

Biotechnical Faculty / MEDITERRANEAN FRUIT GROWING / AGRICULTURAL BOTANY

Course:	AGRICULTURAL BOTANY			
Course ID	Course status	Semester	ECTS credits	Lessons (Lessons+Exercises+Laboratory)
8402	Mandatory	1	5	2+0+1
Programs	MEDITERRANEAN FRUIT GROWING			
Prerequisites	None			
Aims	To enable students to acquire basic knowledge about the structure of plant cells, the types of tissues that constitute the vegetative and generative organs of plants, vegetative and generative reproduction of plants, and fundamental systematic categories of plants.			
Learning outcomes	After passing the exam, students will be able to: acquire basic knowledge of cytology related to the structure of plant cells, specify the division of plant tissues, understand the structure and function of basic vegetative organs, describe the vegetative and generative reproduction of plants. Additionally, they will be able to differentiate systematic categories of plants, as well as the systematic position of fruit species. In the practical part, students will be able to create temporary preparations from plant material and observe them under a microscope.			
Lecturer / Teaching assistant	Biljana Lazović PhD - teacher, Slavojka Malidžan MSc -assistant			
Methodology	Lectures, exercises, colloquiums, tests and final exam.			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	Introduction, objectives, and division of Botany.			
I week exercises	Mechanical and optical parts of a microscope. Handling a Microscope.			
II week lectures	Cytology – size and shape of plant cells, structure of plant cells, cell division.			
II week exercises	Making temporary preparations and observing the structure of plant cells in the epidermal layers of onion bulb leaves.			
III week lectures	Cytology – organelles in plant cells (cytoplasm, plasma membrane, cell wall, nucleus, mitochondria, plastids, ribosomes, vacuole, Golgi apparatus, endoplasmic reticulum).			
III week exercises	Making temporary preparations and observing organelles in plant cells: chloroplasts in leaves tradescantia, chromoplasts in carrot root cells, starch granules in potato tubers and in bean seeds.			
IV week lectures	Histology - meristematic tissues (classification), permanent tissues (classification).			
IV week exercises	Observation of the vegetative apex of shoots on permanent histological preparations. Observation of the vegetative apex of corn roots on permanent histological preparations.			
V week lectures	Histology - system of parenchyma tissues, skin tissue system, mechanical tissue system, vascular tissue system and secretory tissue system.			
V week exercises	Observation of corn leaf epidermis on temporary preparations and periderm with lenticels on permanent preparations.			
VI week lectures	Organography - structure of vegetative plant organs (root, stem, leaf).			
VI week exercises	Test 1. Observation of the anatomical structure of ivy leaves on permanent preparations.			
VII week lectures	Colloquium I. Organography - metamorphosis of vegetative organs (root, shoot and leaf).			
VII week exercises	Observation of the primary anatomical structure of the tree, secondary anatomical structure of the lime tree and primary structure of the iris root on permanent preparations.			
VIII week lectures	Remedial I colloquium. Asexual reproduction in plants - natural vegetative propagation, artificial vegetative propagation.			
VIII week exercises	Natural vegetative reproduction of plants: bulbs, tubers, rhizomes, above-ground creeping shoots (examples). Artificial vegetative reproduction of plants: grafting and cuttings (examples).			
IX week lectures	Sexual reproduction in Angiosperms. Structure of the flower, anatomy of the stamen, pistil, pollination, fertilization, seed formation, structure and classification of fruits.			
IX week exercises	Structure of the mandarin flower. Identify all parts of the flower: floral stem, floral receptacle, perianth, stamens and pistil. Draw the parts of the flower and write the floral formula.			
X week lectures	Plant systematics - Taxonomy and nomenclature, Gymnosperms, Angiosperms.			

X week exercises	Writing latin plant names - Linnaean binomial (binary) nomenclature.					
XI week lectures	Plant systematics – Angiosperms (representatives of the order Rosales). Systematic position of fruit species belonging to the family Rosaceae.					
XI week exercises	Systematic position of fruit species belonging to the family Rosaceae, Writing latin names.					
XII week lectures	Plant systematics – Angiosperms (order: Urticales – systematic position of figs; order: Ericales – systematic position of kiwi; order: Myrtales – systematic position of pomegranates).					
XII week exercises	Test 2. Systematic position of the following fruit species: figs, kiwi, pomegranates, japanese apples and olives.					
XIII week lectures	Colloquium II. Plant systematics – Angiosperms (order: Rutales - systematic position of lemon, mandarin, orange, grapefruit, citron, fortunella and trifoliolate orange); Order: Oleales - systematic position of olive.					
XIII week exercises	Systematic position of fruit species belonging to the family Rutaceae, writing latin names.					
XIV week lectures	Remedial Colloquium II. Geobotany and ecological factors.					
XIV week exercises	Identification of bud, fruitful branches, leaves, flowers and fruits of: figs, kiwi and pomegranates on slides and plant material.					
XV week lectures	Plant classification based on water requirements, light and soil pH.					
XV week exercises	Identification of bud, fruitful branches, leaves, flowers and fruits of: mandarin, orange, grapefruit, citron, fortunella, trifoliolate orange and olive on slides and plant material.					
Student workload						
Per week			Per semester			
5 credits x 40/30=6 hours and 40 minuts 2 sat(a) theoretical classes 1 sat(a) practical classes 0 excercises 3 hour(s) i 40 minuts of independent work, including consultations			Classes and final exam: 6 hour(s) i 40 minuts x 16 =106 hour(s) i 40 minuts Necessary preparation before the beginning of the semester (administration, registration, certification): 6 hour(s) i 40 minuts x 2 =13 hour(s) i 20 minuts Total workload for the subject: 5 x 30=150 hour(s) Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) 30 hour(s) i 0 minuts Workload structure: 106 hour(s) i 40 minuts (courses), 13 hour(s) i 20 minuts (preparation), 30 hour(s) i 0 minuts (additional work)			
Student obligations			Attendance of lectures and exercises; completion of tests, colloquiums and the final exam.			
Consultations			In agreement with the students, one hour a week.			
Literature			1. Kojić, M., Pekić, S. (1995): Botany (sixth edition). IP "SCIENCE", Belgrade. 2. Nikolić, Lj., Džigurski, D., Ljevnaić-Mašić, B. (2019): Practical handbook of Botany. Faculty of Agriculture, University of Novi Sad.			
Examination methods			Attendance and participation in classes: (5 + 5) = 10 points; colloquiums exams: (2 x 15) = 30 points; tests: (2 x 5) = 10 points; final exam: 50 points. A passing grade is achieved when a minimum of 50 points is accumulated. The grades and corresponding point ranges are as follows: A: (≥ 90 to 100 points) B: (≥ 80 to < 90 points) C: (≥ 70 to < 80 points) D: (≥ 60 to < 70 points) E: (≥ 50 to < 60 points) F: (< 50 points).			
Special remarks						
Comment						
Grade:	F	E	D	C	B	A
Number of points	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points