

SYLLABUS

Academic year 2023 - 2024

1. Details about the program

1.1. Higher Education Institution	„Lucian Blaga” University of Sibiu
1.2. Faculty	Faculty of Sciences
1.3. Department	Environmental Sciences, Physics, Physical Education and Sports
1.4. Field of study	BIOLOGY
1.5. Study cycle ¹	BACHELOR
1.6. Specialization	BIOLOGY

2. Details about the course

2.1. Course name	Integrated pest control	Code	FSTI.MFE.BIOEN.L.CU.6.1010.C-3.11
2.2. Course coordinator	Lecturer PhD Daniela Ilie		
2.3. Practical activity coordinator	Lecturer PhD Daniela Ilie		
2.4. Year of study ²	3	2.5. Semester ³	6
2.6. Type of assessment ⁴	C		
2.7. Type of discipline ⁵	U	2.8. Formative category of the discipline ⁶	S

3. Estimated total time

3.1. Proportion of the discipline within the curriculum – <i>number of hours / week</i>					
3.1.a.Lecture	3.1.b. Seminar	3.1.c. Laboratory	3.1.d. Project	3.1.e Other	Total
1		1			2
3.2. Proportion of the discipline within the curriculum – <i>number of hours / week</i>					
3.2.a.Lecture	3.2.b. Seminar	3.2.c. Laboratory	3.2.d. Project	3.2.e Other	Total ⁷
12		12			24
Allocation of time budget for individual study⁸					No. hours
Study based on textbook, lecture notes, bibliography and course notes					12
Additional research: library, specialized electronic platforms and field or on-site investigation and documentation					12
Preparing for the seminar / laboratorires, home assignments, reports, portfolios and essays					15
Tutoring ⁹					8
Examinations ¹⁰					4
3.3. Total number of hours for individual study¹¹ (NOSI_{sem})					51
3.4. Total number of hours in the curriculum (NOAD_{sem})					24
3.5. Total number of hours per semester¹² (NOAD_{sem} + NOSI_{sem})					75
3.6. No of hours / ECTS					25
3.7. Number of credits¹³					3

4. Prerequisites (if applicable)

4.1. Prerequisite courses for enrollment to this subject (from the curriculum) ¹⁴	Invertebrate biology, Invertebrate systematics, Systematics of cryptogams, General ecology, Microbiology
4.2. Competencies	

5. Requirements (wherever applicable)

5.1. Lecture organization and structure ¹⁵	
5.2. Organization and structure of practical activities (lab/sem/pr/other) ¹⁶	

6. Specific competencies¹⁷

		Number of credits assigned to the discipline ¹⁸	3	Distribution of credits according to competencies ¹⁹
6.1. Professional competencies	CP1	Identification and use of the main laws, notions and concepts specific to Pest control;		0,5
	CP2	Use of logical connections with other related fundamental fields of science;		0,5
	CP3	Use of methods, instruments, devices and technologies for measurement and monitoring activities;		0,5
	CP4	Identification of optimal alternatives for appropriate characterization of environmental factors and of the elaboration of measures for their protection;		0,5
	CP5			
	CP6			
6.2. Transversal competencies	CT1	Responsible and efficient achievement of the tasks afferent to the professions in the field, following the principles of professional ethics.		0,5
	CT2	Documentation in English language, for professional and personal development, through continuous formation and efficient adaptation to the new scientific discoveries.		0,5

7. Course objectives (reflected by the framework of specific competencies)

7.1. General objective	Knowledge of problems related to pest control in an efficient manner and side effect-free within ecosystems
7.2. Specific objectives	Corect understanding of the notion of pest. Knowledge of methods of limiting pest population below the economic thresholds. Knowledge of invertebrate pests. Knowledge of animal pests of crops and forests. Practical application at Institute of Plant Protection.

8. Course description

8.1. Lecture ²⁰	Teaching methods ²¹	No. of hours
Lecture 1. Introductory concepts. Plant protection. Pest organism. Primary and secondary pests.	participatory lecture; conversation	1
Lecture 2-3. Estimating damages caused by pests. Pest control.	participatory lecture; conversation	2
Lecture 4-5. Forecasting and warning systems for pests. Short and long term forecasting. Criteria used for warning.	participatory lecture; conversation	2



Lecture 6-7. Methods of limiting pest population. Phytosanitary quarantine. Mechanical, physical, chemical and biological methods. Integrated Pest Control (IPC) also known as Integrated Pest Management (IPM)	participatory conversation	lecture;	2
Lecture 8-9. Types of pesticides. Toxicity of pesticides. Long – term residual effects of pesticides.	participatory conversation	lecture;	2
Lecture 10-12. Natural pest control. The use of auxiliary insects (parasitic insects, predatory insects). Controlled growth of entomophagous.	participatory conversation	lecture;	3
Total number of lecture hours:			12

8.2. Practical activities (8.2.a. Seminar ²² / 8.2.b. Laboratory ²³ / 8.2.c. Project ²⁴ / 8.2.d. Other practical activities ²⁵)	Teaching methods	No. of hours
Lab.1. Viruses and virus infection in plants. Mycoplasma and mycoplasmosis in plants. Plant parasitic fungi. Systematic groups of animal pests (Nematoda. Gastropoda. Acarina. Insecta).	Debate, investigation	1
Lab.2. Pests of grain crops; description, biology, damage, pest control	Debate, investigation	1
Lab.3-4. Pests of vegetables; description, biology, damage, pest control	Debate, investigation	2
Lab.5-6. Forage crops pests; description, biology, damage, pest control	Debate, investigation	2
Lab.7-8. Pests of fruit trees; description, biology, damage, pest control	Debate, investigation	2
Lab.9-10. Pests of forest trees; description, biology, damage, pest control	Debate, investigation	2
Lab.11-12. Visit to Institute of Plant Protection	Debate, investigation	2
Total number of hours: seminar/laboratory		12

9. Bibliography

9.1. Recommended references	NORRIS, R. F., CASWELL-CHEN, E.P., KOGAN, M., 2003, Concepts in integrated pest management, Prentice Hall PTR. US Environmental Protection Agency, "Pesticides and Food: What Does Integrated Pest Management Mean?"
9.2. Additional references	

10. Correlating the course description with the expectations and requirements of representatives of the epistemic community, professional associations and significant employers and stakeholders related to the study program and the specific area²⁶

The course content enables students to obtain skills of understanding and reproduction of the terms, concepts and principles of pest control, gives them the ability to communicate using the specific scientific language, to interpret the observations on pest and choose the methods of limiting pest population below the economic thresholds.

11. Evaluate

Type of activity	11.1 Assessment criteria	11.2 Assessment methods		11.3 Percentage of the final grade	Notes. ²⁷
11.4a Exam / Colloquium	• Theoretical and practical knowledge (quantity, correctness, accuracy)	Midterm / ongoing assignments ²⁸ :	%	75% (minimum 5)	
		Home assignments:	%		
		Other activities ²⁹ :	%		
		Final assessment:	75% (min. 5)		



11.4b Seminar	<ul style="list-style-type: none"> • Frequency/relevance of contributions or answers 	Proof of contributions, portfolio (scientific papers, syntheses)	% (minimum 5)	
11.4c Laboratory	<ul style="list-style-type: none"> • Knowledge of equipment, methods of using specific instruments and tools; assessment of tools or achievements, processing and interpretation of results 	<ul style="list-style-type: none"> • Written questionnaire • Oral examination • Laboratory notebook, experimental work, scientific papers, etc. • Practical demonstrations 	25% (minimum 5)	
11.4d Project	<ul style="list-style-type: none"> • Quality of achieved project, accuracy of project documentation, rationale and evidence of selected solutions 	<ul style="list-style-type: none"> • Self-assessment, project submission and/or defense • Critical assessment of a project 	% (minimum 5)	
11.5 Minimum performance standard ³⁰				

The course description includes components adapted to SEN (Special Educational Needs) persons, according to their type and degree, at all curricular elements and dimensions (competencies, objectives, course description, teaching methods, alternative assessment), in view of providing and ensuring equitable and fair opportunities to academic education for all students, with special attention to special educational needs.

Date of submission: 07 / 09 / 2023

Date of approval in the Department: 19 / 10 / 2023

	Degree, title, first name, surname	Signature
Course coordinator	Lecturer PhD Daniela ILIE	
Study program coordinator	Assoc. Prof. Ana-Maria Benedek-Sîrbu, PhD	
Director Department	Lecturer PhD. Voichița GHEOCA	

¹ Licență / Master

² 1-4 pentru licență, 1-2 pentru master

³ 1-8 pentru licență, 1-3 pentru master

⁴ Examen, colocviu sau VP A/R – din planul de învățământ

⁵ Regim disciplină: O=Disciplină obligatorie; A=Disciplină opțională; U=Facultativă

⁶ Categoria formativă: S=Specialitate; F=Fundamentală; C=Complementară; I=Asistată integral; P=Asistată parțial; N=Neasistată

⁷ Este egal cu 14 săptămâni x numărul de ore de la punctul 3.1 (similar pentru 3.2.a.b.c.d.e.)

⁸ Liniile de mai jos se referă la studiul individual; totalul se completează la punctul 3.37.

⁹ Între 7 și 14 ore

¹⁰ Între 2 și 6 ore

¹¹ Suma valorilor de pe liniile anterioare, care se referă la studiul individual.

¹² Suma (3.5.) dintre numărul de ore de activitate didactică directă (NOAD) și numărul de ore de studiu individual (NOSI) trebuie să fie egală cu numărul de credite alocate disciplinei (punctul 3.7) x nr. ore pe credit (3.6.)

¹³ Numărul de credit se calculează după formula următoare și se rotunjește la valori vecine întregi (fie prin micșorare fie prin majorare)

$$\text{Nr. credite} = \frac{\text{NOCpSpD} \times C_C + \text{NOApSpD} \times C_A}{\text{TOCpSdP} \times C_C + \text{TOApSdP} \times C_A} \times 30 \text{ credite}$$

Unde:

- NOCpSpD = Număr ore curs/săptămână/disciplina pentru care se calculează creditele
- NOApSpD = Număr ore aplicații (sem./lab./pro.)/săptămână/disciplina pentru care se calculează creditele
- TOCpSdP = Număr total ore curs/săptămână din plan
- TOApSdP = Număr total ore aplicații (sem./lab./pro.)/săptămână din plan
- C_C/C_A = Coeficienți curs/aplicații calculate conform tabelului

Coeficienți	Curs	Aplicații (S/L/P)
Licență	2	1
Master	2,5	1,5
Licență lb. străină	2,5	1,25

¹⁴ Se menționează disciplinele obligatoriu a fi promovate anterior sau echivalente

¹⁵ Tablă, videoproiector, flipchart, materiale didactice specifice, platforme on-line etc.

¹⁶ Tehnică de calcul, pachete software, standuri experimentale, platforme on-line etc.

¹⁷ Competențele din Grilele aferente descrierii programului de studii, adaptate la specificul disciplinei

¹⁸ Din planul de învățământ

¹⁹ Creditele alocate disciplinei se distribuie pe competențe profesionale și transversale în funcție de specificul disciplinei

²⁰ Titluri de capitole și paragrafe

²¹ Expunere, prelegere, prezentare la tablă a problematicii studiate, utilizare videoproiector, discuții cu studenții (pentru fiecare capitol, dacă este cazul)

²² Discuții, dezbateri, prezentare și/sau analiză de lucrări, rezolvare de exerciții și probleme etc.

²³ Demonstrație practică, exercițiu, experiment etc.

²⁴ Studiu de caz, demonstrație, exercițiu, analiza erorilor etc.

²⁵ Alte tipuri de activități practice specifice

²⁶ Legătura cu alte discipline, utilitatea disciplinei pe piața muncii

²⁷ CPE – condiționează participarea la examen; nCPE – nu condiționează participarea la examen; CEF - condiționează evaluarea finală; N/A – nu se aplică

²⁸ Se va preciza numărul de teste și săptămânile în care vor fi susținute.

²⁹ Cercuri științifice, concursuri profesionale etc.

³⁰ Se particularizează la specificul disciplinei standardul minim de performanță din grila de competențe a programului de studii, dacă este cazul.