



No. _____ / _____

USAMV form 0102010109

SUBJECT OUTLINE

1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca
1.2. Faculty	Agriculture
1.3. Department	I – Technical and Soil Sciences
1.4. Field of study	Agronomy
1.5. Cycle of study ¹⁾	Bachelor of Science
1.6. Specialization/Study programme	Montanology
1.7. Form of education	Full time

2. Information on the discipline

2.1. Discipline name	Pedology 1							
2.2. Course coordinator	Prof.dr. Laura Paulette							
2.3. Seminar/laboratory/project coordinator	Lecturer dr. Buta Mihai							
2.4. Year of study	1	2.5. Semester	2	2.6. Evaluation type	Summative	2.7. Discipline status	Content ²	DD
							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. course	2	3.3. seminar/ laboratory/ project	2
3.4. Total numbers of hours in the curriculum	56	out of which: 3.5. course	28	3.6. seminar/laboratory	28
Distribution of time allotted					hrs.
3.4.1. Study based on books, textbooks, bibliography and notes					22
3.4.2. Additional documentation in the library, electronic platforms and field experiences					10
3.4.3. Preparing seminars / laboratories / projects, reports, portfolios and essays					10
3.4.4. Tutorial					2
3.4.5. Examinations					10
3.4.6. Other activities					
3.7. Total hours of individual study	64				
3.8. Total hours per semester	120				
3.9. Number of credits ⁴	4				

4. Prerequisites (if applicable)

4.1. curriculum related	Ecology, Botany, Agrometeorology
4.2. skills related	Knowledge regarding the components and functions of edaphic system

5. Conditions (if applicable)

5.1. for the course	Teaching is interactive, illustrated with photos and drawings in Power Point. It aims a direct response of the information presented (question and answer) by both, teacher and students. Academic discipline enforce the start time and end of the course. It is not allowing any other activities during the lecture, mobile phones are closed.
5.2. for the seminar/laboratory/project	Practical works in the laboratory are physical and chemical analysis of soil and on the field soil profile morphology is analyzed. Under the direct supervision of practical framework, each student will conduct an individual work with laboratory materials provided and described in the guide for practical work. Academic discipline is necessary for the duration of works.

Professional competences	<p>Knowledge of the factors and processes of soil formation in assessing land use. Understand how to identify and interpret the restrictive factors of soil. To be able to achieve taxonomic frame of soils. Analyze and apply the practical importance of physical and chemical properties in getting agricultural production. Knowledge of soil properties for use in accordance with differentiated application technologies</p>
Transversal competences	<p>Demonstrate practical skills in identifying the productive capacity of soils / land To be able to determine practical in field and laboratory the soil properties. Apply knowledge learned in developing classes of land suitability. To develop resource management strategies of edaphic system (best management practices). To be able to provide advice on how to use the edaphic resource. To participate in research experiences of discipline in the field</p>

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

7.1. General objective	Acquiring knowledge of soil genesis and soil properties.
7.2. Specific objectives	<p>Acquiring knowledge of factors involved in soil formation and soil genesis Perform analysis of soils in laboratory To be able to analyze the morphological properties of soil and fulfill the soil research sheets on the field. Knowing the soil and environmental factors that influence the quality and productivity of agricultural land.</p>

8. Content

8.1. COURSE	Teaching methods	Observations
Number of hours – 28		
Definitions and concepts of soil. Brief history of soil science.	Lecture	1 lecture
Soil forming factors. Time. Climate. Parent material. Relief. Ground water and stagnant water. Organisms.	Lecture	2 lectures
Formation and composition of the mineral part of the soil. Origin of the mineral part of soil (mineralogical and petrographic composition of earth). Weathering of rocks. Processes of forming of the mineral part of the soil (mechanical and chemical weathering).	Lecture	1 lecture
Formation and composition of the organic part of the soil. Soil biocenosis. Origin of the organic part of soil and composition. Decomposition of organic residues in the soil. Humification. Humus composition. Types of humus.	Lecture	1 lecture
Soil pedogenesis. Profile differentiation: Bioaccumulation. Argilization. Argilloiluviation. Podzolization. Gleyization and stagnogleyization. Salinization and alcalization. Vertic processes. Allofane forming. Soil profile and horizons.	Lecture	2 lectures
Morphological properties of soil.	Lecture	1 lecture
Physical properties of soil. Soil texture. Soil structure. Density. Bulk density. Soil porosity. Physical-mechanical properties.	Lecture	2 lectures
Hydro-physical, aeration and thermal properties of the soil. Soil water (hydro-physical indices, forms of water, soil permeability for water, water regime). Soil air (composition and air regime). Soil temperature (termic properties of soil, termic regime)	Lecture	2 lectures
Chemical properties of soil. Soil colloids. Soil solution. Soil reaction. Soil buffering capacity.	Lecture	2 lectures

8.2. PRACTICAL WORK		
Number of hours – 28		
Identify and describe the main mineral constituents of the rocks (properties, classification and description)	Study of minerals	1 work
Identification of igneous rocks (genesis, classification, description)	Study of igneous rocks	1 work
Identification of sedimentary rocks (genesis,	Study of sedimentary rocks	1 work

Identification of metamorphic rocks (genesis, classification, description)	Study of metamorphic rocks	1 work
Weathering of minerals and rocks (weathering processes and factors).	Study of weathered rocks	1 work
Testing theoretical knowledge using interactive computer quizzes (CD) and practice using samples.	Test	1 work
Soil sampling in the field	sampling	1 work
samples processing for laboratory analyses.	soil samples processing	1 work
Determination of hydro-physical coefficients.	analyses	1 work
Determination of density, bulk density, total and aeration porosity.	analyses	1 work
Obtaining the soil dispersion (for texture determination)	analyses	1 work
Separation of soil particles by pipette	analyses	1 work
Determination of soil acidity (pH _{H2O} , pH _{HCl})	analyses	1 work
Theoretical and practical testing of knowledges	test	1 work

8.3. PROJECT

Number of hours –

Compulsory Bibliography:

1. LAURA PAULETTE, 2008 – *Pedologie*, Editura Todesco, Cluj Napoca.
2. LAURA PAULETTE, M. BUTA, 2014 – *Pedologie. Analiza solului*. Ed. Risoprint, Cluj Napoca.
2. LAURA PAULETTE, 2007 – *Pedologie - Studiul solului în teren și laborator*, Ed. Todesco, Cluj-Napoca.
3. BLAGA GH., FILIPOV F., LAURA PAULETTE, RUSU I., UDRESCU S., VASILE D., 2008 – *Pedologie*. Editura Mega Cluj Napoca.
4. Lupașcu Gh., M. Parichi, N. Florea, 1998 – *Dicționar de Știința și Ecologia solului*. Editura Universității Al. Ioan Cuza, Iași.

Optional Bibliography:

1. Canarache A., 1990 – *Fizica solurilor agricole*. Editura Ceres, București.
2. Jenny H, 1941 – *Factors in soil formation*. McGraw-Hill Book Co., NY

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

Course content is similar to that of subjects in the economic engineering faculties of universities in the country and is supplemented annually based on new information published in the field and discussions with farmers, practitioners and specialists in soil science.

10. Evaluation

Type of activity	10.1. Evaluation criteria	10.2. Evaluation type	10.3. Percent of the final grade
10.4. Course	Answer to topic extracted oral exam Activity in discipline	Oral exam	80%
10.5. Seminar/Laboratory	Results at testing sessions Activity in discipline at practical work	periodic evaluation / colloquy	20%

10.6. Minimum performance standards

Knowledge of scientific information transmitted through lectures and practical work at an acceptable level. Getting the minimum mark (at 5) in laboratory assessments is a graduation requirement for exam.

- 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
Prof. PhD Laura Paulette

Laboratory work/seminars coordinator
Lecturer PhD Mihai Buta

Approved by the
Department on
05.09.2019

Head of the Department
Assoc. prof. PhD Ovidiu Ranta