



No. _____ of _____

USAMV form 0102040101

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 Crop Science
1.4. Field of study	Agronomy
1.5. Cycle of study ¹	Bachelor
1.6. Specialization/ Study programme	Montanology
1.7. Form of education	Full time

2. Information on the discipline

2.1. Discipline name		Phytotechny 1						
2.2. Course coordinator			Prof.dr. Marcel M. DUDA					
2.3. Seminar/ laboratory/ project coordinator			Lecturer dr. Sorin MUNTEAN					
2.4. Year of study	IV	2.5. Semester	I	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. 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					28
3.4.2. Additional documentation in the library, electronic platforms and field experiences					18
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					15
3.4.4. Tutorials					7
3.4.5. Examinations					11
3.4.6. Other activities					
3.7. Total hours of individual study		79			
3.8. Total hours per semester		135			
3.9. Number of credits ⁴		5			

4. Prerequisites (if applicable)

4.1. curriculum-related	Botany, Biochemistry, Pedology, Agrotechnics, Agrochemistry, Agricultural machinery, Phytopathology, Entomology, Combating soil erosion, Plant Physiology
4.2. skills-related	Students must have knowledge of: plant nutrition, physico-chemical properties of soils, biology, morphology and physiology of crop plants, weeds, pests and diseases of cultivated plants, economic thresholds, crop protection products, adjusting machinery.

5. Conditions (if applicable)

5.1. for the course	The course is interactive, students may ask questions regarding the content of the exposure. Academic discipline requires compliance for the time to start and end of the course. No other kind of activities are tolerated during the lecture, mobile phones must be closed.
---------------------	---

5.2. for the seminar/ laboratory/ project	At practical works is mandatory to consult the practical book/tutor. Each student will conduct a single or small groups activity in the laboratory using materials available and described in the practical book/tutor. Academic discipline is imposed for the duration of works.
---	---

6. Cumulated specific competences

Professional competences	<p>To know and control the factors that condition the production of field plants.</p> <p>Understand the importance and role of seed in crop production.</p> <p>To know how the quality control of seeds is organized in our country.</p> <p>To know the biological peculiarities of cereals.</p> <p>To know the importance, biology, ecology and technology of wheat cultivation.</p> <p>Be able to develop agricultural production technologies, organize and coordinate production processes.</p>
Transversal competences	<p>To carry out professional tasks responsibly, under conditions of limited autonomy and qualified assistance.</p> <p>To be familiar with the roles and activities specific to teamwork and the distribution of tasks for the levels subordinated.</p> <p>Demonstrate concern for continuous professional development.</p> <p>To participate in the research activities in the experimental fields of the discipline.</p> <p>Be able to develop a project to ensure the need for fertilizers and pesticides in wheat, knowing the percentage of their active substance.</p>

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

7.1. General objective	Acquiring knowledge regarding: how to use the land of our country; the factors that condition the production of field plants; zoning of agricultural crops; the importance, control and certification of the seeds.
7.2. Specific objectives	<p>Understanding the reasons for zoning agricultural crops and the importance of factors that can increase agricultural production.</p> <p>To assimilate information on the quality control and certification system of seeds in our country.</p> <p>To personalize the knowledge of cultivation of cereals, especially of wheat, the relations with the vegetation factors and the elements of its cultivation technology.</p>

8. Content

8.1.COURSE 28 hours	Methods of teaching	Observations
GENERAL ISSUES OF PHYTOTECHNY		
Object of phytotechny and the relationship with other sciences	Lectures	1 lecture
Structure of main agricultural crops in Romania and crop production factors	Lectures	1 lecture
The use of Romanian territory. Factors that condition the production of field plants.		
Agricultural and ecological zoning of plants		
Crop production areas in Romania; Ecological zoning of agricultural plants.	Lectures	1 lecture
CEREALS		
Generalities: Importance, Biological peculiarities of cereals;	Lectures	1 lecture
Wheat: Importance; Chemical composition; Distribution; Systematics; Origin; Varieties; Biological peculiarities;	Lectures	1 lecture
Requirements for climate and soil; Ecological zones;		
Cultivation technology: Rotation; Fertilization; Soil works;	Lectures	1 lecture
Seed and sowing, Care work; Harvesting.		
Rye: importance, biology, ecology and cultivation technology.	Lectures	1 lecture
Triticale: importance, biology, ecology and cultivation technology.	Lectures	1 lecture
Barley, oats: importance, biology, ecology and cultivation technology.	Lectures	1 lecture
Maize: importance, biology, ecology and cultivation technology.	Lectures	1 lecture
Other cultivated cereals.		
LEGUMINOASE PENTRU BOABE		
Generalități: importanța, particularitățile biologice.	Lectures	1 lecture
Pea: Importance, Biology, Ecology and Cultivation Technology.	Lectures	1 lecture

Beans: Importance, Biology, Ecology and Cultivation Technology.	Lectures	1 lecture
Other legumes grown: soy, lentil, chickpea, lupine, faba bean, grass pea, cowpea and peanuts.	Lectures	1 lecture
8.2.PRACTICAL WORK		
Quality control of seeds: 16 hours	Practical demonstration	1 laboratory work
Taking, making and sending samples of seeds.	Self-study	
Subjective and objective analyzes	Identify categories of impurities	
Determination of the purity of seed	Practical demonstration	1 laboratory work
Determination of seed mass (TKW and MA). Determination of seed germination (I). Power to cross (I)	Practical demonstration	1 laboratory work
Calculation of germination (II). Power to cross (II). Cold-test.	Practical demonstration. Self-study.	1 laboratory work
Peculiarities of germination in different species. Determination of viability of the seed. Determination of moisture content in seeds (I).	Practical demonstration. Self-study.	1 laboratory work
Calculation of moisture. Calculation of the useful seed and of the amount of seed per hectare. Quality classes.	Presentation of morphological features.	1 laboratory work
Cereals 12 hours	Presentation of morphological features.	1 laboratory work
Recognition of cereals by root, stem and leaf.	Practical demonstration.	1 laboratory work
Recognition of cereals by inflorescence and fruit.	Practical demonstration.	1 laboratory work
The genus <i>Triticum</i> . Wheat species.	Practical demonstration.	1 laboratory work
Recognition of varieties within the species <i>Tr. aestivum</i> ssp. <i>vulgare</i> and <i>Tr. durum</i> .	Practical demonstration.	1 laboratory work
Wheat varieties. Rye and triticales: systematic and cultivated varieties.	Practical demonstration.	1 laboratory work
Drawing a technological sheet for a cereal species.	Self-study.	1 laboratory work
Pulses. Bean legumes. Biological peculiarities (recognition of species by seeds, fruit and in different phases of vegetation)	Practical demonstration. Self-study.	1 laboratory work
Pea and beans (morphology, systematics and varieties)	Practical demonstration. Self-study.	1 laboratory work
Other pulses (morphology, systematics and varieties). Preparation of a technological file for a kind of legume for grains.	Practical demonstration. Self-study.	1 laboratory work
Recognition of the field of grain and legume grain. Production evaluation.	Self-study	1 laboratory work
<i>Compulsory bibliography</i>		
1. Duda M.M. (2019) - Note de curs.		
2. Muntean S., M.M. Duda, C. Moldovan, Al. Ghețe, 2018, Fitotehnie – Îndrumător de lucrări practice. Partea I. Ed. Risoprint, 317 p., ISBN 978-973-53-2273-1.		
3. Mogârzan Aglaia, G. Morar, M. Ștefan, 2004. Fitotehnie. Ed. Ion Ionescu de la Brad, Iași.		
4. Muntean L.S., S. Cernea, G. Morar, M.M. Duda, D.I. Vârban, S. Muntean, Cristina Moldovan, 2014. Fitotehnie. Ed. a III-a. Ed. Risoprint, Cluj-Napoca, 978-973-53-1273-2.		
<i>Facultative bibliography</i>		
1. Roman Gh.V., M. Ștefan, T. Robu, M.M. Duda și V. Tabără, 2015. Fitotehnie, Vol. 1. Cereale și Leguminoase pentru boabe. Ed. a II-a revizuită și adăugită. Ed. Universitară, București. ISBN 978-606-28-0219-6. 379 p.		
2. Ceapoiu, N. Gh. Bîlteanu, Cr. Hera, N.N. Săulescu, Floare Negulescu, Al. Bărbulescu, 1984. Grâul. Ed. Academiei, Buc.		

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

In order to identify ways of modernization and continuous improvement of teaching and course content with the current issues and practical problems teachers participate in regular meetings where they meet with farmers and

experts in specific areas being discussed current issues and future plant cultivation technology, control of pests and diseases with new products and new forms of fertilizer application on soil and foliage.

10. Evaluation

Type of activity	10.1. Evaluation criteria	10.2. Evaluation type	10.3. Percentage of the final grade
10.4. Course	Presentation of the acquired knowledge regarding the factors that condition agricultural production, biology, ecology and cultivation technology of cereal and legume species for grains specific to colder areas.	Oral exam	70%
10.5. Seminar/ Laboratory	The ability to perform the main analyzes of the seeds. Recognition of the species and the main varieties of cereals and legumes for grains. The possibility to draw up a technological file for one of the agricultural crops presented.	Testing the ability to recognize species and main varieties in oilseeds, textiles, tubers, roots and hops. Verification of the technological file drawn up.	30%
10.6. Minimum performance standards			
Sufficient mastery of the scientific information presented in lectures and practical work. Obtain the pass mark in the practical exam is a condition of participation in the oral examination..			

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.dr. Marcel M. DUDA

Laboratory work/seminar coordinator
Lecturer dr. Sorin MUNTEAN

Approved by the
department on
05.09.2019

Head of the Department
Prof.dr. Marcel M. DUDA