ANEXX no. 3

Aprobat,
Decan
Prof.dr. Mihai Mareș

SUBJECT OUTLINE

1. Data about the program

1.1 High education institution	Universitatea de Ştiinţe Agricole şi Medicină Veterinară Iaşi
1.2 Faculty	Veterinary Medicine
1.3 Departament	Preclinics
1.4 Study field	Veterinary Medicine
1.5 Study cycle	I- Bachelor Degree
1.6 Study program	Veterinary Medicine

2. Data about the subject

2.1 Subject name	**Plant Biology**						
2.2 Course coordinator	Lecturer Oana-Raluca Rusu, PhD						
2.3 Seminar/Laboratory coordinator	Dr. Oana-Raluca Rusu, PhD						
2.4 Year of study	I	2.5 Semester	II	2.6 Type of evaluation	Exam	2.7 Subject status	Co

3. Estimated total time (hours of educational activities per semester)

3.1 Number of hours per week	4	Of which: 3.2 course	2	3.3 seminar/laboratory	2
3.4 Total hours in teaching plan	56	Of which: 3.5 course	28	3.6 seminar/laboratory	28

Distribution of time fund	Hours
Study from the book, course materials, bibliography and notes	8
Additional documenting in library, on electronic special platforms and on the field	2
Preparing of seminars/laboratories, homework, reports, portfolios, essays	5
Tutoring	2
Exams	2
Other activities	-

3.7 Total hours of individual study	34
3.9 Total hours per semester	75
3.10 Number of credits	3

4. Preconditions (where it is the case)

4.1 of curriculum	Plant biology (high-school level)
4.2 of competences	Latin language

5. Conditions (where it is the case)

5.1. in course	Laptop, video-projector, pointer
5.2. in seminar/laboratory	Herborized plants, herbal products, boards, microscope, magnifying glass

6. Specific accumulated skills

Professional skills	• Acquiring of theoretical and practical knowledge regarding plant cell and tissues, recognition of morpho-anatomical traits of plant organs • Ability to differentiate between plant species and to recognize the most important medicinal plants • Knowledge of plant species with medicinal value and elements related to toxicity of plants species • Knowledge and interpretation of specialty notions from the field of plant biology

Transverse skills	• Use of concepts in new contexts • Use of theoretical and practical knowledge in solving problems specific to professional qualifications • Oral and written communication skills specific to profession • Problem solving and decision making • Adaptability in teamwork • Autonomy and responsibility

7. Objectives of the subject (proceeding from the specific accumulated skills table)

7.1 General objective of the subject	Acquiring knowledge about the Plant Kingdom classification, description of plant species with medicinal use.
7.2 Specific objectives	Recognition, identification, and differentiation of medicinal plants based on their morphological traits. The study of medicinal plants: recognition and identification of herbal products; the appropriation of the chemical and pharmacological characteristics, the side effects/toxicity of medicinal plants; plants with nutritional value (animal feed).

8. Contents

8.1 Course	**Teaching methods**	**No. Of hours**
1. Plant Biology – introductory notions. Plant cytology (plant cell-components; cell division)	Lecture using video-projector, questioning, debate	**2**
2. Plant histology (meristematic tissues; permanent tissues: protective, fundamental, vascular, mechanical, secretory, sensory tissues)		**2**
3. Plant organs – structure and function: root, stem, leaf, flower, fruit, seed		**4**
4. Plant systematics Lower plants Division Pteridophyta Division Spermatophyta: Gymnospermae and Angiospermae		**6**
5. Elements of chemotaxonomy. Plant metabolites 5.1. Medicinal plants containing terpenes - Description, Vegetal products, Bioactive and toxic compounds, Therapeutic/toxic activities, Therapeutic uses. 5.2. Medicinal plants containing polyphenols - Description, Vegetal products, Bioactive and toxic compounds, Therapeutic/toxic activities, Therapeutic uses. 5.3. Medicinal plants containing alkaloids - Description, Vegetal products, Bioactive and toxic compounds, Therapeutic/toxic activities, Therapeutic uses. 5.4. Plants with nutritional value (animal feed)		**14**

Bibliography

1. Simpson M (2019) Plant systematics, 3rd edition. Amsterdam: Elsevier, Academic Press
2. Singh G (2019) Plant Systematics – An integrated approach, 4th edition. Boca Raton: CRC Press.
3. Mauseth J (2014) Botany- an introduction in plant biology, 5th edition. Burlington: Jones & Bartlett Publishers.
4. Glimn-Lacy J, Kaufman P (2007) Botany Illustrated: Introduction to Plants, Major Groups, Flowering Plant Families, 2nd edition. New York: Springer
5. Badal S, Delgoda R (2017) Pharmacognosy. Fundamentals, Applications and Strategy. London: Elsevier, Academic Press.
6. Barnes J, Anderson LA, Phillipson JD. (2007) Herbal Medicines, 3rd edition. London: Pharmaceutical Press.

8.2 Seminar / Laboratory/Practical works/Internships	**Teaching methods**	**No. of hours**
1. Techniques used in the Plant biology laboratory Cytology (plant cell-components; cell division)	Independent observation, demonstration, explanation	**2**

2. Histology: meristematic tissues; permanent tissues: protective, fundamental, vascular, mechanical, secretory, sensory tissues		2
3. Plant organs: root and stem – morpho-anatomy		2
4. Plant organs: leaf and flower – morpho-anatomy		2
5. Plant organs: fruit and seed – morpho-anatomy		2
6. Lower plants – botanical characterization of medicinal species		2
7. Gymnosperms - botanical characterization of medicinal species		2
8. Angiosperms - botanical characterization of medicinal species and of plants with nutritional value		14
TOTAL SEMINAR HOURS		**28**

Compulsory bibliography

1. Simpson M (2019) Plant systematics, 3rd edition. Amsterdam: Elsevier, Academic Press
2. Singh G (2019) Plant Systematics – An integrated approach, 4th edition. Boca Raton: CRC Press.
3. Mauseth J (2014) Botany- an introduction in plant biology, 5th edition. Burlington: Jones & Bartlett Publishers.
4. Glimn-Lacy J, Kaufman P (2007) Botany Illustrated: Introduction to Plants, Major Groups, Flowering Plant Families, 2nd edition. New York: Springer
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9. Corroboration of the contents of the subject with the demands of the community representatives, the professional associations and the employers representatives from the field related to the programme

The theoretical and practical knowledge acquired during the Plant biology lectures and practical lessons regarding the medicinal, nutritional and elements of toxicity related to plant species, will allow the students to practice their profession as veterinary doctors.

10.Evaluation

Type of activity	Evaluation criteria	Evaluation methods	Percentage from the final grade
10.1 Course	Appropriation of theoretical knowledge	**Written exam**	**60**
10.2 Seminar /lp	Appropriation of practical knowledge	Evaluation during the semester (written tests, seminar participation, assays)	**40**

11. Minimum standard of performance

Minimum request for passing the exam (for grade 5):	**Maximum request for the exam (for grade 10):**
-Attendance to laboratories -Minimal knowledge of the subject issue -Relatively reduced capacity of transfer of specific information	- Participation in debates and activities during the lectures and practical lessons - Thorough knowledge of the subject issue - Increased capacity of specific information transfer

Date of completing,
14.02.2022

Signature of coordinating professor in course
Lecturer Oana-Raluca Rusu, PhD

Signature of coordinating professor in lab
Lecturer Mariana Grecu, PhD

Date of notification in the Departament
14.02.2022

Signature Diector Departament
Assoc. prof. Geta Pavel