UNIVERSITATEA DE ȘTIINȚE AGRICOLE ȘI MEDICINĂ VETERINARĂ CLUJ-NAPOCA
Facultatea de Agricultură
Calea Mănăștur 3-5, 400372, Cluj-Napoca, România
Tel: 0264-596.384, Fax: 0264-593.792
www.usamvcluj.ro

No._____of _____

USAMV form 0101020102 (discipline code)

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	Environmental and plant protection
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	**Phytopathology 1**							
2.2. Course coordinator				Assoc. prof. Vasile Florian				
2.3. Seminar/ laboratory/ project coordinator				Assoc. prof. Vasile Florian				
2.4. Year of study	II	2.5. Semester	II	2.6. Evaluation type	continuous	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	**20**
3.4.2. Additional documentation in the library, electronic platforms and field experiences	**12**
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays	**10**
3.4.4. Tutorials	**4**
3.4.5. Examinations	**10**
3.4.6. Other activities	

3.7. Total hours of individual study	**56**
3.8. Total hours per semester	**112**
3.9. Number of credits[4]	**4**

4. Prerequisites (if applicable)

4.1. curriculum-related	Botany, Physiology, Agrochemistry, Agro-technical, Genetics, Agricultural machines
4.2. skills-related	The student must have knowledge about plant physiology and morphology

5. Conditions (if applicable)

5.1. for the course	The course is interactive, students can ask questions regarding the content of the presentation
5.2. for the seminar/ laboratory/ project	In practical works it is compulsory to consult the practical works guide, each student will carry out an individual activity with the laboratory materials provided and described in the practical works guide.

6. Cumulated specific competences

Professional competences	To know the specific agronomic language for the discipline of Phytopathology To acquire the general characteristics of recognition and classification of plant pathogens To recognize the main types of diseases of crop plants To know the process of pathogenesis of the plant pathogens To know the system for evaluating the attack of plant pathogens To know the methods of prophylaxis and therapy of the studied pathogens To know how the attack of pathogens evolves based on their knowledge of the biology and technology applied to the attacked crops
Transversal competences	To demonstrate the ability to create a system to control plant diseases identified on a farm Be able to develop projects for forecasting and warning of the occurrence of pathogens, for farms in different climatic conditions To be able to elaborate scientific activities related to plant diseases, including setting up experiments in experimental field Demonstrate concern about professional development by conducting investigations on the economic impact of plant pathogens To participate in research activities of the discipline

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

7.1. General objective	To acquire the knowledge regarding the main pathogens and diseases that they produce in agricultural crops
7.2. Specific objectives	Understand the life cycle of plant pathogens Be able to evaluate the degree of attack of pathogens on a farm To know the factors that influence the way of infection of pathogens To formulate an integrated disease control system on a farm

8. Content

8.1. COURSE **Number of hours – 28**	Teaching methods	Observation
Introduction to Phytopathology	Lecture	1 lecture
General facts about plant diseases	Lecture	2 lectures
Definition, etiology, classification and character of plant diseases. The process of pathogenesis of infectious diseases of plants. Changes suffered by plants during the pathogenesis process. Pathography of infectious diseases of plants.		
General information about plant pathogens	Lecture	2 lectures
Nutrition of the plant pathogens. The origin and evolution of parasitism. Parasitic properties of plant pathogens. Changes suffered by plant pathogens during the pathogenesis process and the factors that influence their parasitic properties. Propagation of plant pathogens		
Classification and specific characteristics of plant pathogens	Lecture	4 lectures
Viruses. Mycoplasma. Bacteria. Fungi and pseudo-fungi.		
Reaction of crop plants to the attack of infectious diseases	Lecture	2 lectures
Classification of crop plants resistance to attack of infectious diseases. Resistance of plants to attack of infectious diseases. Factors that influence the resistance of plants to the attack of infectious diseases.		
The genesis of the physiological strains of plant pathogens (occurrence of the phenomenon of resistance to pesticides (virulicides, bactericides, fungicides)	Lecture	3 lectures
Prevention and control of infectious diseases of plants		

8.2. PRACTICAL WORKS Number of hours – 28	Teaching methods	Observation
The diagnosis of plants diseases. The characters of pseudo-fungi *Plasmodiophoromycota* Phylum *Oomycota* Phylum Caracterele ciupercilor fitopatogene *Chytridiomycota* Phylum *Ascomycota* Phylum *Basidiomycota* Phylum The diagnosis of bacterial diseases. The diagnosis of virus diseases. The phytosanitary control of crop. Warning methods of chemical treatments against agents The use of plant protection products against plant pathogens The technology to prevent and combat plant pathogens Knowledge verification	-Herbarium study - Study of drawings staff - Realization of microscopic preparations	1 lab work 2 lab works 5 lab works 1 lab work 1 lab work 1 lab work 1 lab work 1 lab work 1 lab work 1 lab work

Compulsory bibliography:

1. Florian V. - 2001, Fitopatologie generală, Ed. Poliam, Cluj-Napoca.
2. Florian V., Oroian I. –2002, Diagnoza bolilor infecţioase la plantele de cultură, Ed. Poliam Cluj-Napoca
3. Oroian I., Puia Carmen, Şerba I.- 2002, Practicum de Fitopatologie, Ed. Poliam Cluj-Napoca
4. Oroian I. V. Florian, L. Holonec, - 2006, Atlas de Fitopatologie, Ed. Academiei Române, Bucureşti

Optional bibliography:

1. Baicu T., Săvescu A. - 1986, Sisteme de combatere integrată a bolilor şi dăunătorilor pe culturi, Ed. Ceres, Bucureşti.
2. Bobeş I. - 1983, Atlas de Fitopatologie şi protecţia agroecosistemelor, Ed. Ceres, Bucureşti.
3. Hatman M. şi col. - 1989, Fitopatologie, E.D.P., Bucureşti.
4. Pop I.V. - 1987, Virusurile şi virozele plantelor, Ed. Ceres, Bucureşti.
5. Popescu Gh. – 1993, Fitopatologie, Ed. Tehnică, Bucureşti.
6. Popescu Gh. – Tratat de Patologia Plantelor, Vol I-III, ed. Eurobit, timişoara
7. Puia Carmen – 2003, Patologie vegetală, Ed. Digital Data, Cluj-Napoca;
8. Severin V. şi col. - 1985, Bacteriozele plantelor cultivate, Ed. Ceres, Bucureşti.

* * * Revista "Protecţia plantelor", Ed. Poliam, Cluj – Napoca.

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 modernizing and continuously improving the teaching and the content of the courses, with the most current topics and practical problems, the teachers participate in the annual meeting of the Transylvanian Plant Protection Society, where they meet with officials and engineers in the field but also with farmers, being debated current issues and perspectives in the field of integrated control of plant diseases

10. Evaluation

Type of activity	10.1. Evaluation criteria	10.2. Evaluation type	10.3. Percentage of the final grade
10.4. Course	Knowledge of the pathology of the main diseases and of the pathogenesis process of the plant pathogens Knowledge of the general and specific characteristics of pathogens Knowledge of disease prevention and control measures, within the integrated concept	continuous(VP)	67%
10.5. Seminar/Laboratory	Diagnosis of plant diseases Knowledge of the general characteristics of pathogens Knowledge of the specific characteristics of the main pathogens and their systematic classification Microscopic determination of the main types of spores Knowledge and determination of the plant health status of a crop	continuous(VP)	33%
10.6. Minimum performance standards			
Knowledge of scientific information transmitted through lectures and practical papers at an acceptable level. Obtaining the passing grade for all the tests is a condition of pass			

[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
Assoc. prof. dr. Vasile Florian

Laboratory work/seminar coordinator
Assoc. prof. dr. Vasile Florian

Approved by the
department on
05.092019

Head of the Department
Prof. dr. Ioan Oroian