecturer)	-
1 <sup>st</sup> partial exam	Partial exam refers to the material processed in the first two lessons. It consists of so-called theoretical and computational tasks.	3 <sup>th</sup> week	Students who pass the 1 <sup>st</sup> partial exam can access the 2 <sup>nd</sup> partial exam.
2 <sup>nd</sup> partial exam	The partial exam refers to the material processed from the 6 <sup>th</sup> to the 10 <sup>th</sup> teaching term.	11 <sup>th</sup> week	Students who pass the 2 <sup>nd</sup> partial exam can access the 3 <sup>rd</sup> partial exam.
3 <sup>rd</sup> partial exam	The partial exam refers to the material processed from the 11 <sup>th</sup> to the 14 <sup>th</sup> teaching term.	15 <sup>th</sup> week	Students who pass the 3 <sup>rd</sup> partial exam are eligible for a final grade of Chemistry with Biochemistry.
Written exam	Written exams are attended by students who have a duly attended and certified semester but have not passed the three partial exams.	Exam terms	-
Oral exam	Students who passed a written exam are invited to the oral exam. The results of the written and oral exams equally participate in the final evaluation of Chemistry with Biochemistry.		-





## Mathematics

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Interpretation of basic notions and facts of sets and functions when solving mathematical problems (graphs of elementary functions, sequence limits, domain of a function, properties of functions, composition of functions, inverse functions, function limits, function continuity).	participating in class problems, solving problems, independently solved homework, midterm and final exam, exam	A1
Applications of derivatives (tangents, elementary and compound function derivatives, derivative rules, function growth and decay, extremes of functions, graphs).	participating in class problems, solving problems, independently solved homework, midterm and final exam, exam	A1
Interpretation of two variable functions (partial derivatives, extremes).	participating in class problems, solving problems, independently solved homework, midterm and final exam, exam	A1
Interpretation of indefinite integrals (concept of primitive function and indefinite integral, integrating, basic properties of indefinite integrals, integration methods).	participating in class problems, solving problems, independently solved homework, midterm and final exam, exam	A1
Analysis of definite integrals (basic concepts, Newton-Leibnitz formula, calculating areas of plane figures using definite integrals, calculating the volume of a solid of revolution, centroid coordinates, double integral, first order differential equations).	participating in class problems, solving problems, independently solved homework, midterm and final exam, exam	A1
Interpretation of vectors and matrices (vectors in two- and three-dimensional space, operations with vectors, matrices and matrix calculus, determinants).	participating in class problems, solving problems, independently solved homework, midterm and final exam, exam	A1



### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-			45	30	2.5
Exercises (E)	-			43	32	2.5
Partial exam 1 (PE1)	50%	50-59%	Sufficient (2)	1	29	1
		60-74%	Good (3)			
		75-89%	Very good (4)			
		90-100%	Excellent (5)			
Partial exam 2 (PE2)	50%	50-59%	Sufficient (2)	1	29	1
		60-74%	Good (3)			
		75-89%	Very good (4)			
		90-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>PE1+PE2</b>		90	120	7

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam* (FE)	100%	50-59% 60-74% 75-89% 90-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)			2
<b>TOTAL</b>	<b>100%</b>	<b>FE</b>				



**\* students who fail to pass the partial exams, but have acquired at least 10% of the total score on those exams, can take the final exam which makes up 100% of the grade. The exam consists of a written and an oral part, and students who achieve at least 50% on the written part can take the oral part of the exam.**

**Detailed description of evaluation elements for lecturer, exercises, partial or final exams:**

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures and exercise	Attendance is checked during class. A student can miss a maximum of 15% of lectures and 15% of exercises. Students are required to fulfill mandatory homework assignments published via Merlin every week regularly and within the given deadline.	semester (90 hours of direct lectures)	-
Partial exam 1	Students solve problems from the coursework of the first part of the semester. The exam is in written form. A minimum of 10% of the score on the first partial exam is necessary for obtaining the lecturer's signature and taking the second partial exam and further exams.	8th week	Under extraordinary circumstances and with a valid excuse, the student can take the exam at a later date.
Partial exam 2	Students solve problems from the coursework of the second part of the semester. The exam is in written form. A minimum of 10% of the score on the partial exam is necessary for obtaining the lecturer's signature and taking further exams.	15th week	Under extraordinary circumstances and with a valid excuse, the student can take the exam at a later date.
Written exam	The exam includes coursework from the entire semester. Students who obtained the lecturer's signature can take the exam.	Exam terms	
Oral exam	The exam includes coursework from the entire semester. Students who passed the written exam can take the oral exam. The final grade is obtained by combining the results of the written and oral exams.	Exam terms	



## Petrology with geology

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Explain the Earth's architecture and formation of minerals (Earth's interior, endogenic processes in the Earth's interior, Earth's crust and lithosphere, tectonic plate theory, minerals, crystallinity, crystal lattice, crystal systems, chemical composition of minerals, petrogenic minerals, and genesis and physical properties of minerals).	Practical part of the exercises, partial exam, final exam	A1
Identify and classify igneous, sedimentary and metamorphic rocks (a) magma/lava, classification of igneous rocks according to their place of formation, chemical and mineralogical composition, Bowen's crystallisation series from magma systems, classification of igneous bodies, post magmatic stages of crystallisation; (b) sedimentary rock genesis, basic characteristics and classification of sedimentary rocks; (c) metamorphism, structural and mineralogical changes in metamorphic rocks, metamorphic stages and classification of metamorphic rocks.	Practical part of the exercises, partial exam, final exam	A1, B3
Differentiate difference between relative and absolute dating methods and explain classification systems and principles in determination of geological time: lithostratigraphic, biostratigraphic, chronostratigraphic and geochronological systems.	Practical part of the exercises, partial exam, final exam	A1
Apply basic geological principles to identify relative age order of geological events and features.	Practical part of the exercises, partial exam, final exam	A1
Classify primary and secondary (deformational) geological structures/features in rocks types of the Earth's crust.	Practical part of the exercises, partial exam, final exam	B7, B8
Address the effect of surface and ground water on mechanical and chemical weathering of minerals and rocks, and landscape formation.	Practical part of the exercises, partial exam, final exam	B7, B8
Characterize the principles of earthquake occurrences, its manifestation, arrangement, frequency and intensity of earthquakes as well as slope gravitational processes (e.g., landslides, creeping, etc).	Practical part of the exercises, partial exam, final exam	B7, B8



### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	30%	-		30	15	1,5
Partial exam 1 – Earth's interior, minerals, physical properties of minerals and igneous rocks (genesis, classification)	20%	50-62%	Sufficient (2)	1	30	1
		63-75%	Good (3)			
		76-89%	Very good (4)			
		90-100%	Excellent (5)			
Partial exam 2 – Sedimentary and metamorphic rocks	20%	50-62%	Sufficient (2)	1	30	1
		63-75%	Good (3)			
		76-89%	Very good (4)			
		90-100%	Excellent (5)			
Partial exam 3 – Geology, geological structures, hydrology and hydrogeology	20%	60-70%	Sufficient (2)	1	30	1
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Construction of the geological profile	10%			4	15	0,5
<b>TOTAL</b>	<b>100%</b>	<b>(Lx10+Ex10 + PEx30+ PEx30)/100</b>		<b>37</b>	<b>120</b>	<b>5</b>

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload	ECTS
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				<b>outside the direct teaching</b>	
Final exam (FE)	100 %	60-70%	Sufficient (2)	2	60
		71-80%	Good (3)		
		81-90%	Very good (4)		
		91-100%	Excellent (5)		
<b>TOTAL</b>	<b>100%</b>	<b>(FEx80+Ex20)/100</b>			

### Detailed description of evaluation elements for lecturer, exercises, partial or final exams:

<b>Evaluation elements</b>	<b>Description</b>	<b>Deadline</b>	<b>Compensation</b>
Attendance of lectures and exercise	Attendance of the course is conducted in the beginning of the lectures. Students can be excused from 20% of the total lecture hours.	semester (45 hours of direct lecturer)	-
Attendance of exercise	Exercises are conducted in groups. Each exercise term s practical where students are acquainted first the minerals and rocks, and afterwards with geological structures and a geological map. During the construction of the program (geological profile) students are following the steps and at the end of each term an examination is carried out. In the last term of the exercises students are delivering the correctly constructed program and are getting the signature as a part of the obligation for getting the grade.		In case of any need compensation is planned according to the plan of the course.
Partial exam 1	All students can approach the partial exam. It has 25 points and is graded according to the percentages.	6. week	
Partial exam 2	All students can approach the partial exam. It has 13 points and is graded according to the percentages.	9. week	
Partial exam 2	All students can approach the partial exam. It has 60 points and is graded according to the percentages.	14. week	There is a possibility of a correction of one of the partial exams.
Written exam	Students who did not get the grade through partial exams are approaching the written exam. The exam is composed of the whole course material and has a total of 100 points, 60 of which are for a positive grade.	Exam terms	-
Oral exam	Only students that are participating in the commissioned exam are being tested via oral exam.		-



## Applied zoology

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Identify, name and group typical representatives of different groups of animals (eg invertebrates: molluscs, arthropods; vertebrates: reptiles, birds, mammals, etc.)	Colloquium, written and oral exam	B2, C4
Identify, describe and give an example of basic representatives of different groups of animals (eg invertebrates: molluscs, arthropods; vertebrates: reptiles, birds, mammals, etc.) according to different habitat types that occur in Croatia (eg lowlands, swamps, floodplains, hills, mountains, Mediterranean forests, karst, human settlements, etc.).	Colloquium, written and oral exam	B9, C4
Illustrate the biodiversity of Croatian fauna and its importance for preserving the stability of different habitat types (eg lowlands, swamps, floodplains, hills, mountains, Mediterranean forests, karst, human settlements, etc.).	Colloquium, written and oral exam	B9
Demonstrate what impact invasive animal species can have on autochthonous fauna	Colloquium, written and oral exam	B9, C4

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lecture	-	-	-	30	-	1
Exercise	-	-	-	15	15	1
Fieldwork	-	-	-	8	10	0,6
Colloquium exam 1 (CE)	25%	60-70%	Sufficient (2)	-	18	0,6
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Colloquium exam 2 (CE)	25%	60-70%	Sufficient (2)	-	18	0,6



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		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Colloquium exam 3 (CE)	25%	60-70%	Sufficient (2)	-	18	0,6
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Colloquium exam 4 (CE)	25%	60-70%	Sufficient (2)	-	18	0,6
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>			53	97	5

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam (FE)	100 %	60-70%	Sufficient (2)		72	2,4
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>					

**\*students who do not successfully pass colloquium exams, i.e. partial exams during the semester, are required to take the final exam (FE), where the grade from the final exam makes up 100% of the total grade**

**Detailed description of evaluation elements for lecturer, exercises, partial or final exams:**

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures	The student attendance is checked and recorded. Student absence of max 15% of lectures is allowed.	semester (30 hours of direct lecturer)	-





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Attendance of exercises	The student attendance is checked and recorded. Student absence of max 15% of lectures is allowed.	semester (15 hours of direct lecturer	-
Attendance of fieldwork	The student attendance is checked and recorded. Student absence of max 15% of lectures is allowed.	semester (8 hours of direct lecturer	-
Colloquium exams	Colloquium exam is evaluated and participate in the final assessment of the subject	Four times during the semester	Students who pass the colloquium exams don't have to take the final exam
Written exam	Written exam must be positively graded (2-5) so the student may participate in oral exam.	Exam terms	-
Oral exam	Students, which passed written exam, participate in oral exam and get their final grade.	Exam terms	-



## Sociology of urban and protected spaces

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Define the phenomenon of urbanization and hyperurbanization in the modern world and the basic phases of the urbanization process.	Seminar papers and presentations, colloquia, written and oral exams	A1
Understand the growth of the world's urban population, urban poverty and urban problems, and the phenomenon of slum (favelization) and spatial segregation.	Seminar papers and presentations, colloquia, written and oral exams	A1
Get acquainted with the first sociological theories about the city that are based on the phenomena of industrialization and urbanization and lead to the development of the modern city (industrial and modern cities of the 19th and 20th centuries)	Seminar papers and presentations, colloquia, written and oral exams	A2
Understand the post-industrial and postmodern phase of urbanization (late 20th and 21st centuries) and the emergence of information and global cities as a result of the process of globalization and digitalization	Seminar papers and presentations, colloquia, written and oral exams	A3
Analyze the state of socio-ecological crisis and sustainable development that have arisen due to anthropogenic impacts on the ecosystem and the socio-ecological paradigm	Seminar papers and presentations, colloquia, written and oral exams	A3
Get acquainted with the models of urban sustainability (urban sustainability) - compact city, green capital, smart city - models of the Europeanization process for possible application in the local context.	Seminar papers and presentations, colloquia, written and oral exams	A3

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students work load outside	ECTS
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					<b>the direct teaching</b>	
Lectures (L)	20%			30		1
Exercises (E)	20%	50-60%	Sufficient (2)	15		0,5
		61-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Partial exam (PE)	60%	60-70%	Sufficient (2)	15	30	1,5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(Lxy20+Exy20 + PEExy60)/100</b>		45	45	3

<b>Evaluation elements</b>	<b>Maximum points or Share in evaluation</b>	<b>Grade</b>	<b>Grade</b>	<b>Direct teaching hours</b>	<b>Number of average students workload outside the direct teaching</b>	<b>ECTS</b>
Final exam (FE)	80 %	50-60%	Sufficient (2)			1,5
		61-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(FEExy0+Exy0)/100</b>				

**Detailed description of evaluation elements for lecturer, excercises, partial or final exams:**

<b>Evaluation elements</b>	<b>Description</b>	<b>Deadline</b>	<b>Compensation</b>
Attendance of lectures and exceries	The attendance of students is checked and recorded. The student can be legally absent with up to 15% of the hours of direct instruction.	semester (45 hours of direct lecturer)	-



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Partial exam	Students can pass the exam through two colloquiums (each bearing 50% of the material exhibited). A colloquium is evaluated and takes part in the final grade of the course.	15. week	-
Written exam	The exam can be attended by students who have a seminar conducted. Students who passed both colloquia do not write a written exam. Students who did not pass both colloquia must write a written exam consisting of 10 essay questions. The written exam is evaluated and is involved in the final grade of the course.	Exam terms	-
Oral exam	Students who pass a written exam ask questions from different parts of the program content. The final grade from the subject is obtained according to the formula <b><math>V \times 20 + K \times 20 + P \times 60 / 100</math></b>	Exam terms	-



## Botany – Plant Morphology

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
To present the plant cell structure and function and plant function and plant histology (cytology, cytoplasm, plastids, mitochondria, cell wall, pits, cell nucleus, chromosomes, DNA, mitosis, meiosis, primary, secondary meristems, phellogen, vascular cambium, permanent or final cells, dermal and vascular tissue).	Exercises, Preliminary exam, Final exam	B1
To interpret the anatomy of vegetative plant organs (leaf, stem structure, structure of Gymno- and Angiosperms, bark anatomy, root anatomy, phylogeny of stele).	Exercises, Preliminary exam, Final exam	B1
To interpret the morphology of vegetative organs (structure, types, transformations and growth of stems, roots and leaves).	Exercises, Preliminary exam, Final exam	B1
Interpret the morphology of reproductive organs (structure and classification of flowers, inflorescences, fruits and seeds) and explain the alternation of generations and plant reproduction.	Exercises, Preliminary exam, Final exam	B1

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	15	0	0.5
Exercises (E)	20%	Partly messy and incomprehensible , with major corrections	Sufficient (2)	15	0	1.0
		Orderly, legible, with major corrections	Good (3)			
		Orderly, legible, with minor corrections	Very good (4)			
		Orderly, legible, correct	Excellent (5)			



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Partial exam I (PE1)	30%	60-70%	Sufficient (2)	-	20	0.5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Partial exam II (PE2)	50%	60-70%	Sufficient (2)	-	40	1.0
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(E*20+PE1*30+PE2*50)/100</b>		<b>30</b>	<b>60</b>	<b>3</b>

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam* (FE)	80%	60-70% 71-80% 81-90% 91-100%	sufficient (2) good (3) very good (4) excellent (5)	0	60	1,5
<b>TOTAL</b>	<b>100%</b>	<b>(ZIx100)/100</b>				

\* students who do not pass the midterm exams during the semester shall take the final exam. Ocjena se formira po formuli  $(E*20+FE*80)/100$

**Detailed description of evaluation elements for lecturer, excercises, partial or final exams:**

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures	The attendance of students is checked and recorded at the lectures. The student can justifiably be absent with a maximum of 20% of lectures	semester (15 hours of direct lectures)	



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Making exercises	The student can justifiably be absent with a maximum of 10% of the exercises. Exercises are attended in groups. On the web site students can see the template of the folder and worksheet which they are required to prepare and have on the exercises. Students are required to have necessary lab equipment. Before each exercise, students are required to study the template script about this exercise. Evaluated are accuracy, regularity and active participation in the exercises.	semester (15 hours of direct lectures)	Exceptionally, in the case of a justified reason, the student compensates the absence of the individual exercise
Partial exam I	Partial exam is written and consists of the topics in Citology and Histology.	7 <sup>th</sup> week	
Partial exam II	Partial exam can be accessed by students who have passed the Partial exam I (PE1), and have positively evaluated exercises. The partial exam consists of a written and oral part and consists of the topics in Morphology.	15 <sup>th</sup> week	
Final exam	Final exam can be accessed by students who have not passed the Partial exams (PE1, PE2) and who have positively evaluated exercises. The partial exam consists of a written and oral part.	in accordance to the exam schedule	



## Physical and health education 1

### Learning outcomes and methods of verification

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Describe the structure of the physical exercise class.	exercises, correction and evaluation exercises	D1
Explanation of the impact of physical exercise on health.	exercises, correction and evaluation exercises	D1
Choose fitness exercises designed to strengthen individual muscle groups.	exercises, correction and demonstration	D1
Demonstrate specific exercises with regard to kinesiologic activity.	exercises, structural analysis, assistance, correction and evaluation exercises	D1
Organize constructive free time	Exercises and evaluation exercises	D1
Assess personal diet and physical exercise habits.	exercise, diet diary correction and evaluation exercises	D1
Demonstrate general preparatory exercises and stretching exercises.	exercises, description, demonstration, correction	D1
Understanding kinesiology programs and their target orientation.	vježbe, korekcija i vrednovanje vježbi	D1
Control emotions and strengthen self-control.	Exercises, correction	D1

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Exercises (L)	-	-	The course is not graded, but the fulfillment of teaching obligations is checked by regular attendance of physical and health education exercises	30	0	1
<b>TOTAL</b>	<b>100%</b>	<b>(Vx100)/100</b>		30	0	1





**Detailed description of rules for preparing, implementing and taking midterm exams, seminar papers, partial exams and written and oral exams:**

<b>Evaluation elements</b>	<b>Description</b>	<b>Deadline</b>	<b>Compensation</b>
Exercises	During the semester, students attend physical and health training exercises according to the maintenance schedule. Absence of up to 20% of exercises is allowed.	According to the agreed timeline	Exceptionally, in the case of a justified reason, the student makes up the absence from a particular exercise



## Botany – Plant Systematics

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
To present the plant systematics and the systemic life division (systemic units (taxa), artificial and phylogenetic systems, plant evolution, speciation, hybridization, plant reproduction, general characteristics and division of Cormophyta).	Exercises, Preliminary exam, Final exam	B1
To explain the general characteristics, systematic division, morphology and ontogenetic development of Pteridophyta.	Exercises, Preliminary exam, Final exam	B1
To explain the general characteristics, systematic division, morphology and ontogenetic development of Gymnosperms.	Exercises, Preliminary exam, Final exam	B1
To explain the general characteristics, systematic division, morphology and ontogenetic development of Angiosperms (vegetative and reproductiv plant organs, function, basic forms, plant organs transformations).	Exercises, Preliminary exam, Final exam	B1
To apply the principles and methods of plant identification using keys.	Exercises, Preliminary exam, Final exam	B1
Show the most important families and genera of the Croatian flora (diversity, taxonomic status, distribution, significance).	Exercises, Preliminary exam, Final exam	B1

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	30	0	0.5
Exercises (E)	10%	Partly messy and incomprehensible, with major corrections	Sufficient (2)	15	0	0.5
		Orderly, legible, with major corrections	Good (3)			
		Orderly, legible, with minor corrections	Very good (4)			



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		Orderly, legible, correct	Excellent (5)			
Field work (FW)	-	-	-	24	-	0.5
Partial exam - plant identification (PE)	20%	60-70%	Sufficient (2)	-	15	0.5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Herbarium (H)	20%	Partly messy, some plants were poorly herbarized, with major corrections, minimum number of plants	Sufficient (2)	-	10	0.5
		Orderly, plants properly herbarized, with major corrections, minimum number of plants	Good (3)			
		Orderly, plants properly herbarized, with minor corrections, more than minimum number of plants	Very good (4)			
		Orderly, plants properly herbarized, correct, significantly more than minimum number of plants	Excellent (5)			
Final exam (FE)	50%	60-70%	Sufficient (2)	-	30	1.5
		71-80%	Good (3)			
		81-90%	Very good (4)			



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		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(E*10+H*20+PE*20+FE*50)/100</b>		69	55	4

### Detailed description of evaluation elements for lecturer, excercises, partial or final exams:

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures	The attendance of students is checked and recorded at the lectures. The student can justifiably be absent with a maximum of 20% of lectures	semester (30 hours of direct lectures)	
Making exercises+field works	The student can justifiably be absent with a maximum of 10% of the exercises. Field work must be done in 100% amount. Exercises are attended in groups. On the web site students can see the template of the folder and worksheet which they are required to prepare and have on the exercises. Students are required to have the lab equipment. Evaluated are accuracy, regularity and active participation in the exercises. Prior to field work, students are required to study the instructions about collecting and herbarizing plants that can be downloaded from the web site. For field work, they must prepare a field folder with papers for collecting plants according to the instructions listed on the web site.	semester (15+24 hours of direct lectures)	Exceptionally, in the case of a justified reason, the student compensates the absence of the individual exercise
Partial exam in plant identification	Students have to recognize plant species from photographs. The accuracy of the recognition and pronunciation of the Latin names of plants is evaluated. The Partial exam should be positively evaluated prior to taking the final exam.	in accordance to the agreed deadline	
Making herbarium collection	Students are obliged to make herbarium collection according to the instructions presented during lectures and field work and that are also listed on the web site. The template for the field folder and herbarium labels should be downloaded from the web site. The accuracy, the orderliness and the quality of the herbarium are evaluated. Herbarium should contain at least 150 plants systematically sorted by families. The herbarium collection should be reviewed and positively evaluated prior to taking the final exam.	prior to taking the final exam	
Final exam	Final exam can be accessed by students who have passed the partial exam in plant identification and have positively evaluated exercises and herbarium collection. The partial exam consists of a written and oral part.	in accordance to the agreed deadline and exam schedule	



## Soil Science

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Compare the role of soil and pedosphere. Identify the global significance of soil. Interpreted the specificity of forest soil.	partial examination, laboratory exercises, full examination	D1
Group primary soil minerals and compare their properties. Group the most usually rocks and compare their properties that are most important to soil properties. Explain to weathering of minerals and rocks. Explain the properties of rocks and minerals.	partial examination, laboratory exercises, full examination	D1
Enumerate and classify the most important soil organisms. Describe the accumulation of organic residues - quantity and quality. Describe the method of degradation of organic residues and the formation of humus. Describe composition and properties of humus. Analyze a soil humus acidity and character of humus	partial examination, laboratory exercises, full examination	A3, B4, B8, D1
Describe biological circulating of matter and role of soil. Identify specific cycles of some biogenic elements. Explain the principles of soil sorption. Explain the composition and role of the colloidal complex of soil. Analyze the sorption characteristics of soil.	partial examination, laboratory exercises, full examination	A3, B4, B8, D1
Explain the solid soil phase composition. Enumerate and distinguish the properties of mechanical particles of soil. Particle size distribution and soil structure Enumerate and distinguish the properties of shapes and elements of the soil structure. Soil porosity and soil densities. Enumerate and explain the soil consistency indicators.	partial examination, laboratory exercises, full examination	A3, B4, B8
Natural dynamic water in soil. Describe water forms in soil. Analyze the soil water constants. Explain quantity and quality of soil air. Analyze soil air capacity. Explain thermal properties of soil. Explain chemical properties of soil solution. Analyze and interpret soil reaction. Explain the significance and nature of the redox potential of the soil.	partial examination, laboratory exercises, full examination	A3, B4, B8



Describe the dynamics of biogenic elements in the soil solution		
Soil-forming factors. Identify the nature of some soil-forming factors in Croatia. Enumerate and explain some soil-forming processes. Identify the role of soil-forming factors and processes on a specific soil profile.	partial examination, laboratory exercises, full examination	B4, B8
Soil horizons. Explain the properties of some soil horizons. Soil classification system. Enumerate the sections, classes and types of soil. Explain the basic characteristics of the most important soils at the class level and type of soil. Classify soil according to taxonomic affiliation.		
Explain the plan, ways and purpose of soil sampling. Explain a representative soil samples. Describe the types of soil samples. Describe sampling and mark of soil samples. Enumerate and describe field observations of soil parameters.	partial examination, laboratory exercises, full examination	A3, B4, B8, D1

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	30	30	1,5
Laboratory Exercises (LE)	10 %	Partly disordered and incomprehensible, with major corrections and on time	Sufficient (2)	30	30	1,5
		Clean, easy, with bigger corrections and on time	Good (3)			
		Clean, easy, with minor corrections and on time; commitment to exercises	Very good (4)			
		Clean, easy, accurate and timely; an emphasis on exercises	Excellent (5)			



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Field courses (FC)				24	6	1
Exam (E)	90 %	50-60 %	Sufficient (2)	4	56	2
		61-75 %	Good (3)			
		76-90 %	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(Vx10 + K2x15 + Plx75)/100</b>		88	92	6



**Detailed description of evaluation elements for lecturer, excercises, partial or final exams:**

<b>Evaluation elements</b>	<b>Description</b>	<b>Deadline</b>	<b>Compensation</b>
Lectures (L)	On the lectures is checked the students presence. The student can justifiably be absent with up to 30% of teaching hours (5 lectures).	Semester (30 hours of direct teaching)	-
Laboratory Exercises (LE)	Exercises are attended by groups. 18 practical exercises are performed. At the beginning of the exercise, students receive a report template. The accuracy, regularity and the engagement in the exercises are evaluated.	According syllabus and agreement with the students	In the case of a justified reason, the student draws up absence from the particular exercise term
Field courses (FC)	Field work is performed in groups during the second half of the semester, and the terms are published at the beginning of the semester.	Second half of the semester.	-
Partial exam (PE)	Students can take the exam in two parts (partial). The first part takes place after ~ 60% of theoretical teaching, and the term is agreed with the students . The exam consists of a written and oral part (the written part of the exam must be passed for oral instruction), and it is about 60% of the subjects provided by the theoretical program. Partial exams can be accessed by students who have no more than one absence from the lectures. Those students who take the first partial exam will also take the second part of the exam on some of the regular test terms by the end of the current academic year. The arithmetic mean of the two grades represents the grade of the exam that gives the final grade.	Agreement with the students in second half of the semester.	-
Full exam (FE)	Students who have fulfilled their obligations in relation to lectures, exercises and field courses can access the regular exam. Examination of the entire program (realized through theoretical lectures, exercises and field courses) is examined on the exam. Students on exam (pre-printed questions) fit the questions asked in the form of rounding and written answers. A written exam is a condition for access to an oral exam, when gets a final grade.	Published test deadlines.	-





## Biometrics for spatial valorizations

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Explain types of variables: numeric (continuous and discrete) and categorical (dichotomous, ordinal i nominal); graphical presentation and frequency tables, classification of graphs according to data types: bar chart, histogram, frequency polygon, line chart, pie chart, scatterplot, stem-and-leaf plot, Box-Whisker plot; relative frequencies, cumulative absolute and cumulative relative frequencies, calculation and analysis	2 partial exams, Written and oral final exam	A1
Describe measures of central tendency and measures of position (arithmetic mean, geometric mean, harmonic mean, quadratic mean, minimum, maximum, median, lower and upper quartile, mode)	2 partial exams, Written and oral final exam	A1
Explain measures of variation (data range, interquartile range, standard deviation, variance, coefficient of variation)	2 partial exams, Written and oral final exam	A1
Interpret theoretical distributions or models of population distributions (normal Gaussian distribution, Student's t-distribution, binomial distribution, chi-square distribution, F-distribution, definition of density function and distribution function, calculating probability (area) under the density function for normal and t-distribution, calculating probability for binomial distribution, normal approximation to the binomial distribution)	2 partial exams, Written and oral final exam	A1
Explain point estimates of arithmetic mean, variance and proportion (central limit theorem, sampling distribution, standard error) Distinguish population parameters from their sample estimates; estimate population arithmetic mean (expected value), variance and proportion based on the sample	2 partial exams, Written and oral final exam	A1
Present hypothesis testing of arithmetic mean and proportion (rules and procedure of testing, type I ( $\alpha$ ) and type II ( $\beta$ ) errors, power of the test ( $1 - \beta$ ), testing (assumed constant) arithmetic mean and proportion of population	2 partial exams, Written and oral final exam	A1
Present interval estimates of expected value and proportion, testing of proportion, variances (F-test) and arithmetic mean (Student t-test) from two independent samples and testing difference of arithmetic means from two dependent samples (paired t-test)	2 partial exams, Written and oral final exam	A1
Present analysis of observed and expected frequencies for categorical variable using chi-square test	2 partial exams, Written and oral final exam	A1



### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-			30	15	1,5
Exercises (E)				30	45	2,5
2 Partial exams (PE)	100%	65-74	Sufficient (2)	4	26	1
		75-84	Good (3)			
		85-94	Very good (4)			
		95-100	Excellent (5)			
Final exam (FE)	100%	60-70	Sufficient (2)	3	-	-
		71-80	Good (3)			
		81-90	Very good (4)			
		91-100	Excellent (5)			

### Detailed description of evaluation elements for lecturer, exercises, partial or final exams:

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures and exercises	Attendance is checked for all students during the semester. Each student is allowed to be absent up to 4 hours of lectures and 4 hours of exercises.	End of semester	-
Partial exam	Two partial exams are carried out, each with 5 assignments and resulting maximum 100 (2*50) points. Minimum 65 points (20 points per exam) can substitute the final exam.	During semester	-
Written exam	Students that meet attendance criteria can access to the written exam. Written part consists of 5 assignments making maximum total 100 points.	Exam terms	-
Oral exam	Students that pass written part can access the oral exam.	Exam terms	-



## Ground surveying with basics of cartography

### Learning outcomes and evaluation methods

Learning outcomes and evaluation methods	Learning outcomes and evaluation methods	Learning outcomes and evaluation methods
<p>Explain cartography and its tasks.</p> <p>Extract objects of display and object names (toponyms) on different cartographic views (TK 50000, 25000, 5000).</p> <p>Describe and explain the difference between topographical and thematic maps.</p>	<p>Performing exercises, midterm exam, comprehensive exam</p>	<p>D1</p>
<p>Specify a measurement definition, used measuring units, specify standards, and explain measurement errors.</p> <p>Explain the difference between direct and indirect measurements.</p> <p>Determine scale. Construct linear and transverse scale.</p> <p>Calculate allowed deviations and measurements.</p>	<p>Performing exercises, midterm exam, comprehensive exam</p>	<p>A1, D1</p>
<p>Adopt the basics of orthogonal and quoted projections.</p> <p>Explain the quoted projection of the topographic plane and its application.</p> <p>Calculate the largest slope line and constant slope line.</p> <p>Explain and make a cross section of the topographic plane with the vertical plane and direction.</p> <p>Create a terrain profile.</p>	<p>Performing exercises, midterm exam, comprehensive exam</p>	<p>A1, B5, B9, C4, D1</p>
<p>Explain and share map projections.</p> <p>Explain the coordinate systems. Specify the types of coordinates.</p> <p>Calculate coordinates on different topographic maps ((TK 50000, 25000, 5000).</p> <p>Measure the size on topographic maps 1: 50.000 and 1: 5.000 (angle, length, altitude difference, gradient).</p>	<p>Performing exercises, midterm exam, comprehensive exam</p>	<p>A1, D1</p>
<p>Describe cadastre and its organization</p> <p>Describe the land registry and its organization</p> <p>State and explain the difference between the old and the new cadastre.</p> <p>Explain and describe the indirect method of determining the surface on cadastral maps.</p> <p>Calculate area with the different methods (dot grid, grid squares grid and analytical calculation of area).</p>	<p>Performing exercises, midterm exam, comprehensive exam</p>	<p>A1, B5, B9, C4, D1</p>
<p>Explain triangulation, polygonometry.</p> <p>Calculate the direct and indirect geodetic task.</p> <p>Describe the methods of direct and indirect length measurements.</p> <p>Determine azimuths, distances, height differences, and inclinations between the points.</p> <p>Mapping certain points in the default scale.</p>	<p>Performing exercises, midterm exam, comprehensive exam</p>	<p>A1, B5, B9, C4, D1</p>



Collect data, calculate and explain measurements with the compass. Describe and perform the recording of the details by a polar and orthogonal method. Calculate the altitude difference, explain and enumerate type of leveling.	Performing exercises, midterm exam, comprehensive exam	A1, B5, B9, C4, D1
Describe the global positioning system and its parts. Indicate GPS application in forestry. Explain GPS measurement errors. Apply GPS to determine spot positioning in terrain.	Field work, comprehensive exam	A1, B5, B9, C4, D1

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	30	0	1
Exercises (E)	10%			30	7,5	1,25
Field work (FW)	10%			24	6	1
Partial exam (PE) and/or Comprehensive exam (CE)	80%	60-70%	Sufficient (2)		82,5	2,75
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(Ex10+FWx10+CEx80)/100</b>		84	66	96



**Detailed description of evaluation elements for lecturer, excercises, partial or final exams:**

<b>Evaluation elements</b>	<b>Description</b>	<b>Deadline</b>	<b>Compensation</b>
Lectures	On the teaching is checked and recorded the presence of students. The student can justifiably absent from the highest 20% of hours of direct teaching (3 lectures).	semester (30 hours of direct lecturer)	-
Exercises (E)	Exercises are attended in groups. 10 practical exercises are performed. At the beginning of each exercise, students are received templates with tasks. The accuracy, precision, regularity, and engagement on the exercises are evaluated.	In accordance with the syllabus and agreed terms directly with the students.	The student work off for absence from the individual exercise term
Field work (FW)	Field teaching is performed in groups in the second half of the semester, and the terms are published at the beginning of the semester. Attendance on field teaching is a prerequisite for approach to exam	May	-
Midterm exam	Students can take the exam through two partial exam. The first partial exam is held after 50% of theoretical teaching and exercises. The term is arranged with students. Students who have a committed and correct 5 individual programs can access partial exam. Students who have passed the first partial exam, are eligible for the second partial exam, provided the submitted and accurate remain 5 programs, and 3 programs on a field teaching. The second partial exam is held at the end of the semester and before the start of deadlines exams. Each partial exam is in the form of a written exam, consisting of 5 logically set tasks, which are solved calculations and graphically. Both passed a partial exam (arithmetic mean of two grades) are recognized for the students for the final grade.	Agreement with students (April - June)	-
Regular examination deadlines	All students who have fulfilled their obligations in relation to lectures, exercises and field teaching are eligible to attend a regular exam period. On exam checks knowledge of the entire program (implemented through theoretical lectures, exercises and field teaching). Students in the written exam solve 5 tasks (calculation and graphically). A written exam is a condition for access to an oral exam, where a final grade is obtained.	Published examination deadlines	-



## Introduction to Urbanism

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Describe and sketch historical, modern, contemporary and ideal examples of cities and housing developments;	evaluation of exercises and seminar paper and final exam	B5
interpret and analyze urban planning legislation, physical and urban planning documents, planning maps, functional and physical structures and city infrastructure;	evaluation of exercises and seminar paper and final exam	B9
interpret and analyze urban planning legislation, physical and urban planning documents, and planning maps.	evaluation of exercises and seminar paper and final exam	C3

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	15	0	0,5
Making exercises and seminar paper (E)	50%	60-70%	Sufficient (2)			
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
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Final exam (FE)	50 %	60-70%	Sufficient (2)	-	45	2
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(FExy50+Exy50)/100</b>		<b>30</b>	<b>90</b>	<b>4</b>

### Detailed description of evaluation elements for lecturer, excercises, partial or final exams:

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures and exercises	Students' attendance is checked and recorded in classes. Student can be absent with a reason from 15% of direct classes at the most.	semester (30 hours of direct lecturer)	-
Partial exam	Students take up the prepared templates for work papers, maps and seminar papers, as well as the instructions for making the seminar paper. The activity of the student in the exercises is recorded in the timely submission of sketches and seminar paper. Tidiness, forethought, accuracy and regularity are evaluated (time-honored exercises).	according to the schedule	
Final exam	The conditions for entering the final exam are positively evaluated exercises with a seminar paper. Theoretical knowledge in written, sketched and oral questions is answered in writing, sketches and orally. Final grade is calculated based on the following formula: $(FEx50+Ex50)/100$	Exam period	-



## Heritage of Landscape Architecture

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
to describe the development of landscape art from Antiquity till the end of the 19th century (ancient and medieval gardens, Islamic, Chinese, Japanese, Italian, French and English landscape architecture tradition);	written and oral exam	B4
to interpret the characteristics of landscape formation in the 20 <sup>th</sup> and 21 <sup>st</sup> century as well as modern and contemporary landscape architecture;	written and oral exam	B4
to analyse landscape heritage of Zagreb and Croatia (Dubrovnik renaissance park, Maksimir park in Zagreb, castle parks and garden and park heritage of Croatian towns);	written and oral exam	B4
to describe public town parks in Europe and the world (19 <sup>th</sup> and 20 <sup>th</sup> century).	written and oral exam	B4

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	15	0	1
Exercises (E)	20%	60-70%	Sufficient (2)	30	20	1
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			





Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS points
Final exam (FE)	80 %	60-70%	Sufficient (2)	0	40	2
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(FEx80+Ex20)/100</b>				

**Detailed description of rules for preparing, implementing and taking midterm exams, seminar papers, partial exams and written and oral exams:**

Evaluation elements	Description	Deadline	Compensation
Lectures + exercises	Students' attendance is checked and recorded in classes. Student can be absent with a reason from 15% of direct classes at the most.	Semester (45 hours of direct teaching)	-
Creation of exercises	Students create short seminar papers on their own in which they analyse the chosen examples of parks in Croatia and the world (field work analysis and the analysis of examples from literature) and present them according to the arranged schedule. If the seminar grade is insufficient or the seminar has not been presented, it can be submitted subsequently within the arranged time period (under the condition that the student was not absent from classes more than is allowed).	According to the arranged schedule	Exceptionally, in case of a valid reason, a student can compensate for being absent by creating a field work report with photo documentation to prove it.
Written exam	The exam can be taken by students who have completed the exercises. Students answer the given questions on a printed exam prepared in advance. The written exam is graded and included in the final grade for the course. The written exam consists of a combination of drawing and theory tasks/questions. Drawings are done by hand. To pass the exam it is necessary to have 60 out of 100 points in total (60%).	Exam period	-
Oral exam	Students who pass the written exam get questions from different parts of the course content. Final grade for the course is calculated based on the following formula: <b>(FEx80+Ex20)/100</b>	-	-



## Physical and health education 2

### Learning outcomes and methods of verification

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Describe the structure of the physical exercise class.	exercises, correction and evaluation exercises	D1
Explanation of the impact of physical exercise on health.	exercises, correction and evaluation exercises	D1
Choose fitness exercises designed to strengthen individual muscle groups.	exercises, correction and demonstration	D1
Demonstrate specific exercises with regard to kinesiologic activity.	exercises, structural analysis, assistance, correction and evaluation exercises	D1
Organize constructive free time	Exercises and evaluation exercises	D1
Assess personal diet and physical exercise habits.	exercise, diet diary correction and evaluation exercises	D1
Demonstrate general preparatory exercises and stretching exercises.	exercises, description, demonstration, correction	D1
Understanding kinesiology programs and their target orientation.	vježbe, korekcija i vrednovanje vježbi	D1
Control emotions and strengthen self-control.	Exercises, correction	D1

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Exercises (L)	-	-	The course is not graded, but the fulfillment of teaching obligations is checked by regular attendance of physical and health education exercises	30	0	1
<b>TOTAL</b>	<b>100%</b>	<b>(Vx100)/100</b>		30	0	1



**Detailed description of rules for preparing, implementing and taking midterm exams, seminar papers, partial exams and written and oral exams:**

Evaluation elements	Description	Deadline	Compensation
Exercises	During the semester, students attend physical and health training exercises according to the maintenance schedule. Absence of up to 20% of exercises is allowed.	According to the agreed timeline	Exceptionally, in the case of a justified reason, the student makes up the absence from a particular exercise



## Phytocenology

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Explain phytocenology and ecosystems (role and tasks, division and historical development of phytocenology, phytochenological directions and schools, biocenosis and natural and anthropogenic ecosystems).	Preliminary exam, final exam	B9, C4
Vegetation synmorphology and synecology (quantitative and qualitative indicators, data collection, analytical processing and synthetic development, synmorphology (structure and composition) of plant communities, classification of synecological factors, relation of plant species and plant communities to the synecological factors of their adherence - soil, climatic, geomorphological and biotic factors)	Practical exercises, preliminary exam, final exam	A1, B5, B9
Syndynamics of plant communities (vegetation succession, syndynamics units, initial, transitional, permanent and climatic communities, practical importance).	Preliminary exam, final exam	B1, B5, B9, C4
Present the synhorology of plant communities (definition and types of area of distribution of plant communities, floral geoelements and area, spatial distribution and zoning of vegetation, altitude and horizontal distribution, disorders and disturbance of vegetation).	Preliminary exam, final exam	D1
Explain systematics of vegetation (historical development, nomenclature rules, associations, higher and lower systematic units).	Preliminary exam, final exam	D1
Present the forms of vegetation, development and their distribution in Croatia (vegetation of halophytes and ridges, water vegetation, mountainous rocks, rockery, rocks, climatogenic grasslands, anthropogenic grasslands, weed vegetation, ruderal vegetation, forest vegetation, most important forest communities, forests of urban areas and protected areas, plant fossils, pollen analysis, vegetation development).	Preliminary exam, final exam	B1, B5, B9, C4, D1
Explain the application of phytocenology in urban and protected areas (role and application of phytocenology in urban planning, protected areas, ecological studies and Natura 2000 project implementation).	Preliminary exam, final exam	A1, B1, B5, B9, C2, C4, D1



**Methods of grading**

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-		30	0	1
Creating exercises and field work reports (E)	20%	Partly untidy and incomprehensible, with major corrections and on time	Sufficient (2)	31	39	2,33
		Neat, legibly, with bigger corrections and on time	Good (3)			
		Neat, legibly, with small corrections and on time	Very good (4)			
		Neat, legibly, correct and on time	Excellent (5)			
Partial exam (2)	80%	60-70%	Sufficient (2)	0	50	1,66
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(Ex20 + Pex80)/100</b>		61	89	5

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam* (FE)		60-70%	Sufficient (2)		50	1,66
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(FEx80+Ex20)/100</b>				

\* Students who do not pass during the semester by a written partial exams, approach to final exam which accounts for 80% of the final grade, and the remaining 20% is grade from exercises



**Detailed description of evaluation elements for lecturer, excercises, partial or final exams:**

<b>Evaluation elements</b>	<b>Description</b>	<b>Deadline</b>	<b>Compensation</b>
Lectures + exercies + reports	The presence of students is being checked and noted. A student may justifiably be absent with a maximum of 15% of direct teaching hours.	semester (45 hours of direct lectures)	-
1. Partial exam	1st partial exam is available to students who have participated lectures, exercises and field work of the first half of the semester. The students in the pre-printed exam answer the questions asked. The partial exam is evaluated and participates in the final evaluation of the subject, whereupon 60% of the points are to be collected for passing.	8. week	-
2. Partial exam	2nd partial exam is available to students who have participated lectures, exercises and field work and passed the first partial exam. The students in the pre-printed exam answer the questions asked. The partial exam is evaluated and participates in the final evaluation of the subject. The two partial exams are scored with a total of 80 points, each with 40 points. A total of 48 points of 80 points (60%) have to be collected for passing.	15. week	-
Written exam	The exam can attend students with realized exercises and field work. The students in the pre-printed exam answer the questions asked. The written exam is evaluated and participates in the final assessment of the subject, whereby it is necessary to collect 60% points for passing	Exam terms	-
Oral exame	Students who pass a written exam are being asked questions from different parts of the program content.	Exam terms	-



## Remote sensing and GIS of protected and urban areas

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Pronounce the definition of remote sensing Describe the historical development of remote sensing. Compare digital and analog photography. Explain ways of stereoscopic observation.	Performing exercises in a practicum, midterm exam, comprehensive exam	D1
Identify the basic principles of remote sensing and their physical and technological basics. Explain and describe parts of the electromagnetic spectrum. List reflection and emission properties of natural objects. Describe the spectral characteristics of objects on Earth surface.	comprehensive exam	D1
List the types and characteristics of photography Describe procedures of aerial survey and errors that occur in aerial surveying. Describe and demonstrate the preparation of images for measuring and orientation procedure of the aerial photographs. Perform visual, measurement and digital photo interpretation on aerial photographs. Specify the application of aerial photographs for urban forestry, nature conservation and environmental protection purposes.	Performing exercises in a practicum, midterm exam, comprehensive exam	A3, B5, B9, C4, D1
Specify the types of satellites and their classification according to purpose and orbit. Explain ways of interpretation of satellite images. Carry out a visual interpretation of satellite imagery. Show and explain the procedure of digital interpretation of satellite image (supervised and unsupervised classification). Specify the application of satellite images in urban forestry.	Performing exercises in a practicum, midterm exam, comprehensive exam	A3, B5, B9, C4, D1
Pronounce the definition of the geographic information system (GIS). Specify a historical overview of GIS development. Explain the GIS organization.	comprehensive exam	D1
Show the establishment of a database in GIS. Apply different forms of data for displaying objects. Carry out linking of the attribute database with geometric data.	Performing exercises in a practicum, midterm exam, comprehensive exam	A3, B5, B9, C4, D1
Explain the difference and the basic features of raster and vector GIS. Compare and describe the analysis of vector and raster data. Create thematic maps based on the interpretation of the images.	Performing exercises in a practicum, midterm exam, comprehensive exam	A3, B5, B9, C4, D1



Explain the application of RS and GIS in urban forestry, nature conservation and environmental protection.

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	30	0	1
Exercises (E)				30	7,5	1,25
Midterm exam (ME)	25%	60-70%	Sufficient (2)		37,5	1,25
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Comprehensive exam (CE)	75%	60-70%	Sufficient (2)	4	41	1,5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(ME<sub>x</sub>25 + CE<sub>x</sub>75)/100</b>		64	86	5

### Detailed description of evaluation elements for lecturer, excercises, partial or final exams:

Evaluation elements	Description	Deadline	Compensation
Lectures	On the teaching is checked and recorded the presence of students. The student can justifiably absent from the highest 20% of hours of direct teaching (3 lectures).	semester (30 hours of direct lecturer)	-
Exercises (E)	Exercises are attended in groups. Each student is doing individual tasks. The first part of the exercise is related	In accordance with the	The student work off for absence





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	to remote sensing (exercises in practicum), and the second part on the geographic information systems (exercises on computers in computer classroom). The accuracy, precision, regularity, and engagement on the exercises are evaluated. 2 absences from exercises are allowed with the additional preparation of the seminar work.	syllabus and agreed terms directly with the students.	from the individual exercise term
Midterm exam	A compulsory two midterm exams is laid within the course. The first midterm exam is held after 50% of theoretical teaching and exercises. The term is arranged with students. The midterm exam can be accessed by students who have submitted accurate individual tasks. Those students who hold the first midterm exam will get the right to go to the second exam, with the condition of submitted and accurate remaining tasks, and the programs from the field teaching. The second midterm exam is held at the end of the semester and before the start of deadlines exams. Two passed a midterm exam is a condition for students to get a signature and go to the exam. The midterm exam is repeated during the academic year, according to the published schedule of exams.	Eight days before each test deadline, according to the published schedule.	-
Regular examination deadlines	All students who have fulfilled their obligations in relation to lectures, exercises and field teaching and passed two midterm exams are eligible to attend a regular exam period. On exam checks knowledge of the entire program (implemented through theoretical lectures, exercises and field teaching). A passed midterm examination is a requirement for an oral exam, and grade of two midterm examinations is part of the final grade.	Published examination deadlines	-



## General and Landscape Ecology

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Adopt basic principles for the protection of forests against abiotic and biotic factors and to apply the basic procedures and means for forest protection.	practical exercises, test of knowledge, oral exam	B3
Participate in the realization of a program of management of protected nature facilities.	practical exercises, test of knowledge, oral exam	B5
Collaborate on the development of environmental studies and environmental spatial plans.	practical exercises, test of knowledge, oral exam	B9
Plan and organize an integrated environmental management.	practical exercises, test of knowledge, oral exam	C1
Plan and organize professional tasks of the implementation of economic programs of protected nature facilities.	practical exercises, test of knowledge, oral exam	C2

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECT S
Lectures (La) attendance	5%	100% 90% 80% 70%	Excellent (5) Very good (4) Good (3) Sufficient (2)	30	-	1
Exercises (Ea) attendance	5%	100% 90% 80%	Excellent (5) Very good (4) Good (3)	15	-	0,5
Field work (FWa) attendance	3%	100%	Excellent (5)	16	-	0,5
Writing exercises (E) and field practice report	30%	Partly disordered and incomprehensible, with major corrections and on time	Sufficient (2)	-	40	1,5
		In order, easy, with bigger corrections and on time	Good (3)			



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		In order, easy, with minor corrections and on time	Very good (4)			
		In order, easy, accurate and timely	Excellent (5)			
Partial exam (PE)	30%	40-56%	Sufficient (2)	4	30	1
		57-73%	Good (3)			
		74-90%	Very good (4)			
		91-100%	Excellent (5)			
Oral exam (OE)	27%	40-56%	Sufficient (2)	0.5	15,5	0,5
		57-73%	Good (3)			
		74-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(Ppx0,05)+(Vpx0,05)+(TNpx0,03)+(Vx0,3)+(PTx0,3)+(UIx0,27)</b>		<b>64,5</b>	<b>85,5</b>	<b>5</b>

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECT S
Lecture-attendance (La)	5%	70-100%	2-5	30	30	1
Exercises - Attendance (Ea)	5%	80-100%	3-5	15	15	0,5
Field Work - Attendance (FWa)	3%	100%	5	16	16	0,5
Exercises and reports from the field work (E)	30%	40-100%	2-5		50	1,8
2 written tests or 1 final test (PE)	30%	40-100%	2-5	4	52	1,6
Oral Exam (OE)	27%	40-100%	2-5	0,5	18	0,6



<b>TOTAL</b>	<b>100%</b>	$(Pp \times 0,05) + (Vp \times 0,05) + (TNp \times 0,03) + (V \times 0,3) + (PT \times 0,3) + (UI \times 0,27)$	64,5	85,5	5
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**Detailed description of evaluation elements for lecturer, excercises, partial or final exams:**

<b>Evaluation elements</b>	<b>Description</b>	<b>Deadline</b>	<b>Compensation</b>
Attendance of lectures and excercises	The attendance is checked and the attendance of the students is recorded. The student can reasonably be absent from a maximum of 30% lectures and 20% excercises and can not be absent from the field work. Attendance is evaluated by grades 2-5, and this grade is taken when calculating the final grade of the subject.	semester (64,5 hours of direct lecturer)	Exceptionally, in the case of a justified reason the student should compensate for the lack of individual lectures or field work
Excercises and reports from the field work	Excercises are attended by groups. As part of the exercise is carried out 6 practical excercises. At the beginning of each exercise, students receive task templates and the layout of exercise reports in printed form. Estimated accuracy, neatness and regularity (exercise submitted on time). From each exercise, the student gets a grade and the average of all grades in the exercise is taken when calculating the final score from the subject.	In accordance with the agreed terms.	Exceptionally, in the case of a justified reason, the student draws the absence of the individual exercise.
Partial exam	Students can write two written tests during the semester according to personal choice (first on half of the semester and the second at the end of the semester). Students who score more than 40% of the correct answers from both tests do not write a final written test. Students who do not reach 40% correct answers from the written test are writing the final written test. All test scores are taken in the calculation of the final grade of the subject.	7. and 15. week in semester	Students who do not pass two written tests may take the final written exam.
Written exam	A written final test is written by all students who have not passed two partial written tests during the semester. Students on the previously designed printed exam answer questions. All grades from the written tests participate in the calculation of the final grade of the subject.	Exam terms	The student has the right three times to go to the exam.
Oral exam	Students who pass a written test and who receive passive grades from excercises, and have passive grades from lectures, excercises, and field work attendance take the oral exam. Each student in the oral exam gets questions from the whole material. The final grade of the subject is obtained according to the percentage representation of each grade in the overall rating according to the formula: $(Pp \times 0,05) + (Vp \times 0,05) + (TNp \times 0,03) + (V \times 0,3) + (PT \times 0,3) + (UI \times 0,27)$	Exam terms	The student has the right three times to go to the exam



## Genetics of Forest Trees

### Learning outcomes and evaluation methods

Learning Outcome (LO)	Verification	Connection with the study program LO
To discuss interaction of genes and environmental influences on phenotypic properties.	Practicum exercises, colloquium, knowledge test, final exam	B9
To perform basic field and laboratory procedures within the context of DNA analyses (collecting plant material, DNA extraction from plant tissue, PCR method, making agarose gel, electrophoresis procedure).	Practicum exercises, colloquium, knowledge test, final exam	B9 C4
To discuss the utility and procedures of using different types of genetic markers for the genetic characterization of a population and to calculate the appropriate parameters; To compute the results of the calculation and to evaluate the basic genetic state of the population;	Practicum exercises, colloquium, knowledge test, final exam	B8, B9 C1, C2, C3,C4
To explain the importance of genetic diversity, the methods of its determination and the influence of evolutionary factors on genetic diversity; To calculate different parameters that describe: the level of genetic diversity of a population, the level of genetic differentiation of populations and the effective population size; To analyse the genetic diversity of a population based on calculated parameters.	Practicum exercises, colloquium, knowledge test, final exam	B5, B8, B9 C1, C2, C3,C4
To design a genetic test to analyse quantitative phenotypic traits and to describe the process of collecting data from a genetic test; To calculate the basic parameters of quantitative genetic diversity based on data from a genetic test.	Practicum exercises, colloquium, knowledge test, final exam	B8, B9 C5

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching	Number of average students workload	ECTS



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				<b>g hours</b>	<b>outside the direct teaching</b>	
Lectures	-	-	-	30	0	1
Exercises (V)	-	-	-	30	0	1
Colloquium 1 (K1)	30%	60-70%	adequate (2)		10	0.33
		71-80%	good (3)			
		81-90%	very good (4)			
		91-100%	excellent (5)			
Colloquium 2 (K2)	40%	60-70%	adequate (2)		30	1
		71-80%	good (3)			
		81-90%	very good (4)			
		91-100%	excellent (5)			
Colloquium 3 (K3)	30%	60-70%	adequate (2)		20	0.67
		71-80%	good (3)			
		81-90%	very good (4)			
		91-100%	excellent (5)			
<b>TOTAL</b>	<b>100%</b>			<b>60</b>	<b>60</b>	<b>4</b>

<b>Evaluation elements</b>	<b>Maximum points or Share in evaluation</b>	<b>Grade rating scale</b>	<b>Grade</b>	<b>Direct teaching hours</b>	<b>Number of average students workload outside the direct teaching</b>	<b>ECTS</b>
Final exam* (ZI)	100%	60-70% 71-80% 81-90% 91-100%	Adequate (2) Good (3) Very good (4) Excellent (5)	-	60	2
<b>TOTAL</b>	<b>100%</b>				<b>60</b>	<b>2</b>



**\* students who do not pass colloquiums during the semester will take the final exam that makes 100% of the grade.**

**Detailed explanation of the preparation, execution and arrangement of colloquia, seminar papers, partial exams, written and oral exams:**

Tracking elements	Description	Deadline	Compensation
Lectures + exercises	The attendance of students is checked and recorded. A student may justifiably be absent with a maximum of 15% of direct teaching hours.	semester (60 hours of direct teaching)	-
Colloquium 1 (K1)	The students answer the questions in the scope of the basics of Genetics (round the correct answers on the printed test). Written testing is evaluated and participates in the final grade of the course with 30%.	5 <sup>th</sup> week	-
Colloquium 2 (K2)	The students answer the questions in the scope of the basics of the Population Genetics (round the correct answers on the printed test). Written testing is evaluated and participates in the final grade of the course with 40%.	10 <sup>th</sup> week	-
Colloquium 3 (K3)	The students answer the questions in the scope of the basics of the Population Genetics (round the correct answers on the printed test). Written testing is evaluated and participates in the final grade of the course with 30%.	15 <sup>th</sup> week	-
Written exam	Exams can be taken by students who regularly attended lectures/exercises and did not want or failed to pass all three colloquia. The students in the pre-printed exam answer to the questions from the entire course content, rounding out the exact answers. The written exam is evaluated and participates in the final grade of the subject	examination deadlines	-
Oral exam	Students who pass a written exam are being asked questions from different parts of the entire course content.	examination deadlines	-



## Environmental microbiology

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Differentiate basic biological structures, functions, and organization of unicellular and multicellular microorganisms	Continuously through written/oral practical work (laboratory exercises, project assignment, homeworks)	B1, B2, B3, C1, D1
Explore the properties of microorganisms and interpret their role in living processes	Continuously through written/oral practical work (laboratory exercises, project assignment, homeworks)	B1, B2, B3, C1, D1
Link the microorganism life form of a with the energy flux efficiency utilization	Continuously through written/oral practical work (laboratory exercises, project assignment, homeworks)	B1, B2, B3, C1, D1
Compare the causal consequences of the structure and function of microorganisms in response to different living conditions	Continuously through written/oral practical work (laboratory exercises, project assignment, homeworks)	B1, B2, B3, C1, D1,
Apply tools for study the structures and functions of microorganisms	Continuously through written/oral practical work (laboratory exercises, project assignment, homeworks)	B1, B2, B3, C1, D1
Analyze transformation processes of biogenic elements and of conversion energy flux at the ecosystem level	Continuously through written/oral practical work (laboratory exercises, project assignment, homeworks)	B1, B2, B3, C1, D1
Investigate abiotic living conditions and microorganisms' spread	Continuously through written/oral practical work (laboratory exercises, project assignment, homeworks)	B1, B2, B3, C1, D1
Compare energy flux relations and Circulation in different ecosystems with Analysis of functionality nutrition net	Continuously through written/oral practical work (laboratory exercises, project assignment, homeworks)	B1, B2, B3, C1, D1
Understand biotic interactions by arguing the causal relationships of individuals, species, and ecosystems	Continuously through written/oral practical work (laboratory exercises, project assignment, homeworks)	B1, B2, B3, C1, D1
Assess the success of organism survival in relation to specific environmental conditions	Continuously through written/oral practical work (laboratory exercises, project assignment, homeworks)	B1, B2, B3, C1, D1
Significant adaptations to the life cycle or behavior of microorganisms due to changes under environmental conditions	Continuously through written/oral practical work (laboratory exercises, project assignment, homeworks)	B1, B2, B3, C1, D1
Establish a widespread distribution of microorganisms with habitat types and ecosystems	Continuously through written/oral practical work (laboratory exercises, project assignment, homeworks)	B1, B2, B3, C1, D1
Discuss the linkage between biodiversity and environmental conditions	Continuously through written/oral practical work (laboratory exercises, project assignment, homeworks)	B1, B2, B3, C1, D1





Analyze the link between receiving information, responding to information and regulating the response of organisms to changes in environmental conditions	Continuously through written/oral practical work (laboratory exercises, project assignment, homeworks)	B1, B2, B3, C1, D1
Highlights of adaptations in life or behavior of organisms due to changes in environmental conditions	Continuously through written/oral practical work (laboratory exercises, project assignment, homeworks)	B1, B2, B3, C1, D1
Apply properly research principles (field, data, laboratory) of microorganisms	Continuously through written/oral practical work (laboratory exercises, project assignment, homeworks)	B1, B2, B3, C1, D1
Discuss the positive and negative impacts of applying technological processes and preparations to different ecosystems and forms of life	Continuously through written/oral practical work (laboratory exercises, project assignment, homeworks)	B1, B2, B3, C1, D1

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)				30		1
Laboratory Exercises (LE)	15%	Partly disordered and incomprehensible, with major corrections and on time	Sufficient (2)	15		0,5
		Clean, easy, with bigger corrections and on time	Good (3)			
		Clean, easy, with minor corrections and on time	Very good (4)			
		Clean, easy, accurate and on time	Excellent (5)			
Project assignment and seminar (PA&S)	25%	The student interprets with great help and patience	Sufficient (2)		30	1
		The student interprets with the help of the examiner	Good (3)			
		independently and logically interprets with little help	Very good (4)			
		Self-explanatory and logically interprets without any help	Excellent (5)			



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Partial exam (PE)	60%	60-64%	Sufficient (2)	15	0,5	
		65-74%	Good (3)			
		75-84%	Very good (4)			
		85-100%	Excellent (5)			
<b>UKUPNO</b>	<b>100%</b>	<b>(LEx15 + PA&amp;S x25 + PEx60)/100</b>		<b>45</b>	<b>45</b>	<b>3</b>

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam (FE)	60%	60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)		15	0,5
LE+ PA&S	40%	60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)	15	30	1,5
<b>TOTAL</b>	<b>100%</b>	<b>(FEx60+ LEx15 + PA&amp;S x25)/100</b>				
* students who do not pass through the semester during the semester will approach the exam period, which represents 60% of the grade, and the remaining 40% make a grade of laboratory exercises and project assignments.						

### A detailed description of evaluation elements for lecturer, exercises, partial or final exams:

Evaluation elements	Description	Deadline	Compensation
Lecture+ exercises	Records of students' presence especially at LE. The student may justifiably be absent with a maximum of one time during the direct tuition associated with laboratory exercises.	semester (45 hours of direct lecturer)	-
Laboratory exercise	Laboratory exercises are performed in turnovers. At the beginning of the first exercise, students receive all the necessary tutorials and materials necessary for conducting practical classes. Homework assignments are required for students to pass through the e-learning	in accordance with the agreed terms	Exceptionally, for a justified reason for another absence, a student may



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	courses. Evaluation of accuracy, orderliness, and regularity (tasks submitted on time)		perform a missed exercise
Project assignment and seminar	Each student, at the beginning of the laboratory exercise, gets a project assignment and a title of a short seminar. The student is obliged to hold a short oral presentation (PPT + written text/word format) and to prepare an agreed project assignment. These are an integral part of course content and final record cannot be achieved without it.	in accordance with the agreed terms	-
Partial Exam (colloquium)	During the course, students have two written colloquia according to the pre-agreed and published deadlines. At each of the colloquia (Partial Exam), it is necessary to achieve pre-agreed passage, and as the result obtained it is used a mean of both successes. Students who did not meet the passage in one of the colloquies write the entire content according to the schedule of exams. In case the student is not satisfied with the success achieved through the colloquium, he/she retains the entire contents according to the schedule of exams.	7 <sup>th</sup> & 15 <sup>th</sup> week	Students passing the partial exam can directly access the oral exam
Written exam (WE)	WE could be accessed after completed exercises, seminars, homework's, and project assignment. In this part of the exam, students in writing form answer the questions (fex: complement the required data, round out the exact answers, describe the images, etc.). An evaluated written exam is an integral part of the final grade of the subject.	Exam terms	-
Oral exam (OE)	After passing the WE, students answering questions from the course program content in the form of the discussion. Achieved success for final grade (in respect of the above rules) is obtained according to the formula <b>(LEx15 + PA&amp;S x25 + PEx60)/100 or</b> <b>(FEx60+ LEx15 + PA&amp;S x25)/100</b> In the case, if student is not satisfied with the success achieved is obliged to request a written exam within 24 hours.	Exam terms	-



## Plant physiology

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
To explain the relationship between water and plants (water potential, plant water uptake and conductivity, root pressure, water extraction, transpiration, embolism of the tree conducting system, plant water status).	Exercises, Preliminary exam, final exam	B1
To explain plant metabolism and mineral nutrition (the structure and activity of enzymes in plant cells, the physiological role of mineral substances in the plant, the assimilation of mineral substances and the role of mycorrhiza).	Exercises, Preliminary exam, final exam	B1
To interpret photosynthesis and respiration (chemoautotrophy, photoautotrophy, the structure of photosynthetic apparatus, photosynthetic reactions, photorespiration, photosynthesis types, influence of environmental factors, aerobic and anaerobic cellular respiration, whole-plant respiration, the regulation of cellular metabolism).	Exercises, Preliminary exam, final exam	B1
To present physiological processes of plant growth and differentiation in relation to key environmental factors (plant hormones, auxins, gibberellins, cytokinins, abscisic acid, bud, seed and embryo dormancy, phytochromes, photomorphogenesis).	Exercises, Preliminary exam, final exam	B8
To interpret the physiology of stress, as well as physiology of motion (passive movements, organ movements, free locomotor movements, motion in the cell, physical movements).	Exercises, Preliminary exam, final exam	B1

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	30	0	1
Exercises (E)	-	-	-	15	0	0,25



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Partial exam - exercises (PEE)	30%	60-70%	Sufficient (2)	10	0,25
		71-80%	Good (3)		
		81-90%	Very good (4)		
		91-100%	Excellent (5)		
Partial exam (PE1)	35%	60-70%	Sufficient (2)	20	0,75
		71-80%	Good (3)		
		81-90%	Very good (4)		
		91-100%	Excellent (5)		
Partial exam (PE2)	35%	60-70%	Sufficient (2)	20	0,75
		71-80%	Good (3)		
		81-90%	Very good (4)		
		91-100%	Excellent (5)		
<b>TOTAL</b>	<b>100%</b>	<b>(PEE*30+PE1*35+PE2*35)/100</b>		<b>45</b>	<b>3</b>

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam (FE)	70%	60-70%	Sufficient (2)	40	1.5	
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(FE*70+PEE*30)/100</b>				
<b>* students who do not pass through the partial exams have to access the final exam that makes 70% of the grade, and the remaining 30% of the grade make the exercise</b>						



**Detailed description of evaluation elements for lecturer, exercises, partial or final exams:**

Evaluation elements	Description	Deadline	Compensation
Lectures + exercises	The attendance of students is checked and recorded at the lectures. Student may not be absent more than 20% of lectures and 10% of exercises. The exercises are attended in groups. Exercises are performed in the laboratory. Students have templates for each exercise	semester (45 hours of direct teaching)	Exceptionally, in the case of a justified reason, the student may compensate the absence of an individual exercise.
Partial exam - exercises (PEE)	After the exercises are done, the students are obliged to take the partial exam. The students answer the questions on previously printed exam.	in accordance to the agreed deadline	-
Partial exam (PE1)	The students answer the questions on previously printed exam. Students are not obligatory to access the 1st partial exam. If they do not access the partial exam, they have to take the final exam.	9th week	-
Partial exam (PE2)	The students answer the questions on previously printed exam. Students are not obligatory to access the 2nd partial exam. If they do not access the partial exam, they have to take the final exam. If the students have a positive grade in partial exams according to the formula $PEE \times 30 + PE1 \times 35 + PE2 \times 35$ they are not required to access the final exam.	15th week	-
Final exam (FE)	Students who fail to pass the Partial exam are obligatory to attend the final exam. The final exam consists of a written and oral part. In a written part students answer the questions on previously printed exam. Students who pass a written exam are orally asked questions from different parts of the program content. The final grade of the subject is obtained according to the formula $FE \times 70 + PEE \times 30$	in accordance to the exam schedule	-



## Wildlife Management

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Define criterion for wild animal classification (conservation and use of wild animals)	Oral exam	B3, B4, B9, D1
Feeding strategy (niche, habitat and ecosystem, competition, ecophysiological adaptations of ruminants and carnivores, splitting according to feeding strategy)	Oral exam	B3, B4, B9, D1
To explain wild animals behaviour and habitat-animal interactions (displaying of behaviour, reproductive behaviour, communication, home range and territory, migrations and migratory species, habitat selection, dispersion patterns and dispersal).	Oral exam	B3, B4, B9, D1
Assessment of population dynamic, capacity (limiting factors and the law of tolerance, population structure, sustainable use)	Oral exam	B3, B4, B9, D1
Find out types of animal population management on the local and global point of view (population control, causes of extinction or endangerment of populations, introduction, reintroduction, translocation, recovery plans, management plans and legislative).	Oral exam	B3, B4, B9, D1

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-			30	0	1
Exercises (E)	-	60-70%	Sufficient (2)	15	0	0,5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			



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Final exam (FE)	30%	60-70%	Sufficient (2)		75	2,5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(Lxy0+Exy0 + PExy0)/100</b>		45	75	4

**Detailed description of evaluation elements for lecturer, exercises, partial or final exams:**

<b>Evaluation elements</b>	<b>Description</b>	<b>Deadline</b>	<b>Compensation</b>
Attendance of lectures and exercises	The student attendance is checked and recorded. Student absence of max 15% of lectures is allowed.	semester (45 hours of direct lecturer)	
Partial exam	-	-	
Written exam	Exceptionally (f.e. for students with speech disorder)	Exam terms	
Oral exam	Asks from different parts of course content	Exam terms	





### Physical and health education 3

#### Learning outcomes and methods of verification

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Describe the structure of the physical exercise class.	exercises, correction and evaluation exercises	D1
Explanation of the impact of physical exercise on health.	exercises, correction and evaluation exercises	D1
Choose fitness exercises designed to strengthen individual muscle groups.	exercises, correction and demonstration	D1
Demonstrate specific exercises with regard to kinesiologic activity.	exercises, structural analysis, assistance, correction and evaluation exercises	D1
Organize constructive free time	Exercises and evaluation exercises	D1
Assess personal diet and physical exercise habits.	exercise, diet diary correction and evaluation exercises	D1
Demonstrate general preparatory exercises and stretching exercises.	exercises, description, demonstration, correction	D1
Understanding kinesiology programs and their target orientation.	vježbe, korekcija i vrednovanje vježbi	D1
Control emotions and strengthen self-control.	Exercises, correction	D1

#### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Exercises (L)	-	-	The course is not graded, but the fulfillment of teaching obligations is checked by regular attendance of physical and health education exercises	30	0	1
<b>TOTAL</b>	<b>100%</b>	<b>(Vx100)/100</b>		30	0	1



**Detailed description of rules for preparing, implementing and taking midterm exams, seminar papers, partial exams and written and oral exams:**

<b>Evaluation elements</b>	<b>Description</b>	<b>Deadline</b>	<b>Compensation</b>
Exercises	During the semester, students attend physical and health training exercises according to the maintenance schedule. Absence of up to 20% of exercises is allowed.	According to the agreed timeline	Exceptionally, in the case of a justified reason, the student makes up the absence from a particular exercise



## Applied entomology

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
To learn taxonomy, morphology, physiology and nutrition of forest insects, and the importance of insects in the forest ecosystem and urban areas	colloquium, seminar work, final exam	B2
Present growth and ontogenetic development in insects (developmental stage, types of larvae, pupae, physiology of metamorphosis, apolysis, eclosion, ecdosis, hormone system, endocrine glands).	colloquium, seminar work, final exam	B2
Describe the insect sense and communication with the environment in function survival in forest habitat and urban space (sensations of tastes, sight, hearing, smell and taste, intrinsic and interpersonal communication, sexual and aggregate attractants, insect attack symptoms).	colloquium, seminar work, final exam	B2
Define the foundations of the insect ecology of the populations, endangered and rare insect species (fluctuations, oscillations, gradations, gradation types, antagonistic relations and symbiosis, predation and parasitism, endangered and rare insect species, the concept of species preservation through conservation of habitats).	colloquium, seminar work, final exam	B2
Show the most significant pests of urban timber from the group of sucking insects (species from the order of Orthoptera, Thysanoptera and Hemiptera, bionomy, ecology and significance).	colloquium, seminar work, final exam	B2
Show the most significant defoliants of urban wooden plants from the subfamily of butterflies, beetles and other rows.	colloquium, seminar work, final exam	B2
Define the most important xylophages and urban wood destroyers woody plants (xylophagic butterflies, bark beetles, primary and secondary pests in forestry, bionomy, ecology of species and their impact on forest ecosystem).	colloquium, seminar work, final exam	B2
Present insects as molestants and causes allergic reactions to the forest and urban space.	colloquium, seminar work, final exam	B2
Analyze invasive quarantine insect species and their correlation with urban space.	colloquium, seminar work, final exam	B2

### Methods of grading



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Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	10%			30	0	1
Exercises (E)	30%	60-70%	Sufficient (2)	15	0	0,5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Partial exam (PE)	60%	60-70%	Sufficient (2)	0	135	4,5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(Lxy0+Exy0 + PExy0)/100</b>		45	135	6

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam (FE)	80 %	60-70%	Sufficient (2)			4,5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(FExy0+Exy0)/100</b>				<b>4,5</b>



**Detailed description of evaluation elements for lecturer, excercises, partial or final exams:**

<b>Evaluation elements</b>	<b>Description</b>	<b>Deadline</b>	<b>Compensation</b>
Attendance of lectures and exercies	The attendance is checked and the attendance of the students is recorded. A student may justifiably be absent with a maximum of 15% of direct teaching hours	semester (45 hours of direct lecturer)	-
Partial exam		15. week	-
Written exam		Exam terms	-
Oral exame			-



## Applied phytopathology

### Learning outcomes and assessment

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Explain causative agents of plant diseases (non-parasitic, parasitic, morphology, reproduction and classification of fungi).	Colloquium, final exam.	B2
Explain biology and physiology of fungi (reproduction, nutrition, specialization, ecological associations).	Colloquium, final exam.	B2
Explain pathogenesis and plant resistance towards pathogens (types and sources of infection, incubation, fructification, resistance factors, plant reaction on pathogenic organism).	Colloquium, final exam.	B2
Analyse diseases of needles and leaves of urban and forest trees (disease symptoms, biology and harmful effect of the pathogen).	Colloquium, final exam.	B2, B3
Analyse diseases of bark, shoots, branches and stems of shrubs and trees (disease symptoms, biology and harmful effect of the pathogen).	Colloquium, final exam.	B2, B3
Analyse rot fungi of urban trees (their species, most common rot fungi in Croatia, disease symptoms, biology and harmful effect of pathogens, consequences for the health status of affected trees and their economical value).	Colloquium, final exam.	B2, B3
Explain anthropological and abiotic damage on urban and forest trees (mechanical damage on bark during cut and skidding and forwarding, frost cracks, drought damage, sunscald wounds).	Colloquium, final exam.	B2, B3
Explain harmful hemiparasitic plants (most common hemiparasitic flowering plants on urban trees).	Colloquium, final exam.	B2, B3



### Methods of grading

Elements for assessment	Grade percentage	Grading scale	Grade	Hours of direct teaching	Work hours of an average student outside direct teaching	ECTS
Lectures	-	-	-	30	0	1
Practical exercises (V)	-	-	-	15	0	0,5
Field classes and field class seminar (TN)	-	-	-	16	14	1
Midterm exam on basics of phytopathology (K)	25%	60-70%	sufficient (2)	0	27	0,9
		71-80%	good (3)			
		81-90%	Very good (4)			
		91-100%	excellent (5)			
Exam (PUI)	75%	60-70%	sufficient (2)	0	78	2,6
		71-80%	good (3)			
		81-90%	Very good (4)			
		91-100%	excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(Kx25 + PUIx75)/100</b>		61	119	6

Elements for assessment	Maximum points or Share in evaluation	Grade scale	Grade	Hours of direct teaching	Total number of work hours of an average student	ECTS
Final exam* (ZI)		60-70% 71-80% 81-90% 91-100%	sufficient (2) good (3) very good (4) excellent (5)	0	105	3,5
<b>TOTAL</b>	<b>100%</b>	<b>(ZIx100)/100</b>				

\* students who do not pass the midterm exams during the semester shall take the final exam that makes up 100 % of the grade.



**Detailed description of evaluation elements for lecturer, excercises, partial or final exams:**

Elements for assessment	Description	Term	Compensation for absence
Lectures + practical exercises	Students' attendance is checked and recorded. Students can be absent with justification from maximum 15 % of direct teaching	semester (45 direct teaching hours)	-
Completion of practical exercises	Students attend practical exercises in groups. A total of 8 practical exercises are carried out about microscopic and macroscopic identification of forest shrubs and trees pathogens.	semester (15 direct teaching hours)	In case of justified reason student can additionally compensate for the absence from the exercise.
Midterm exam on basics of phytopathology	All students can take the first midterm exam. Students provide answers to pre-printed test questions, they round the correct answers, describe pictures. The written midterm exam is graded and taken into account for the final grade of this course.	From 13 <sup>th</sup> week	Students who passed midterm exam can take written exam.
Written exam	The exam can be taken by students who attended practical exercises and passes the midterm exam. Students provide answers to pre-printed test questions, they round the correct answers, describe pictures. The written exam is graded and taken into account for the final grade of this course	Exam terms	-
Oral exam	Students who pass the written exam are asked questions relating to the different parts of the course content. The following formula is used to calculate the final grade for this course: <b><math>K \times 25 + PUI \times 75 / 100</math></b>		





## Dendrology

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
To define and explain biological features and morphological characteristics of the genera of autochthonous gymnosperms (6 genera), allochthonous gymnosperms (18 genera), autochthonous angiosperms (trees - 28 genera, shrubs - 45 genera), allochthonous angiosperms (trees and shrubs - 27 genera), autochthonous and allochthonous angiosperms - vines (10 genera),	partial exams and final exam	B1
To identify and describe the autochthonous and allochthonous gymnosperms according to: habit (21 species), bark (12 species), twigs and buds in winter (5 deciduous species), leaves (49 species), cones and/or seeds (41 species);	partial exams and final exam	B1
To identify and describe the autochthonous and allochthonous angiosperms according to: habit (41 species), bark (27 species), twigs and buds in winter (72 deciduous species), leaves (196 species), flowers (61 species), fruits and/or seeds (123 species);	partial exams and final exam	B1
To use determination keys for autochthonous and allochthonous gymnosperms and angiosperms;	partial exams and final exam	B1
To group autochthonous and allochthonous gymnosperms and angiosperms (trees, shrubs and vines) according to biological features, morphological characteristics, distribution, economic, horticultural and ecological importance;	partial exams and final exam	B1
To choose autochthonous and allochthonous gymnosperms and angiosperms (trees, shrubs and vines) for various purpose in forestry and urban forestry;	partial exams and final exam	B1

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS



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Lectures (L)				45		1.5
Exercises (E)	5%	60-70%	Sufficient (2)	30		1
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Homework (HW)	5%	70-80%	Sufficient (2)		15	0.5
		81-89%	Good (3)			
		90-94%	Very good (4)			
		95-100%	Excellent (5)			
Field work reports, plant collection and herbarium preparation (FWR)				24		0.8
Herbarium exam (H)					6	0.2
Partial exam - gymnosperms (PEG)	30%	60-70%	Sufficient (2)		20	0.7
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Partial exam - angiosperms (PEA)	60%	60-70%	Sufficient (2)		70	2,3
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(Ex5+HWx5+PEGx30+PEAx60)/100</b>		<b>99</b>	<b>111</b>	<b>7</b>



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Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam (FE)	60%	60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)		70	2,3
<b>TOTAL</b>	<b>100%</b>	<b>(FE<sub>x</sub>60+PEG<sub>x</sub>30+Ex5+HW<sub>x</sub>5)/100</b>				
* students who do not pass the course through two partial exams during the semester take the final exam that is 60% of the grade and is the same as the partial exam - angiosperms; the remaining 5% is the grade of the exercises, 5% is the grade of the homework and 30% of the partial exam - gymnosperms						

### Detailed description of evaluation elements for lecturer, excercises, partial or final exams:

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures, exercises and field work	Student attendance is recorded. Student may not be absent more than 20% of lectures and 10% of exercises.	IV semester	
Exercises	The exercises are attended in groups. The practicum exercises enable students to acquire practical skills to recognize woody species on the basis of different morphological characteristics: leaves, twigs of deciduous species in winter, flowers, cones, fruits and seeds. The students use plant material and determination keys. At the end of each exercise the accuracy of determination is evaluated, and the evaluation affects the final grade.	IV semester	
Homework	After each lecture and practicum exercises, the students do their homework and submit it via the Herbarium DEND application. The homework is evaluated and affects the final grade.	IV semester	
Field work reports	After field work students prepare reports. Professor's signature confirms the accuracy of the report.	IV semester	
Herbarium collection and exam	On field work and field exercises students collect herbarium specimens. During the semester they take herbarium exam.	IV semester	
Partial exam - gymnosperms	Access requirements: regular attendance at lectures and exercises, positively graded gymnosperm exercises and homework. The partial exam consists of written and oral part. In the oral part, apart from theoretical knowledge, students	IV semester	



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	have a practical determination of woody species according to different morphological characteristics.		
Partial exam - angiosperms	Access requirements: regular attendance at lectures, exercises and field work; positively graded all exercises and homework; signed field work reports; positively graded gymnosperm partial exam; collected herbarium and positively graded herbarium exam. The partial exam consists of written and oral part. In the oral part, apart from theoretical knowledge, students have a practical determination of woody species according to different morphological characteristics. The angiosperm partial exam is the same as the final exam.	IV semester	
Written exam	Access requirements: professor's signature (regular attendance at lectures, exercises and field work; positively graded all exercises and homework; signed field work reports; positively graded gymnosperm partial exam; collected herbarium and positively graded herbarium exam). The written exam is the same as the written part of the angiosperm partial exam.	Exam terms	
Oral exam	Access requirement: positively graded written exam. In the oral part, apart from theoretical knowledge, students have a practical determination of woody species according to different morphological characteristics. The oral exam is the same as the oral part of the angiosperm partial exam. The final grade is obtained according to the formula: $(FEx60+PEGx30+Ex5+HWx5)/100$	Exam terms	



## Perennial and Annual Ornamental Plants

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
To interpret the characteristics of ornamental herbaceous plants (taxonomy, morphology, life form, biological and ecological features, use of alohton species and wild and cultivated taxa, neophytes, conservation of rare and endangered species and development of new ornamental taxa).	Partial exam, final exam	B4
To analyze the most important taxa of ornamental annual plants (appearance, cultivars, ecological requirements, use, propagation, specific use).	Partial exam, final exam	B4
To analyze the most important ornamental perennials taxa (for use in: wet and humid habitats, shady and semi-shady habitats, open, sunny habitats, xeric rocky habitats and specific habitats).	Partial exam, final exam	B4
To interpret a choice of suitable ornamental herbaceous plants.	Partial exam, final exam	B4

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	30	0	1
Field work (FW)	-	-	-	16	0	0,5
Partial exam I (PE1)	20%	60-70%	Sufficient (2)	-	15	0,5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Partial exam II (PE2)	80%	60-70%	Sufficient (2)	-	30	1



		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(PE1*20 + PE2*80)/100</b>		46	45	3

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam* (FE)	80 %	60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)		30	1
<b>TOTAL</b>	<b>100%</b>	<b>(FE*80+PE1*20)/100</b>				

\* Students who do not pass through partial exam have to access the final exam that makes 80% of the grade, and the remaining 20% of the grade makes the Partial exam I (PE1)

**Detailed description of evaluation elements for lecturer, excercises, partial or final exams:**

Evaluation elements	Description	Deadline	Compensation
Lectures+Field work	The attendance of students is checked and recorded at the lectures and field work. The student can justifiably be absent with a maximum of 20% of the lecture. Field work must be done in 100% amount.	semester (46 hours of direct teaching) -	-
Partial exam I	Students have to recognize plant species from photographs. The accuracy of the recognition and pronunciation of the Latin names of plants is evaluated. The Partial exam should be positively evaluated prior to taking the final exam.	according to agreed deadlines	-
Partial exam II	The students answer the questions on previously printed exam. The partial exam is evaluated and participates in the final grade. Instead of taking the Partial exam II, the student can choose to prepares a seminar paper on the given topic and present it orally. The quality of the seminar work is evaluated. The seminar is given in the form of presentations and in written form.	according to agreed deadline	-



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	If a student has a positive assessment of the partial exam (or seminar), he or she is not required to pass the final exam, but he/she is obligatory to pass the Partial exam I.		
Final exam (FI)	Students who fail to pass the Partial exam II are obligatory to attend the final exam. The condition to access to the final exam is to pass the Partial exam I. The final exam consists of a written and oral part. In a written part students answer the questions on previously printed exam. Students who pass a written exam are orally asked questions from different parts of the program content.	in accordance to the exam schedule	-



## Landscape Design and Planning

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Pronounce definitions of the term landscape, analyse and identify categories of landscape values, draw the analysis of visual features of the landscape as a basis for its evaluation	Exercises, partial exam and final exam	B4
Identify contemporary principles of waterscapes and trafficscapes planning, transformation of Brownfield areas, recognize and apply principles of modern large scale parks design and practice, cooperate on the creation of environmental impact studies and spatial plans	Exercises, partial exam and final exam	B4, B9
Categorize protected natural values (protected areas) in the Republic of Croatia, identify basic features and permitted activities in certain categories of protected natural area in the Republic of Croatia, Enumerate environmental protection instruments, apply current legal regulations in the management of protected natural areas.	Exercises, partial exam and final exam	B4, C3

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	15	-	0,5
Exercises (E)	15%	Partially disordered and incomprehensible, with major corrections and on time	Sufficient (2)	15	15	0,5
		Orderly, legible, with major corrections and on time	Good (3)			
		Orderly, legible, with minor corrections and on time	Very good (4)			
		Orderly, legible, correct and on time	Excellent (5)			





Partial exam (PE)	15%	51-70%	Sufficient (2)	-	15	0,5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Final exam (FE)	70%	51-70%	Sufficient (2)	-	30	1,5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(Ex15 + PEx15 + FE/70)/100</b>		<b>30</b>	<b>60</b>	<b>3</b>

**Detailed description of rules for preparing, implementing and taking midterm exams, seminar papers, partial exams and written and oral exams:**

Evaluation elements	Description	Deadline	Compensation
Lectures	Students' attendance is checked and recorded in classes. Student can be absent with a reason from 15% of direct classes at the most.	Semester (15 hours of direct teaching)	-
Creation of exercises	Students prepare a seminar paper on a selected topic where they analyse examples of national or international landscape plans or projects and present them to colleagues according to arranged schedule.	According to arranged schedule (15 hours of direct teaching)	Exceptionally, if seminar has not been presented, it can be submitted subsequently within the arranged time period.
Partial exam	Students take the exam from specified thematic areas.	12. week	Students who do not attend the partial exams will approach the written and verbal part of the exam
Written exam	The exam can be taken by students who have completed the exercises. Students answer the given questions on a printed exam prepared in advance. The written exam is graded and included in the final grade of the course. The written exam	Exam period	-



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	<p>consists of a combination of drawing and theory tasks/questions.          To pass the exam it is necessary to have 51 out of 100 points in total (60%).</p>		
Oral exam	<p>Students who pass the written exam get questions from different parts of the course content. Final grade for the course is calculated based on the following formula:  <b><math>(Ex15 + PEx15 + FE/70)/100</math></b></p>	-	-



## Introduction to Physical Planning

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Describe the spatial planning basics and the relationship between man and space (functional characteristics and processes in space).	Exercises and final exam	B9
Interpret urbanization (basic generators of contemporary area structure, urban agglomeration, conurbation and megalopolis, village and region, opening up of traffic, industrial areas, tourist regions and agricultural areas).	Exercises and final exam	B9
Interpret the landscape and area identity (consequences of human activity, endangerment of the natural environment, natural reserves, national and memorial parks).	Exercises and final exam	B9
Present physical planning documentation.	Exercises and final exam	B9

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	15	-	0,5
Exercises (E)	20%	Partially disordered and incomprehensible, with major corrections and on time	Sufficient (2)	30	30	2
		Orderly, legible, with major corrections and on time	Good (3)			
		Orderly, legible, with minor corrections and on time	Very good (4)			



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		Orderly, legible, correct and on time	Excellent (5)			
Final exam (FE)	80%	51-70%	Sufficient (2)	-	45	1,5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(Ex20 + FE/80)/100</b>		45	75	4

**Detailed description of rules for preparing, implementing and taking midterm exams, seminar papers, partial exams and written and oral exams:**

Evaluation elements	Description	Deadline	Compensation
Lectures + exercises	Students' attendance is checked and recorded in classes. Student can be absent with a reason from 15% of direct classes at the most.	Semester (45 hours of direct teaching)	-
Creation of exercises	Exercises are designed to follow the lectures thematically. Students make short presentations in consultation with the teacher. During the semester there are also blocks of exercises that serve to deepen the knowledge gained in the lecture and its practical application. Students prepare a seminar paper on a selected topic where they analyse the chosen spatial problem in the context of the role of urban forestry, that is being presented to colleagues.	According to the arranged schedule	Exceptionally, in case of a valid reason, a student can compensate for being absent in the second term.
Final exam	The exam can be taken by students who have completed the exercises. The written exam consists of the 10 theoretical questions. Each task is scored with 10 points (100 points). To pass the exam it is necessary to have 51 points out of 100 points (51%). Students get questions from different parts of the course content. Final grade for the course is calculated based on the following formula: <b>(FEx80+Ex20)/100</b>	Exam period	-



## Physical and health education 4

### Learning outcomes and methods of verification

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Describe the structure of the physical exercise class.	exercises, correction and evaluation exercises	D1
Explanation of the impact of physical exercise on health.	exercises, correction and evaluation exercises	D1
Choose fitness exercises designed to strengthen individual muscle groups.	exercises, correction and demonstration	D1
Demonstrate specific exercises with regard to kinesiologic activity.	exercises, structural analysis, assistance, correction and evaluation exercises	D1
Organize constructive free time	Exercises and evaluation exercises	D1
Assess personal diet and physical exercise habits.	exercise, diet diary correction and evaluation exercises	D1
Demonstrate general preparatory exercises and stretching exercises.	exercises, description, demonstration, correction	D1
Understanding kinesiology programs and their target orientation.	vježbe, korekcija i vrednovanje vježbi	D1
Control emotions and strengthen self-control.	Exercises, correction	D1

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Exercises (L)	-	-	The course is not graded, but the fulfillment of teaching obligations is checked by regular attendance of physical and health education exercises	30	0	1
<b>TOTAL</b>	<b>100%</b>	<b>(Vx100)/100</b>		30	0	1



**Detailed description of rules for preparing, implementing and taking midterm exams, seminar papers, partial exams and written and oral exams:**

<b>Evaluation elements</b>	<b>Description</b>	<b>Deadline</b>	<b>Compensation</b>
Exercises	During the semester, students attend physical and health training exercises according to the maintenance schedule. Absence of up to 20% of exercises is allowed.	According to the agreed timeline	Exceptionally, in the case of a justified reason, the student makes up the absence from a particular exercise



## Environmental protection

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Present the issue of environmental protection and biodiversity in forest ecosystems and urban areas (environmental management and sustainable development, environmental problems, biodiversity protection in forest and urban ecosystems).	Partial exam , seminars, Final exam	C1
Respond to climate change and water protection in forestry, urban forestry and nature conservation (causes of climate change, adaptation measures, protection of water forests with forests).	Partial exam, seminars, Final exam	C4
Present the protection of air and forest soils (sources of atmospheric pollution, soil protection, use and preservation).	Partial exam, seminars, Final exam	C4
Improve adverse impacts on the environment (environmental pollution and legal issues of environmental protection, primary activity, energy production, heavy metals, organic matter, radiation, noise, fossil fuels, nuclear energy, radiation, renewable energy sources).	Partial exam, seminars, Final exam	C1
Improve environmental protection and waste management.	Partial exam, seminars, Final exam	C4, D1



### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-			30	0	1
Field work (FW)	-			8	0	1
Exercises (E)	20%	50-70%	Sufficient (2)	26	22	1
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Partial exam (P1)	40%	50-70%	Sufficient (2)	2	30	1
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Partial exam (P2)	40%	50-70%	Sufficient (2)	2	30	1
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(Ex20 + P1x40 + P2x40)/100</b>		68	82	5

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the	ECTS
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				direct teaching
Final exam (FE)	80 %	50-70%	Sufficient (2)	5
		71-80%	Good (3)	
		81-90%	Very good (4)	
		91-100%	Excellent (5)	
<b>TOTAL</b>	<b>100%</b>	<b>(Fex80+Ex20)/100</b>		

### Detailed description of evaluation elements for lecturer, excercises, partial or final exams:

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures and exercises	The attendance is checked and the attendance of the students is recorded. A student may justifiably be absent with a maximum of 15% of direct teaching hours. Seminar papers are produced in accordance with the assigned topics related to the analyzes and interpretations of the teaching units in the exercises.	semester (60 hours of direct lecturer)	Exceptionally, in the case of a justified reason, the student draws the absence of the individual exercise
Partial exams (P1 and P2)	Students will take the exam from the above mentioned thematic areas.	8. and 15. week	Students who do not attend the partial exams will approach the written and verbal part of the exam
Written exam	The exam is attended by students who have not passed the first and second partial exam. Students who have passed the first and second partial exam only access the verbal part of the exam. The students in the pre-printed exam answer the questions asked, round out the exact answers, describe the images. The written exam is evaluated and participates in the final assessment of the subject.	Exam terms	
Oral exam	Students who pass a written exam are asking questions from different parts of the program content. The final grade of the subject is obtained according to the formula:  <b>(Fex80+Ex20)/100</b>		



## Environmental economics

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Interpret the environmental economics and economic consequences of natural resources pollution (basic methods of environmental economics, causes and economic consequences of pollution, impact of climate change, the benefits of forests in urban areas).	exercises, seminar papers, final exam	A1
Present types and methods of evaluating renewable and non-renewable energy sources.	exercises, seminar papers, final exam	A2
Interpret the economics of pollution (impact of natural resources on the pollution assimilation, economic instruments, methods and goals of forest management).	exercises, seminar papers, final exam	A2
Valorize environmental assessment methods (monetary environmental assessment methods).	exercises, seminar papers, final exam	A3, C5
Present the economics of sustainable development and sustainability strategy (environmental protection standards, international policies, goals and strategies of sustainable development, ecological crisis, global change, economic influence, economic-ecological balance and ecological accounting).	exercises, seminar papers, final exam	A3

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	10%	Regularly lessons attendance and activity	-	30	0	1
Exercises (E)	10%	Participation and regularly submission	-	15	0	1
Self-conducting	15%	Partly disordered and incomprehensible,	Sufficient (2)		15	0,5



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seminar (presentation form) E <sub>1</sub>		with major corrections and on time				
		Proper, readable, with major corrections and on time	Good (3)			
		Proper, readable, with minor corrections and on time	Very good (4)			
		Proper, readable, accurate and on time	Excellent (5)			
Self- conducting seminar (presentation form) E <sub>2</sub>	15%	Partly disordered and incomprehensible, with major corrections and on time	Sufficient (2)		15	0,5
		Proper, readable, with major corrections and on time	Good (3)			
		Proper, readable, with minor corrections and on time	Very good (4)			
		Proper, readable, accurate and on time	Excellent (5)			
Partial exam (PE)	50%	60-70%	Sufficient (2)		45	1
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(E<sub>1</sub>x15+E<sub>2</sub>x15 + PEx70)/100</b>		<b>45</b>	<b>45</b>	<b>4</b>

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam (FE)	100 %	60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)	45		4
<b>TOTAL</b>	<b>100%</b>					



**Detailed description of evaluation elements for lecturer, excercises, partial or final exams:**

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures and exercise	Checking the attendance of students on lectures. Student can miss the lectures justifies no more than 15%	semester (45 hours of direct lecturer)	-
Exercise	Exercises are conducted individually. At the beginning of the first exercise, students receive task templates for all exercises, as well as all necessary info. Evaluation consist of accuracy and time frame in which in necessary to hand exercises.	in accordance with the agreed terms	Exceptionally, in the case of a justified reason, the student can miss the class
Paper work	during the semester Students are performing two seminars. The first work is done in pairs (two students prepare the default topic) and presents it in the form of a PowerPoint presentation. The second work is also done in pairs and submitted in writing form (Word). Instructions for the seminar papers are provided by the lecturer, and are entirely available on the Faculty web site.	1 <sup>st</sup> seminar until January 15 <sup>th</sup> 2 <sup>nd</sup> seminar until June 15 <sup>th</sup>	
Written exam	no	-	
Oral exam	Students who submit the exercises and do both seminar works have the right to access the exam. Exercises are not evaluated and have no impact on the final assessment. Seminar papers are evaluated and have an impact on the final assessment.	Exam terms	



## Silviculture of special purpose forests

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Explain ways of regeneration and forest care of special purpose (characteristics, purpose and significance, sociological role and raising of special purpose forests, restoration and nursing methods).	Practicum, Preliminary exam, Final exam	B5, D1
Analyze the types and methods of regeneration of stands of special purpose (natural and artificial regeneration, generative and vegetative regeneration, advantages and disadvantages of choice and regeneration).	Practicum, Preliminary exam, Final exam	B1, B5, D1
Describe forestry procedures in the stands of the disrupted structure (in cases of drying and decay of whole stands after natural disturbances).	Practicum, Preliminary exam, Final exam	B5, D1
Present forest management planning and sustainable management practices in forests with a distinctive protective function and forests of special purpose (management, biodiversity of forests, sustainable management, sustainable development).	Practicum, Preliminary exam, Final exam	B5, D1
Analyze the characteristics of private forests management (management history, present state of the surface, ownership structure, stock and growth and future perspective).	Practicum, Preliminary exam, Final exam	B5, D1
Present the basics of forestry and seedlings (seed material and seeds, production facilities, livestock estimation, collection, storage and processing of seed, germination and evaluation of seed quality elements, nursery establishment, technical conditions and seedlings, planting material).	Practicum, Preliminary exam, Final exam	B1, B5, B8, D1

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	45	0	1,5
Exercises (E)	-	-	-	30	12	1,4



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Field work (FW)	-	-	-	16	2	0,6
1. Partial exam (PE1)	50%	60-70%	Sufficient (2)	-	39	1,3
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
2. Partial exam (PE2)	50%	60-70%	Sufficient (2)	-	36	1,2
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(L+E+FW+PE1x50+ PE2x50)/100</b>		91	89	6

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam* (FE)	100 %	60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)	-	75	2,5
<b>TOTAL</b>	<b>100%</b>	<b>(FEx100)/100</b>				
* Students who do not pass during the semester by a written partial exams, approach to final exam which accounts for 100% of the final grade						

**Detailed description of evaluation elements for lecturer, exercises, partial or final exams:**

Evaluation elements	Description	Deadline	Compensation
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Lectures (L)	The lectures are checked and the presence of students is recorded. Students may be excluded with a maximum of 20% of direct tuition hours.	semester (45 hours of direct lectures)	-
Exercises (E)	Exercises are checked and students attend. Student may justifiably be absent with a maximum of 10% of direct teaching hours. At the end of the semester, the students submit their exercises based on the instruction given from the beginning of the course on the layout and content of the exercises.	After completing classes	-
Field work (FW)	On-site teaching is checked and the presence of students is recorded and no absences allowed. After completing each field course, the students are obliged to write and submit a report from the field teaching.	According to the field curriculum	-
1. Partial exam (PE1)	All students who have enrolled the subject for the first time in the current academic year can access the first queue. In the content of the 1st Column the first half of the tuition is entered. Colloquy is an oral test.	8. week	There is a possibility of a correction deadline for the colloquium.
2. Partial exam (PE2)	2. Colleges can be accessed by students who have passed the 1st Colloquium. The second half of the semester enters the second half of the tuition. Colloquy is an oral test.  Students placing both oral colloquia get a final grade from a subject that is the arithmetic mean of the grades from the first and second colloquia.	15. week	There is a possibility of a correction deadline for the colloquium.
Written exam	Written exam consists of 20 questions. The exact answer is scored with 1 point, a half answer with 0.5 points, and the inaccurate or empty answer with 0 points. For passage on a written exam, it is necessary to collect more than 60% of the points.	Exam terms	-
Oral exam	The requirement for the entrance to the oral exam is at least 60% of the points collected on the written part of the exam. The final grade is obtained according to the formula $(Z \times 100) / 100$		-



## Forest regulation of forest for special purposes

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Describe, to recognize and to classify types of special purpose forests (content and meanings of special purpose forests, types of natural and build objects, categories of park objects)	computational and computer exercises, partial exams, knowledge tests, final	B5
Interpret and explain, and to design functions of special purpose forests (main functions of park objects, function mechanisms of park objects, building/trees relations aimed to save energy)	computational and computer exercises, partial exams, knowledge tests, final	C1
Analyse, to derive (draw) and to calculate elements of tree and stand growth as composition elements of park recreational objects (growth of tree height, dbh and volume; longitudinal tree cross section and growth curves; management systems; growth and volume increment of even-aged stand)	computational and computer exercises, partial exams, knowledge tests, final	B9
Explain and to calculate planning elements of economic forest functions in special purpose forests (elements of regulated even-aged and selection/uneven-aged forests; age-class and diameter-class structure of even-aged and uneven-aged forests; possible (theoretical) cut in regulated even-aged and uneven-aged forest)	computational and computer exercises, partial exams, knowledge tests, final	B5
Present and to explain planning elements of urban forests and special purpose forests (principles of sustainability; influential determinants on development of spatial usage; aims and management guidance according to categories of special purpose forests; spatial categories and zones of park recreational objects)	computational and computer exercises, partial exams, knowledge tests, final	B5
Explain, to analyse and to calculate elements of management plans of urban forests and special purpose forests (levels of management plans; structure and basic components of plans; characteristics of actual park objects; needs for building of new park objects)	computational and computer exercises, partial exams, knowledge tests, final	B5

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade		Number of average students	ECTS





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				<b>Direct teaching hours</b>	<b>workload outside the direct teaching</b>	
Lectures (L)	-	-	-	45		1.5
Exercises (E)	10%	Partially uncluttered, large correction and on time	Sufficient (2)	30	15	1.5
		Uncluttered, large correction and on time	Good (3)			
		Uncluttered, small correction and on time	Very good (4)			
		Uncluttered, correct and on time	Excellent (5)			
Field education (FE)	-	-	-	15		0.5
Partial exam 1 (PE1)	45%	60-70%	Sufficient (2)	2.5	35	1.25
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Partial exam 1 (PE1)	45%	60-70%	Sufficient (2)	2.5	35	1.25
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(Ex10 + PE1x45-PE2x45)/100</b>		95	85	6



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Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam (FE)	90 %	60-70%	Sufficient (2)	5	75	2.5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(FEx90+Ex10)/100</b>				

### Detailed description of evaluation elements for lecturer, excercises, partial or final exams:

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures and exercises	Checking and evidence of student's attendance. Student is allowed exculpatory to absent of maximal 15% hours of direct teaching (10% of exercises and 20% of lectures)	semester (60 hours of direct teaching)	-
Field work	Checking and evidence of student's attendance and their activity. Field teaching is fully obligatory.	semester (15 hours of direct teaching)	Exceptionally, in a case of exculpatory absent student is obliged to prepare seminar or to pass partial exam related on topics of field teaching
Preparing of exercises	Exercises are performing in groups up to 20 students, depending on total enrolled students. There are perform 5 computational, 2 computer and 2 project exercises. At beginning of semester, students get instructions for preparing of files and covers for exercises, and templates which include explanation of topics and actual examples for each exercise. Evaluation include correct, uncluttered and regularity of preparing and delivery of exercise. Exam include	according to defined deadline	Exceptionally student is obliged to work of , in a case of exculpatory absent of several exercise
Written exam	Attendance to exam is allowed to student who regularly get done and complete all exercises and field teaching. Written exam is possible to pass by two partial exams, at the middle and end of semester, or on exam dates scheduled after semester. Student get in advance prepared knowledge test, which include 10 questions (9 questions are in essay form which can include graphs, and 1 question relate on solving of problem example). Exam include testing and evaluation of	defined deadlines of partial exams during semester,	



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	<p>knowledge and skills gained on lectures, exercises and field teaching. Attendance to the second partial exam is allowed to student who passed the first partial exam.</p> <p>Written exam is evaluate and contribute in final grade of the course.</p>	<p>schedule of exam dates</p>	
<p>Oral exam</p>	<p>Prerequisite for oral exam is sufficient grade achieved on written part of partial exam or exam within scheduled exam date. Theoretical knowledge (from book) and understanding of teaching topics within exercises and field teaching are evaluate.</p> <p>The finish grade is get according to equation:  <b><math>(W1x40+O1x50+Ex10)/100</math></b></p>		



## Technical components of park design

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Describe the basic building materials for the construction of park elements or devices (technical features, valid standards and regulations in civil engineering, use of construction stone, concrete, wood and metal, use of organic and inorganic binders).	Exercises, Colloquium, Final exam	C1
Observing park communications (complete design process (planning and production) and conservation of park and garden communication).	Exercises, Colloquium, Final exam	B4
Display the types, functions and features of various park equipment and garden accessories.	Exercises, Colloquium, Final exam	B10
Present water surfaces and sports facilities in parks.	Exercises, Colloquium, Final exam	C3
Analyse the conversion of brownfield areas into the park/garden area.	Exercises, Colloquium, Final exam	B4

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	15%		0-15 points	30	-	1
Exercises (E)	15%	Partially untended and incomprehensible, with major corrections and on time	1-3 points	14		0,5
		Orderly, readable, with major corrections and on time	4-8 points			
		Orderly, readable, with minor corrections and on time	9-12 points			
		Orderly, readable, accurate and on time	13-15 points			
Seminar Work (SW)	10%	Bad topic, partially untended and	1-2 points	1	30	1



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		incomprehensible, with major corrections and on time				
		Good topic, partially untended, with major corrections and on time	3-5 points			
		Very good topic, orderly, with minor corrections and on time	6-8 points			
		Great current topic, orderly and readable, accurate and on time	9-10 points			
Colloquium I. (C)	20%	50-70% sufficient (2) 71-80% good (3) 81-90% very good(4) 91-100% excellent (5)	0-20 points	0	15	0,5
Colloquium II. (C)	20%	50-70% sufficient (2) 71-80% good (3) 81-90% very good(4) 91-100% excellent (5)	0-20 points	0	15	0,5
Colloquium III. (C)	20%	50-70% sufficient (2) 71-80% good (3) 81-90% very good(4) 91-100% excellent (5)	0-20 points	0	15	0,5
<b>TOTAL</b>	<b>100%</b>	<b>(Lx15 + Ex15 + SWx10 + 3Cx60)/100</b>		45	75	4

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam (FE)	60 %	60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)	0	45	1,5
<b>TOTAL</b>	<b>100%</b>	<b>(Lx15 + Ex15 + SWx10 + FEx60)/100</b>				



**Detailed description of evaluation elements for lecturer, exercises, partial or final exams:**

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures and exercises	The attendance of the students is checked and recorded. Fieldwork and exercises are mandatory. The student doesn't have to participate in lectures and exercises, but for each one he/she gets points for attendance.	semester (45 hours of direct lecturer)	-
Exercises	Exercises are attended by groups. At the beginning of the first exercise, students will receive templates with exercise assignments, as well as the appearance of the folder, wrapper, and worksheet in which they will respond to the set tasks in printed form. The accuracy, regularity, and regularity are evaluated (time-honoured exercises).	in accordance with the agreed terms	-
Colloquium I.	Kolokviju mogu pristupiti studenti koji imaju uredno pohađanje izravne nastave.	5. week	-
Colloquium II.	The colloquium can be taken by students who have regularly attended direct classes and have taken the first colloquium.	10. week	-
Colloquium III.	The colloquium can be taken by students who regularly attend direct classes and have attended the first and second colloquia. Students who pass all three colloquia receive a final grade in the course, which is obtained according to the formula: <b>(Lx15 + Ex15 + SWx10 + 3Cx60)/100</b>	15. week	-
Written exam	Exams can be taken by students who did not attend the colloquium. The written exam is evaluated and participates in the final grade of the subject. <b>(Lx15 + Ex15 + SWx10 + FEx60)/100</b>	Exam terms	-



## Nature protection

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Compute the analysis and interpretation of biological and landscape diversity and the classification of protected forest areas.	Partial exam, seminars, Final exam	B1
Present spatial plans and management plans in protected areas, structure, division, structure, features and evaluation of national parks and nature parks.	Partial exam, seminars, Final exam	B3
Analyze the protection of flora and fauna, the endangerment of plant species and habitats, the evaluation of protected areas (National Habitat Classification and European Ecological Network - NATURA 2000, habitat fragmentation and protected area evaluation).	Partial exam, seminars, Final exam	B13

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)				30	0	1
Exercises (E)	20%	50-70%	Sufficient (2)	11	10	2
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Partial exam (P1)	40%	50-70%	Sufficient (2)	2	20	1
		71-80%	Good (3)			
		81-90%	Very good (4)			



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		91-100%	Excellent (5)			
Partial exam (P2)	40%	50-70%	Sufficient (2)	2	20	1
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(Ex20 + P1x40 + P2x40)/100</b>		45	50	5

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam (FE)	80 %	50-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)			5
<b>TOTAL</b>	<b>100%</b>	<b>(Fex80+Ex20)/100</b>				





**Detailed description of evaluation elements for lecturer, excercises, partial or final exams:**

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures and exceries	The attendance is checked and the attendance of the students is recorded. A student may justifiably be absent with a maximum of 15% of direct teaching hours. Seminar papers are produced in accordance with the assigned topics related to the analyzes and interpretations of the teaching units in the exercises.	semester (45 hours of direct lecturer)	Exceptionally, in the case of a justified reason, the student draws the absence of the individual exercise
Partial exams (P1and P2)	Students will take the exam from the above mentioned thematic areas.	8. and 15. week	Students who do not attend the partial exams will approach the written and verbal part of the exam
Written exam	The exam is attended by students who have not passed the first and second partial exam. Students who have passed the first and second partial exam only access the verbal part of the exam. The students in the pre-printed exam answer the questions asked, round out the exact answers, describe the images. The written exam is evaluated and participates in the final assessment of the subject.	Exam terms	
Oral exame	Students who pass a written exam are asking questions from different parts of the program content. The final grade of the subject is obtained according to the formula: <b>(Fex80+Ex20)/100</b>		



## Mechanization of forestry in urban and protected areas

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Explain hydraulic systems and devices (pressure in liquids, hydrostatic pressure, Pascal's law, hydrodynamics, Bernoulli equation, flow resistances).	Exercises, Colloquiums, Final exam	B10
Show the principle of the internal combustion engine operation (Otto engine (4-stroke and 2-stroke engine, 4-Mix engine) and Diesel engine).	Exercises, Colloquiums, Final exam	B10
Expound operation of chainsaw, trimmers, and brushcutters (technical features, parts, work principle, hazards to worker health and environmental pollution, noise, vibration).	Exercises, Colloquiums, Final exam	B10
Typify tractors and implements (basic technical features, types, transmission, load distribution, adaptation of tractor for forest work, articulated tractors, three point linkage of tractor, PTO shaft, tractor tools).	Exercises, Colloquiums, Final exam	B10
Interpret the use of forest vehicles in protected areas (forest vehicles - skidders, forwarders, tractors with semi-trailer, transmission, wheel load, methods of soil bearing capacity determination, impact of vehicles on forest soil).	Exercises, Colloquiums, Final exam	B10

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	30		1
Field work				24		0,75
Exercises (E) and	20%	60-70%	Sufficient (2)			



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writing of reports from filed work		71-80%	Good (3)	30	36	2,25
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Partial exam (PE1)	40%	60-70%	Sufficient (2)		15	0,5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Partial exam (PE2)	40%	60-70%	Sufficient (2)		15	0,5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(Ex20 + PE1x40+PE2x30)/100</b>		<b>84</b>	<b>66</b>	<b>5</b>

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam (FE)	80 %	60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)			1,5
<b>TOTAL</b>	<b>100%</b>	<b>(FEx80+Ex20)/100</b>				



**Detailed description of evaluation elements for lecturer, excercises, partial or final exams:**

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures, excercises and field work	The attendance is checked and the attendance of the students is recorded. Filed work and measuring exercises are obligatory. A student may justifiably be absent with a maximum of 20% of other types of direct teaching hours (lecturers and calculation exercises).	semester (84 hours of direct lecturer)	-
Exercises preparation	Exercises are attended by groups. 4 measuring tasks are performed within the exercise. Students become acquainted with measurement methods, independently perform measurements and process data. At the beginning of the first exercise, students will receive templates with exercise assignments, as well as the appearance of the collage, jumper, and list of suggestions in which they will respond to the set tasks in printed form. The accuracy, regularity and regularity (time-honored exercises) are evaluated.	in accordance with the agreed terms	
Partial exam (PE1)	1 <sup>st</sup> partial exam can be accessed by students who proper attended direct teaching hours . 60% points must be collected for the exam pass.	10 <sup>th</sup> week	
Partial exam (PE2)	2 <sup>nd</sup> partial exam can be accessed by students who passed the 1 <sup>st</sup> partial exam. 60% points must be collected for the exam pass. Students who have passed both partial exams receive a final grade from a subject that is equal to the average score from both partial exams.	15 <sup>th</sup> week	
Written exam	Examinations can be attended by students who have completed exercises and field teaching but failed on partial exams. Also, students who are not satisfied with the final grade on the basis of passed partial exams can access the written exam. Students on printed exams receive tasks and make calculation on a separate paper. The written exam is evaluated and participates in the final grade of the subject.	Exam terms	-
Oral exam	Students who pass a written exam are asking questions from different parts of the program content. The final grade is calculated according to formula: <b><math>Ex20+PEx80/100</math></b>	Exam terms	



## Arboriculture

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Interpret basic principles of arboriculture (arboriculture and urban forestry, selection of tree species and influence on tree care operations, analysis of desirable tree characteristics from arboriculture point of view, selection of quality plants for planting, basic types of planting material)	Practicum, Preliminary exam, Final exam	B1, B6
Explain planting of trees and shrubs (basic types of planting techniques for trees and shrubs in urban areas, planting of seedlings, trees, shrubs and transplanting large trees in urban surroundings) and mulching of plants (use of mulch, mulch materials selection, advantages and disadvantages of certain mulch materials, mulch application and decontamination)	Practicum, Preliminary exam, Final exam	B4, B6
Interpret pruning of trees and shrubs (reasons for pruning, pruning effects and reaction of plants, formative pruning of young trees, pruning of old trees, shrubs, hedges, etc.)	Practicum, Preliminary exam, Final exam	B4, B6, B10
Explain fertilization and irrigation of urban trees (types, way and time of tree fertilization, use of antitranspirants, difference in irrigation systems for urban greenery)	Practicum, Preliminary exam, Final exam	B4, B6, B10
Interpret root system of urban trees (trees in pavement, soil and other factors that influence growth of trees in urban areas, influence of root growth on infrastructure, remedial treatment for root-pavement conflicts)	Practicum, Preliminary exam, Final exam	B4, B6
Explain hazardous trees in urban areas (hazard form tree failure, biomechanics in arboriculture, optimization of tree form, tree defects and symptoms, tree static, tree vitality, arboricultural instruments for hazardous tree assessment)	Practicum, Preliminary exam, Final exam	A1, A3, B2, B4, B6
Interpret management and inventory of urban greenery (care and management schedule of urban trees, tree sanitation plan, methods for tree inventory and tree cadastre)	Practicum, Preliminary exam, Final exam	B4, B6

### Methods of grading



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Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	30	0	1
Exercises (E)	-	-	-	30	15	1,5
Field work (FW)	-	-	-	16	2	0,6
1. Partial exam (PE1)	50%	60-70%	Sufficient (2)	-	30	1,0
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
2. Partial exam (PE2)	50%	60-70%	Sufficient (2)	-	27	0,9
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(P+V+TN+K1x50+K2x50)/100</b>		76	74	5

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam* (FE)	100 %	60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)	-	57	1,9



<b>TOTAL</b>	<b>100%</b>	<b>(FEx100)/100</b>
* Students who do not pass during the semester by a written partial exams, approach to final exam which accounts for 100% of the final grade		

**Detailed description of evaluation elements for lecturer, exercises, partial or final exams:**

<b>Evaluation elements</b>	<b>Description</b>	<b>Deadline</b>	<b>Compensation</b>
Lectures (L)	The attendance of students is checked and recorded at the lectures. The student can justifiably be absent with a maximum of 20% of lectures and 10% of the exercises. Field work must be done in 100% amount.	semester (30 hours of direct lectures)	-
Exercises (E)	The attendance of students is checked and recorded at the exercises. The student can justifiably be absent with a maximum of 10% of the exercises. At the end of semester students submit exercises in arrangement to instruction from start of semester about content and form of submitted exercises.	At the end of semester	-
Field work (FW)	The attendance of students is checked and recorded at the field work. Students need to write and submit report paper after the field work is completed.	According to field work plan	-
1. Partial exam (PE1)	1st partial exam is available to all students who have been signed first time in this course. The content of 1st partial exam is the first half of direct classes during of the semester. The partial exam is written test with 20 questions. Correct answer is valuated with one point, partially correct with 0,5 point and incorrect of empty answer with 0 points. To pass partial exam students need to have more than 60 % correct answers.	8. week	Students which do not collect enough points to pass partial exam have possibility of correction exam available.
2. Partial exam (PE2)	2nd partial exam is available to students who have passed the first partial exam. The content of 1st partial exam is the second half of direct classes during of the semester. The partial exam is written test with 20 questions. Correct answer is valuated with one point, partially correct with 0,5 point and incorrect of empty answer with 0 points. To pass partial exam students need to have more than 60 % correct answers.  Students which collect enough points from both partial exams get final grade from this course which is mean of points from first and second partial exam.	15. week	Students which do not collect enough points to pass partial exam have possibility of correction exam available.
Written exam	The written exam is test with 20 questions. Correct answer is valuated with one point, partially correct with 0,5 point and incorrect of empty answer with 0 points. To pass partial exam students need to have more than 60 % correct answers.	Exam terms	-
Oral exam	Precondition for oral exam from this course is enough points from written exam.		-



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	The final grade of the subject is obtained according to the formula: <b>(FEx100)/100</b>		
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## Protected areas management and supervision

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Explain role and significance of protected areas in nature protection, ways of valorisation (bio-ecological, spatial and economic evaluation), planning models and principles of spatial planning in protected areas.	practice exercises, partial exam, knowledge test, final exam	C1, C2, C3
Define basics of protected area management through international standards and management principles - adaptive management, participation, sustainability.	practice exercises, partial exam, knowledge test, final exam	C1, C2, C3
Interpret management documents (management plan, spatial plan, annual program) and protected areas financing (types and sources of income, general cost structure, tourist user fees, concession permits).	practice exercises, partial exam, knowledge test, final exam	C1, C2, C3
Analyse monitoring of protected areas (authorizations, tasks and qualifications of nature guardians, legislative framework of supervision, prescribed conservation measures, participation in visitor management, educational tasks and partnership development with stakeholders).	practice exercises, partial exam, knowledge test, final exam	B1, C1, C2
Interpret function of tourism in protected areas (types and intensity of tourism, financial effects and risks, tourism management, visiting systems, protected area reception capacity).	practice exercises, partial exam, knowledge test, final exam	C1, C2, C4
Analyse the role and significance of ecological education and interpretation in protected areas (education themes, target groups, content and principles of interpretation, plan, means and methods of interpretation).	practice exercises, partial exam, knowledge test, final exam	B1, C2

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students' workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	30	0	1,5



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Exercises (E)	10%	Partly disordered and incomprehensible, with major corrections and on time	Sufficient (2)	14	-	0,5
		Clean, easy, with bigger corrections and on time	Good (3)			
		Clean, easy, with minor corrections and on time	Very good (4)			
		Clean, easy, accurate and timely	Excellent (5)			
Field work (FW)	10%	Present, participates passively	Sufficient (2)	24	0	1,5
		Presents, cares closely and participates	Good (3)			
		Presented, includes questions and comments	Very good (4)			
		Presented, suggests concrete suggestions related to the theme of teaching	Excellent (5)			
Partial exam (PE)	10%	60-70%	Sufficient (2)	1	15	0,5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Final exam (FE)	70%	60-70%	Sufficient (2)	-	30	1
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
TOTAL	100%	(Ex10 +FWx10 + PEx10 + FEx70)/100		69	45	5



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Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam (FE)		60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)			1,5
<b>TOTAL</b>	<b>100%</b>	<b>(FEx90+Ex10+FWx10)/100</b>				

### Detailed description of evaluation elements for lecturer, excercises, partial or final exams:

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures and exceries	The attendance is checked, and the attendance of students is recorded. A student may justifiably be absent with a maximum of 15% direct teaching hours.	semester (45 hours of direct lecturer)	-
Making exercise	14 exercises are performed within the exercise. Before starting each individual exercise, students will receive materials related to exercise issues and task templates. Accuracy, neatness and regularity is evaluated (exercise submitted on time).	15. week	
Field work	Within field course (3 days), protected areas (NP / PP, protected parts of nature at the county level and ecological network area visited, which are concerned with organization and management specificities.) Attention is paid to the type and level of participation in teaching.	Exam terms	
Partial exam	Students in pre-printed exam answer questions they are asking and round out the exact answers. The partial exam is evaluated and participates in the final grade of the subject.	11. week	Students who pass the exam can access the exam.
Final exam	Exams can be accessed by students who have completed all exercises and passed the exam. The students in the pre-printed exam answer the questions they are asking and round out the exact answers. The written exam is evaluated and participates in the final grade of the subject.	Exam terms	
Oral exame	Students who pass a written exam are asking questions from different parts of the program content.		



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	The final grade of the subject is obtained according to the formula $(Ex10 + FWx10 + PEx10 + FEx70)/100$		
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## Ecology of Forest Tree Species

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Identify tree species on the basis of morphological features, identify tree parts and shapes, and apply theoretical and practical knowledge of economically important indigenous and alien species of trees and shrubs.	practical exercises, written tests, oral exam	B1
Conduct biological and technical works on park and green landscaping.	practical exercises, written tests, oral exam	B4
Conduct professional field work on plant protection in urban areas.	practical exercises, written tests, oral exam	B7
Conduct environmental monitoring.	practical exercises, written tests, oral exam	C1

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (La) attendance	5%	100% 90% 80% 70%	Excellent (5) Very good (4) Good (3) Sufficient (2)	15	-	0.5
Exercises (Ea) attendance	5%	100% 90% 80%	Excellent (5) Very good (4) Good (3)	15	-	0.5
Writing exercises (E)	30%	Partly disordered and incomprehensible, with major corrections and on time	Sufficient (2)	-	10	0,4
		In order, easy, with bigger corrections and on time	Good (3)			
		In order, easy, with minor corrections and on time	Very good (4)			
		In order, easy, accurate and timely	Excellent (5)			
Partial exam (PE)	30%	40-56%	Sufficient (2)	4	7	0.3



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		57-73%	Good (3)			
		74-90%	Very good (4)			
		91-100%	Excellent (5)			
Oral exam (OE)	30%	40-56%	Sufficient (2)	0.5	8.5	0.3
		57-73%	Good (3)			
		74-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>((Ppx0,05)+(Vpx0,05)+(Vx0,3)+(PTx0,3)+(UIx0,3)</b>		<b>34.5</b>	<b>25.5</b>	<b>2</b>

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECT S
Lectures - attendance (La)	5%	70-100%	2-5	15	15	0,5
Exercises - Attendance (Ea)	5%	80-100%	3-5	15	15	0,5
Exercises reports (E)	30%	40-100%	2-5	-	10	0,4
2 written tests or 1 final test (PE)	30%	40-100%	2-5	4	10	0,3
Oral Exam (OE)	30%	40-100%	2-5	0,5	10	0,3
<b>TOTAL</b>	<b>100%</b>	<b>((Ppx0,05)+(Vpx0,05)+(Vx0,3)+(PTx0,3)+(UIx0,3)</b>		<b>34,5</b>	<b>60</b>	<b>2</b>



**Detailed description of evaluation elements for lecturer, excercises, partial or final exams:**

<b>Evaluation elements</b>	<b>Description</b>	<b>Deadline</b>	<b>Compensation</b>
Attendance of lectures and exercises	The attendance is checked and the attendance of the students is recorded. The student can reasonably be absent from a maximum of 30% lectures and of 20 % of exercises. Attendance is evaluated by grades 2-5, and this grade is taken when calculating the final grade of the subject.	semester (34,5 hours of direct lecturer)	Exceptionally, in the case of a justified reason the student should compensate for the lack of individual lectures.
Exercises and reports from the field work	Exercises are attended by groups. As part of the exercise is carried out 7 practical exercises. At the beginning of each exercise, students receive task templates and the layout of exercise reports in printed form. Estimated accuracy, neatness and regularity (exercise submitted on time). From each exercise, the student gets a grade and the average of all grades in the exercise is taken when calculating the final score from the subject.	In accordance with the agreed terms.	Exceptionally, in the case of a justified reason, the student draws the absence of the individual exercise.
Partial exam	Students can write two written tests during the semester according to personal choice (first on half of the semester and the second at the end of the semester). Students who score more than 40% of the correct answers from both tests do not write a final written test. Students who do not reach 40% correct answers from the written test are writing the final written test. All test scores are taken in the calculation of the final grade of the subject.	7. and 15. week in semester	Students who do not pass two written tests may take the final written exam.
Written exam	A written final test is written by all students who have not passed two partial written tests during the semester. Students on the previously designed printed exam answer questions. All grades from the written tests participate in the calculation of the final grade of the subject.	Exam terms	The student has the right three times to go to the exam.
Oral exame	Students who pass a written test and who receive passive grades from lectures and exercises attendance take the oral exam. Each student in the oral exam gets questions from the whole material. The final grade of the subject is obtained according to the percentage representation of each grade in the overall rating according to the formula: <b><math>(Pp \times 0,05) + (Vp \times 0,05) + (Vx \times 0,3) + (PT \times 0,3) + (UI \times 0,3)</math></b>	Exam terms	The student has the right three times to go to the exam



## Professional practice

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Independently and responsibly perform entrusted professional tasks in Urban Forestry, Nature Conservation and Environmental Protection	Written report from professional practice	A1, A2, A3, B1, B2, B3, B4, B5, B6, B7, B8, B9, B10, C1, C2, C3, C4, C5
Apply in practice the knowledge and skills necessary to carry out the entrusted tasks	Written report from professional practice	A1, A2, A3, B1, B2, B3, B4, B5, B6, B7, B8, B9, B10, C1, C2, C3, C4, C5
Apply in practice legal regulations from the Urban Forestry, Nature Conservation and Environmental Protection sectors	Written report from professional practice	A1, A2, A3, B1, B2, B3, B4, B5, B6, B7, B8, B9, B10, C1, C2, C3, C4, C5
Present professional issues in writing	Written report from professional practice	A1, A2, A3, B1, B2, B3, B4, B5, B6, B7, B8, B9, B10, C1, C2, C3, C4, C5

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Attending professional practice	-	-	-	0	40	1,3
Written report from professional practice	-	-	-	0	20	0,6
<b>TOTAL</b>				0	60	2





**Detailed description of evaluation elements for lecturer, exercises, partial or final exams:**

<b>Evaluation elements</b>	<b>Description</b>	<b>Deadline</b>	<b>Compensation</b>
Practical work	Perform entrusted professional tasks during professional practice	6 <sup>th</sup> semester	-
Written report	The student will present the results of the professional practice to the mentor at the faculty in the form of a written report.	upon completion of professional practice	-



## Bachelor thesis

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Be able to apply existing knowledge to solve professional problems for the selected topic of bachelor thesis	Written bachelor thesis, oral exam	A1, A2, A3, D1
Create a term work plan in accordance with the set deadlines for the preparation of the bachelor thesis by components	Written bachelor thesis, oral exam	A1, A2, A3, D1
Devise a methodology for writing a professional or review paper	Written bachelor thesis, oral exam	A1, A2, A3, D1
Apply the methodology of writing a professional or review paper	Written bachelor thesis, oral exam	A1, A2, A3, D1
Present your bachelor thesis in written and oral form	Written bachelor thesis, oral exam	A1, A2, A3, D1

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Research	-	-	-	-	105	3,5
Research Practical work	-	-	-	-	120	4
Final exam (FE)	100%	60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)	0	15	0,5
<b>TOTAL</b>				-	240	8



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**Detailed description of evaluation elements for lecturer, exercises, partial or final exams:**

<b>Evaluation elements</b>	<b>Description</b>	<b>Deadline</b>	<b>Compensation</b>
Consultations	Consultations, research, practical work, preparation of the final paper	6 <sup>th</sup> semester	-
Oral exam	Students who submit a written final paper are asked questions from the topic of the final paper	exam deadlines	-



## Forest mushrooms

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Describe fungi as eukaryotic organisms. Explain role and systematics of fungi. Explain mycorrhizae (ecto and endomycorrhizae). Describe and connect fungal habitats and substrates.	Seminar, final exam.	B2
Describe, list and differentiate among fungal fruiting bodies characteristics significant for identification. Describe and recognize characteristics of cap and hymenophore. Describe and recognize characteristics of stipe (stalk) and volva and their origin. Explain importance of spore colour in a mass for the identification. Describe and recognize characteristics of hymenium and spores in ascomycetes and basidiomycetes. Describe and recognize importance of sterile elements of hymenium in basidiomycetes. Explain, describe and list anatomical and histological characteristics of fruiting body. Explain other characteristics and chemical reactions in fungi and their importance for identification.	Seminar, final exam.	B2
Describe chemical structure of fungi. Describe and list medical properties of fungi. List and explain fungal toxins, their harmful impact on human health, symptoms they cause and possible medical treatments.	Seminar, final exam.	B2

### Methods of grading

Elements for assessment	Grade percentage	Grading scale	Grade	Hours of direct teaching	Work hours of an average student outside direct teaching	ECTS
Lectures	-	-	-	15	0	0,5
Seminar (S)	35%	-	-	0	7,5	0,25
Exam (PUI)	65%	60-70%	sufficient (2)			



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		71-80%	good (3)	0	7,5	0,25
		81-90%	Very good(4)			
		91-100%	excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(Sx35 + PUIx65)/100</b>		15	15	1

Elements for assessment	Maximum credits or grade percentage	Grade scale	Grade	Hours of direct teaching	Total number of work hours of an average student	ECTS
<i>Final exam* (ZI)</i>		60-70% 71-80% 81-90% 91-100%	<i>sufficient (2) good (3) very good(4) excellent (5)</i>	0	15	0,5
<b>TOTAL</b>	<b>100%</b>	<b>(ZIx100)/100</b>				

\* students who do not pass the midterm exams during the semester shall take the final exam that makes up 100 % of the grade.

**Detailed explanation of rules for preparing and taking midterm exams, seminars, partial exams, written and oral exams:**

Elements for assessment	Description	Term	Compensation for absence
Lectures	Students' attendance is checked and recorded. Students can be absent with justification from maximum 15 % of direct teaching.	semester (15 direct teaching hours)	-
Seminar	Seminar presentation is graded and the grade influences on the final course grade.	after 3rd week	-
Oral exam	Students are asked question from different parts of the program. The following formula is used to calculate the final grade for this course: <b>Sx35+PUIx65/100</b>	Exam terms	



## Tree measurement

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Specify measurement variables, terms precision and accuracy for measurement and ways to display measured data	Final proof	B5, C4
Interpret measurement of diameter, circumference and tree height. (instruments and errors).	Final proof	A1, B5, C1, C4, D1
Interpret definition and calculation of volume (volume of cut and standing trees, tree sectioning method, single entry and two entry volume tables).	Final proof	B5, B9

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	15		0,5

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS points
Final exam* (FE)	100 %	(60-70%) (70-80%) (80-90%) (90-100%)	Sufficient (2) Good (3) Very good (4) Excellent (5)		15	0,5
<b>TOTAL</b>	<b>100%</b>	<b>(FEx100)/100</b>				

Detailed description of evaluation elements for lecturer, exercises, partial or final exams:



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Evaluation elements	Description	Deadline	Compensation
Lectures	Student presence is recorded. Maximum lecture absence of 20% is tolerated.	Semester (15 hours of classes)	-
Written exam (We)	The exam comprises of 10 questions. To pass the exam student needs to achieve minimum of 60% of exam points.	Exam sccedule defined on the beginning of semester	-
Oral exame (Oe)	Requirement for approaching an oral exam is passed written exam within timeframe of registrated exam date Theoretical knowledge with subject understanding of lectured classes is checked. Final grade is calculated according to following formula <b>(Wex50+Oex50)/100</b>		-



## Floriculture

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
To explain the ways of ornamental plants propagating and factors that influence their growth and flowering.	Seminar, partial exam, final exam	B4
To present the most important taxa of cut flowers and their characteristics (geophytes, flower species, foliage species, species for outdoor cultivation).	Seminar, partial exam, final exam	B4
To present the most important potted plants and their characteristics (flowering potted plants, foliage potted plants, succulents)	Seminar, partial exam, final exam	B4

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	15	0	0,25
Partial exam (PE)	20%	60-70%	Sufficient (2)		10	0,25
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
Seminar (S)	80%	60-70%	Sufficient (2)		10	0.5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(PE*20 + S*80)/100</b>		15	20	1





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Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam* (FE)	80 %	60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)		10	1
<b>TOTAL</b>	<b>100%</b>	<b>(FE*80+PE*20)/100</b>				
* Students who do not have positively evaluated seminar have to access the final exam that makes 80% of the grade, and the remaining 20% of the grade makes the Partial exam I (PE1)						

**Detailed description of the rules for the preparation, execution and submission of partial exams and seminar:**

Evaluation elements	Description	Deadline	Compensation
Lectures	The attendance of students is checked and recorded at the lectures and field work. The student can justifiably be absent with a maximum of 20% of the lecture.	semester (15 hours of direct teaching)	-
Partial exam	Students have to recognize plant species from photographs. The accuracy of the recognition and pronunciation of the Latin names of plants is evaluated. The partial exam is obligatory.	in accordance to the agreed deadlines	
Seminar	The student prepares the seminar paper on the given topic and presents it orally. The quality of the seminar work is evaluated. The seminar is given in the form of presentations and in written form. Seminar work is obligatory. Students who have positively evaluated seminar do not have to access the final exam.	in accordance to the agreed deadline	-
Final exam	Students who do not have positively evaluated seminar have to access the final exam. The condition to access to the final exam is to pass the Partial exam. The final exam consists of a written and oral part. In a written part students answer the questions on previously printed exam. Students who pass a written exam are orally asked questions from different parts of the program content.	in accordance to the agreed deadline	-



## Exotic Woody Plants

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
To learn botanical and common names and distribution of exotic fruits, nuts and citrus species, species used for spices, beverages and syrups, species important for wood production, use of bark, plant fibers, resins, gum and oil;	exam	B5
To identify and describe exotic fruits, nuts and citrus species;	exam	B5
To describe which plant parts of exotic woody species are used for spices, beverages and syrups;	exam	B5

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)				15		0.5
<b>TOTAL</b>				15		0.5

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam (FE)	100 %	60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)		15	0.5
<b>TOTAL</b>	<b>100%</b>	<b>(FEx100)/100</b>				



\* students take the final exam that is 100% of the grade

**Detailed description of evaluation elements for lecturer, exercises, partial or final exams:**

<b>Evaluation elements</b>	<b>Description</b>	<b>Deadline</b>	<b>Compensation</b>
Attendance of lectures	Student attendance is recorded. Student may not be absent more than 20% of lectures.	VI semester	
Written exam	Access requirements: professor's signature (regular attendance at lectures).	Exam terms	
Oral exam	Access requirement: positively graded written exam. The final grade is obtained according to the formula: $(FEx100)/100$	Exam terms	



## Applied technical graphics

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Explain the basics of drawing AutoCAD (item drawings, layers of drawings, basic drawing tools for orthogonal drawing, modifying, writing and printing).	Exercises in a computer classroom, correction and evaluation of exercises, final exam	A3
Explain the elements of interior design drawing and the situation draft drawing.	Exercises in a computer classroom, correction and evaluation of exercises, final exam	A3

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	50%	Drawing with less than 15% of the eligible weaknesses of the application of technical standards	Sufficient (2)	15	6	0,7
		Drawing with less than 10% of the eligible weaknesses of the application of technical standards	Good (3)			
		Drawing with less than 5% of the eligible weaknesses of the application of technical standards	Very good (4)			
		Drawing without any weaknesses of the application of technical standards	Excellent (5)			
Final exam (PE)	50%	60-70%	Sufficient (2)	2	7	0,3
		71-80%	Good (3)			
		81-90%	Very good (4)			



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		91-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(Lx50+FEx50)/100</b>		17	13	1

### Detailed description of evaluation elements for lecturer, exercises, partial or final exams:

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures	The presence of students on the class is recorded. A student may justifiably be absent with a maximum of 15% of direct teaching hours. The student activity is recorded by checked and corrected drawing made in class.	semester (15 hours of direct lecturer)	-
Written and oral exam	Written and oral exam are held in a computer classroom. The exam consists of one task to check all the elements of the course learning outcomes. One task has 40 points. It is necessary to have more than 24 points (60%) for a positive rating. Verification of theoretical knowledge (from scripts), understanding of projections and drawing in AutoCAD. The final grade is obtained according to the formula <b>(Lx50+FEx50)/100</b>	Term before exam/Exam terms	



## Conservation biology

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
To understand and explain basic terminology and concepts in Conservation biology and to define its major goals	exam	B5, B9, C1, C2, C3, C4, D1
To explain patterns of biodiversity and to calculate basic measures of biodiversity	exam	B5, B9, C1, C2, C3, C4, D1
To explain and compare in situ and ex situ conservation strategies	exam	B5, B9, C1, C2, C3, C4, D1
To identify major threats to biodiversity and causes of biodiversity loss, to associate them with consequences and to suggest appropriate measures for their mitigation	exam	B5, B9, C1, C2, C3, C4, D1
To critically address and discuss conservation strategies, to develop and present monitoring schemes for conservation status of species	exam	B5, B9, C1, C2, C3, C4, D1

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)				15		0.5
<b>TOTAL</b>				15		0.5



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Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam (FE)	100 %	60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)		15	0.5
<b>TOTAL</b>	<b>100%</b>	<b>(FEx100)/100</b>				
* students take the final exam that is 100% of the grade						

### Detailed description of evaluation elements for lecturer, excercises, partial or final exams:

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures	Student attendance is recorded. Student may not be absent more than 20% of lectures.	VI semester	-
Written exam	Access requirements: professor's signature (regular attendance at lectures). The final grade is obtained according to the formula: (FEx100)/100	Exam terms	-



## Allergenic herbaceous plants

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Define and explain the characteristics of herbaceous plants that cause allergic reactions in humans (their systematic affiliation, biological and morphological characteristics, ecological requirements and distribution in Croatia).	partial exam, final exam	B4, B9
Know the negative impact and symptoms of allergic reactions caused by certain representatives of the group of allergenic plants.	partial exam, final exam	B4, B9
Know the phenology of allergenic species and take timely action to prevent the negative impact of allergenic plants on human health.	partial exam, final exam	B4, B9

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	15	0	0.5
Partial exam (PE)	100%	60-70%	Sufficient (2)	0	15	0,5
		71-80%	Good (3)			
		81-90%	Very good (4)			
		91-100%	Excellent (5)			
<b>TOTAL</b>	100%	<b>(PEx100)/100</b>		15	15	1





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Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam (FE)	100 %	60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)		15	0.5
<b>TOTAL</b>	<b>100%</b>	<b>(FE<math>\times</math>100)/100</b>				
* students who do not pass the Partial exam take the final exam						

### Detailed description of evaluation elements for lecturer, excercises, partial or final exams:

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures	Student attendance is recorded. Student may not be absent more than 20% of lectures.	semester (15 hours of direct teaching)	
Partial exam	The Partial exam can be taken by students who regularly attended lectures. The Partial exam is written.	15th week	
Written exam	The written exam can be taken by students who regularly attended lectures. The written exam is graded and participates in the final grade of the course.	Exam terms	
Oral exam	Students who pass the written exam are asked questions from different parts of the overall program content of the course.	Exam terms	



## Wood structure properties of park tree species

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Recognize and describe the macroscopic and microscopic structure of wood	exam	B1, B5
Distinguish species of park trees based on their wood	exam	B1, B5
Apply modern computer programs (keys) for microscopic and macroscopic wood identification	exam	B1, B5

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	15	0	0,5
Final exam (FE)	100%	60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)	0	15	0,5
<b>TOTAL</b>	100%			15	15	1

### Detailed description of evaluation elements for lecturer, exercises, partial or final exams:

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures	Student attendance is recorded. Student may not be absent more than 20% of lectures.	VI semester (15 hours of direct teaching)	
Written exam	Access requirements: professor's signature (regular attendance at lectures).	Exam terms	
Oral exam	Access requirement: positively graded written exam. The final grade is obtained according to the formula: $(FE \times 100) / 100$	Exam terms	



## Bioclimatology of forest and urban ecosystem

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Show and interpret different climate analyzes	exam	B9
Explain the interaction of climate and organisms	exam	C4
Analyze and explain the consequences of climate extremes and climate change	exam	C4

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)				15		0.5
<b>TOTAL</b>				15		0.5

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam (FE)	100 %	60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)		15	0.5
<b>TOTAL</b>	<b>100%</b>	<b>(FEx100)/100</b>				
* students take the final exam that is 100% of the grade						



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**Detailed description of evaluation elements for lecturer, excercises, partial or final exams:**

<b>Evaluation elements</b>	<b>Description</b>	<b>Deadline</b>	<b>Compensation</b>
Attendance of lectures	Student attendance is recorded. Student may not be absent more than 20% of lectures.	VI semester	
Written exam	Access requirements: professor's signature (regular attendance at lectures).	Exam terms	
Oral exam	Access requirement: positively graded written exam. The final grade is obtained according to the formula: $(FEx100)/100$	Exam terms	



## Medicinal Plants

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Assess the use of herbs in treatment in the past and today	Partial exams during the semester, oral exam	B4, B9
Present herbal preparations	Partial exams during the semester, oral exam	B4, B9
Analyse plant species with high content of primary or secondary metabolic metabolites having a pharmacological effect	Partial exams during the semester, seminar work, oral exam	B4, B9

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)	-	-	-	15	0	0,5
Seminar work (SW)	20%	The student handed over the seminar work in the given deadline	Sufficient (2)		7	0,25
		In addition to the above mentioned, the student adheres to the given guidelines, the work is understandably and satisfactory written	Good (3)			
		In addition to the above mentioned, content reflects the student's efforts and interest for the given topic	Very good (4)			
		In addition to the above mentioned, the seminar has been written in a way that it reflects a deep understanding of the matter	Excellent (5)			
Partial exam (PE)	80%	55-65%	Sufficient (2)		8	0,25



		66-75%	Good (3)			
		76-85%	Very good (4)			
		86-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(Lxy0+Exy0 + PExy0)/100</b>		15	15	1

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam (FE)	80 %	55-65%	Sufficient (2)			1
		66-75%	Good (3)			
		76-85%	Very good (4)			
		86-100%	Excellent (5)			
<b>TOTAL</b>	<b>100%</b>	<b>(SWx20+FEx80)/100</b>				

**Detailed description of evaluation elements for lecturer, exercises, partial or final exams:**

Evaluation elements	Description	Deadline	Compensation
Lectures	The attendance is checked and recorded. A student may justifiably be absent from a maximum of 15% of direct teaching hours.	semester (15 hours of direct teaching)	-
Seminar work	A student hands over seminar in a given form.	Before the end direct teaching	
Partial exam	Students fill in the pre-printed exams by answering questions asked, entering the required information, or complete the correct answers. Partial exams are evaluated and participate in the final grade of the subject according to the formula <b>(SWx20 + PEx80)/100</b>	During the semester	
Final exam	The students who submitted their essays can attend the exam. The students answer the questions asked. The exam is evaluated and participates in the final grade of the subject according to the formula <b>(SWx20 + FEx80)/100</b>	Examination periods	



## Foreign Language-English

### Learning outcomes and evaluation methods

Learning outcomes (LO)	Evaluation methods	Connection with the study program LO
Students will heighten their awareness of correct usage of English grammar in writing and speaking	exam	D1
Students will improve their speaking ability in English both in terms of fluency and comprehensibility	exam	D1
Students will give oral presentations and receive feedback on their performance	exam	D1
Students will increase their reading speed and comprehension of academic articles	exam	D1
Students will strengthen their ability to write academic papers, essays and summaries using the process approach.	exam	D1
Students will read university texts and expand their vocabulary	exam	D1
Students will read for intensive information retrieval and interpretation required by university studies	exam	D1
Students will paraphrase information from outside sources effectively and accurately	exam	D1
Students will summarize information from academic sources, distinguishing between main ideas and details	exam	D1

### Methods of grading

Evaluation elements	Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Lectures (L)				15		0.5
<b>TOTAL</b>				15		0.5



## SVEUČILIŠTE U ZAGREBU FAKULTET ŠUMARSTVA I DRVNE TEHNOLOGIJE

UNIVERSITY OF ZAGREB FACULTY OF FORESTRY AND WOOD TECHNOLOGY

Evaluation elements	Maximum points or Share in evaluation	Grade rating scale	Grade	Direct teaching hours	Number of average students workload outside the direct teaching	ECTS
Final exam (FE)	100 %	60-70% 71-80% 81-90% 91-100%	Sufficient (2) Good (3) Very good (4) Excellent (5)		15	0.5
<b>TOTAL</b>	<b>100%</b>	<b>(FEx100)/100</b>				
<b>* students take the final exam that is 100% of the grade</b>						

### Detailed description of evaluation elements for lecturer, excercises, partial or final exams:

Evaluation elements	Description	Deadline	Compensation
Attendance of lectures	Student attendance is recorded. Student may not be absent more than 20% of lectures.	VI semester	
Written exam	Access requirements: professor's signature (regular attendance at lectures).	Exam terms	
Oral exam	Access requirement: positively graded written exam. The final grade is obtained according to the formula: (FEx100)/100	Exam terms	