UNIVERSITATEA DE ŞTIINŢE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA
Facultatea de Agricultură
Calea Mănăştur 3-5, 400372, Cluj-Napoca, România
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No._____of_____

USAMV form 0101010104

SUBJECT OUTLINE

1. Information on the programme

1.1. Higher education institution	**University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca**
1.2. Faculty	**Agriculture**
1.3. Department	II Plant culture
1.4. Field of study	Agronomy
1.5. Cycle of study[1]	Bachelor
1.6. Specialization/ Study programme	**Agriculture**
1.7. Form of education	Full time

2. Information on the discipline

2.1. Discipline name	**Botany 1**							
2.2. Course coordinator				Phd. lecturer Rodica Varban				
2.3. Seminar/ laboratory/ project coordinator								
2.4. Year of study		2.5. Semester	I	2.6. Evaluation type	summative	2.7. Discipline status	Content[2]	DF
							Compulsoriness[3]	DI

3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	**4**	**out of which: 3.2. lecture**	**2**	**3.3. seminar/ laboratory/ project**	**2**
3.4.Total number of hours in the curriculum	**56**	**out of which: 3.5. lecture**	**28**	**3.6.seminar/laboratory**	**28**

Distribution of the time allotted	**hours**
3.4.1. Study based on books, textbooks, bibliography and notes	30
3.4.2. Additional documentation in the library, electronic platforms and field experiences	30
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays	20
3.4.4. Tutorials	4
3.4.5. Examinations	10
3.4.6. Other activities	

3.7. Total hours of individual study	94
3.8. Total hours per semester	150
3.9. Number of credits[4]	5

4. Prerequisites (if applicable)

4.1. curriculum-related	Botany, general notions
4.2. skills-related	-

5. Conditions (if applicable)

5.1. for the course	The university discipline requires the observance of the start and end time of the course.
5.2. for the seminar/ laboratory/ project	In practical works it is compulsory to consult the practical guide, each student will carry out an individual activity with the laboratory materials made available and described in the practical works guide.

6. Cumulated specific competences

Professional competences	Knowledge of the concepts related to the anatomy and morphology of plants and their role in the life and evolution of plants. Recognition, identification and description of the organs of a plant according to morphological and anatomical criteria as well as Operation with notions and concepts of modern biology Identification of the notions, principles, usual methods necessary for the morphological and structural characterization of plants Mastery of specific botanical terminology Acquisition of the skills for microscopic sections and identification of organs and plants Exploring biological systems
Transversal competences	Explanation of the characteristics of biological systems from the perspective of the principles of organization and functioning of living matter. To participate in the research activities of the discipline To develop the ability to synthesize and use the notions of botany in the specialized disciplines Creating skills for using atlases and illustrative materials

7. Discipline objectives (based on the cumulated specific competences)

7.1. General objective	Acquiring basic botanical notions and terminology regarding plant composition
7.2. Specific objectives	Knowledge of organography and specific functions in plant life

8. Content

8.1. COURSE **Number of hours –**	Teaching methods	Observation
8.1.CURS **Number of hours - 28**		
1. Introduction to the morphology and anatomy of plants	Lecture	1 Lecture
2. Cytology - Generalities and chemical composition **- The living and non-living constituents of the cell**	Lecture	2Lectures
- The morphology, infrastructure and role of the cell constituents: cytoplasm, ribosomes, mitochondria, dictiozomes, plastids, lysosomes, nucleus, cell wall, cell vacuom, solid ergastic inclusions, cell division	Lecture	2Lectures
3. Histology - Classification of tissues **- Meristematic tissues** **- Defense fabrics** **- Fundamental tissues** **- Conductive tissues** **- Mechanical fabrics** **- Secretory tissues**		
4. Organography - Root (Root morphology, Morphological types of roots. Metamorphosed roots. Root anatomy) **- Stem (Stem morphology, branching, strain classification, strain life. Metamorphosed aerial and underground strains, Stem anatomy).** **- Leaf (Morphology of simple and compound leaves. Leaf appendages. Types of leaves in their ontogenetic development and their functions. Leaf arrangement on the stem. Leaf metamorphosis, Leaf anatomy).** **- Natural and artificial vegetative propagation. Asexual multiplication of plants. Sexual multiplication (reproduction).** **- Flower (Organization of the flower in Angiosperms, morphology of perianth and perigone. Morphology of the receptacle and floral shell. Morphology of the androecium, structure of anthers and pollen grains. Morphology of the genus, structure of the ovary and ovum. distribution of reproductive parts.** **Types of inflorescences. Anthesis. Pollination and fertilization in Angiosperms.** **- Fruit (Origin, morphology and anatomy of fruits. Classification of fruits).** **- Seed (Parts of seed and their origin. Morphology of seed anatomy in Angiosperms. Spread of fruits and seeds).**	Lecture	9 Lectures

8.2. PRACTICAL WORKS Number of hours – 28	Teaching methods	Observation
Introduction to laboratory technique and equipment	Microscope and kit study for sections	1 lab work
Cytology	Study of cellular components	2 labs work
Histology	Tissue study	2 labs work
Organography: - Root	Study of root morphology and anatomy	1 lab work
- Stem	Study of the morphology and anatomy of the strain	2 labs work
- Leaf	Study of leaf morphology and anatomy	1 lab work
- The flower	Flower care, flower formulas and charts. Inflorescences. Anatomy of the ovary and stamina	3 labs work
- Fruit and seed	Study of simple, multiple and compound fruits. Seed morphology and anatomy.	2 labs work

Compulsory bibliography:
1.Rodica Vârban, Botany 1-Plant morphology and anatomy, 2016, Bioflux Cluj-Napoca
2. Rodica Vârban, 2013, Botany-morphology and plant anatomy, Academic Press, Cluj-Napoca
3.M. Păun, E. Turenschi, S. Grigore, Botany, 1980, Didactic and Pedagogical Ed. Bucharest
4. Doina Stana, Morphology and anatomy and plants 2002, AcademicPres, Cluj-Napoca,
5. A.Stoie, Rodica Vârban, Botany - Morphology and anatomy of plants, practical work guide, 2012, AcademicPres Cluj-Napoca

Optional bibliography: Rodica Vârban, Florin Păcurar, Dictionary of botany, pratology and agroecology, 2011, Ed. Risoprint Cluj-Napoca,
2. Atlases, determinants of plants, flora of Romania etc.

9. Corroborating the discipline content with the expectations of the epistemic community representatives, of the professional associations and of the relevant employers in the corresponding field

Botanical terminology is constantly compatible with international terms, used in particular by English and German literature. The international character of the biological and botanical terminology was emphasized.

10. Evaluation

Type of activity	10.1. Evaluation criteria	10.2. Evaluation type	10.3. Percentage of the final grade
10.4. Course	Getting to know the cell owners Knowledge of tissue classification criteria and their role Knowledge of the morphology and anatomy of plant organs	summative(E)	80 %

10.5. Seminar/Laboratory	Preparation and description of a microscopic preparation Recognition and description of plant organs according to morphological characters. Writing and interpreting floral formulas and diagrams	Practical exam	20%
10.6. Minimum performance standards			
Mastery of scientific information transmitted through lectures and practical papers at an acceptable level. Obtaining the minimum mark for the practical exam is a condition of promotability..			

[1] Cycle of studies - choose one of the three options: Bachelor/Master/Ph.D.

[2] according to the educational plan

[3] Discipline status (compulsoriness) - choose one of the options – **DI** (compulsory discipline) **DO** (optional discipline) **DFac** (facultative discipline).

[4] One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

Filled in on
04.09.2019

Course coordinator
Phd. lecturer Rodica Varban

Laboratory work
Phd. lecturer Rodica Varban

Approved by the department on
05.092019

Head of the Department
Pdh. professor Marcel M. DUDA