



SUBJECT OUTLINE

1. Program data

1.1 Institution	Iași University of Life Sciences
1.2 Faculty	Veterinary Medicine
1.3 Department	Exact Sciences
1.4 Field of study	Veterinary Medicine
1.5 Study cycle	Bachelor
1.6 Program	Veterinary Medicine

2. Information on the discipline

2.1 Discipline name	Chemistry		
2.2 Course coordinator	Lecturer Ph.D. Trofin Alina		
2.3 Laboratory activities coordinator	Lecturer Ph.D. Trofin Alina		
2.4 Year of study	I	2.5 Semester	1
2.6 Evaluation type	Colloquium	2.7 Discipline regime	Mandatory

3. Total estimated time (teaching hours per semester)

3.1 Number of hours per week	4	from which: 3.2 course	2	3.3 seminar/laboratory	2
3.4 Total hours in the curriculum	56	from which: 3.5 course	28	3.6 seminar/laboratory	28
Distribution of time allotted					ore
Study by textbook, course support, bibliography and notes					40
Additional documentation in the library, on specialized electronic platforms and field					10
Preparation of seminars / laboratories, homework, papers, portfolios and essays					10
Tutoring					5
Examinations					4
Other activities.....					
3.7 Total individual study hours	69				
3.9 Total hours per semester	125				
3.10 Number of credits	5				

4. Prerequisites (where appropriate)

4.1 of curriculum	• general notions of chemistry, mathematics and physics
4.2 of competences	

5. Conditions (where appropriate)

5.1. for lectures attendance	• students will participate in lectures and will be scored based on attendance sheets; mobile phones will not be used and the classroom will not be left during the lecture except in exceptional, well-motivated cases
5.2. for laboratory attendance	• carrying out practical laboratory work requires protective equipment (gown) and rigorous discipline in handling chemical reagents, glassware and laboratory equipment

6. Specific skills acquired

Professional skills	<ul style="list-style-type: none"> • - knowledge of the types of chemical processes, the conditions of development and the possibility to intervene in the sense of increasing the efficiency of one process or diminishing the negative effects of others; • - knowledge of the categories of substances, their distribution and importance in nature; • - knowledge of the basic principles of chemistry and the parameters that influence them • - practical ability to work with various solutions, usual laboratory substances; • - knowledge of the operating principles of some devices specific to a chemical laboratory (pH-meter, polarimeter, analytical balance, photocolormeter, etc.); • - the possibility of performing qualitative and quantitative reactions within the usual methods of chemical analysis in the laboratory
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Transversal skills	<p>CT1. Applying strategies of perseverance, rigor, efficiency and responsibility at work, punctuality and taking responsibility for the results of personal activity, creativity, common sense, analytical and critical thinking, problem solving, etc., based on the principles, norms and values of the code of professional ethics in the food field</p> <p>CT2. Applying interrelationship techniques within a team; amplifying and refining the empathic capacities of interpersonal communication and assuming specific attributions in carrying out the group activity in order to treat / resolve individual / group conflicts, as well as the optimal time management</p> <p>CT3. Effective use of various ways and techniques of learning - training for the acquisition of bibliographic and electronic database information both in Romanian and in an international language, as well as assessing the need and usefulness of extrinsic and intrinsic motivations of continuing education</p>
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7. Course objectives (based on the grid of specific skills acquired)

7.1 Overall course objective	The course is aimed at acquiring the fundamental notions of general chemistry and the ability to apply them in understanding the specialized disciplines
7.2 Specific objectives	<ul style="list-style-type: none"> • acquiring knowledge regarding the study of chemical elements and inorganic and organic combinations, as well as the properties and importance of the main types of chemical systems encountered in living organisms or in direct relation with them; • practical work is aimed at acquiring calculus methods and lab techniques on general operations carried out in chemical analysis and interpretation of results.

8. Contents

8.1 Lecture	Teaching method	No. of hours
1. Introductory notions: matter, body, substance, atom, formulas and chemical reactions	video presentation, interactive course, heuristic conversation, self-assessment tests	2
2. The structure of the atom		2
2.1. General notions		
2.2. The electronic structure of the atom		
2.3. Atomic models		2
3. The periodic system of elements		
3.1. Structure		
3.2. System models		2
3.3. Periodic and non-periodic properties of the elements		
4. Chemical bonds		4
4.1. Ionic bond (electrovalence)		
4.2. Covalent (covalence) and coordinative bond		
4.3. Metallic bond		
4.4. Specific and nonspecific intermolecular bonds		4
5. Chemical reaction		
5.1. Electron transfer reactions		
5.2. Proton transfer reactions		2
6. Homogeneous dispersed systems		
6.1. Dissolution		2
6.2. Concentrations of solutions		
7. Elements and combinations	2	
7.1. Distribution of elements		
7.2. Types of combinations	2	
8. Alkanes		
8.1. Nomenclature, structure	2	
8.2. Physical and chemical properties		
9. Alkenes	2	
9.1. Nomenclature, structure, isomerism, methods of obtaining		
9.2. Physical and chemical properties		
10. Alkynes	2	
10.1. Nomenclature, structure, methods of obtaining		
10.2. Physical and chemical properties		

11. Arenes		2
11.1. Nomenclature, structure, isomerism, methods of obtaining		
11.2. Physical and chemical properties		
12. Halogenated derivatives		2
12.1. Nomenclature, classification, methods of obtaining		
12.2. Physical and chemical properties		
13. Hydroxyl compounds: alcohols and phenols		
13.1. Nomenclature, classification, methods of obtaining		2
13.2. Physical and chemical properties		
14. Carbonyl compounds: aldehydes and ketones		
14.1. Nomenclature, classification, methods of obtaining		
14.2. Physical and chemical properties		
15. Carboxylic compounds and their derivatives		
15.1. Nomenclature, classification, methods of obtaining		2
15.2. Physical and chemical properties		
TOTAL		28
Bibliography		
1. Nenişescu D.C. – General chemistry, Educ Ped. Press, Bucharest, 1980		
2. Trincă Lucia Carmen, Trofin Alina – Chemistry, PIM Press, Iasi, 2014		
3. Trofin Alina – Inorganic and analytic chemistry, StudIS Press, Iasi, 2021		
4. Trofin Alina – General chemistry, Ed. StudIS Press, Iasi, 2018		
5. Trofin Alina - Lecture notes, online available		

8.2 Seminar/laborator	Teaching method	No. of hours
1. Processing work safety and firefighting rules in chemistry lab.	performing specific laboratory chemical analyzes, individual work, calculation and interpretation of the obtained results	2
Introduction to analytical chemistry		
2. The concentrations of the solutions		2
3. Volumetric neutralization reactions. Determination of a sodium hydroxide solution concentration		2
4. Volumetric neutralization reactions. Determination of a sulfuric acid solution concentration		2
5. Volumetric neutralization reactions. Determination of an acetic acid solution concentration		2
6. Volumetric oxidation-reduction reactions: permanganometry		2
7. Volumetric oxidation-reduction reactions. Determination of Fe ⁺² ion in the compounds. Identification of the ions Fe ⁺² , Fe ⁺³		2
8. Volumetric oxidation-reduction reactions: iodometry. Determination of the concentration of a solution of sodium thiosulfate		2
9. Volumetric oxidation-reduction reactions: iodometry. Determination of the concentration of a solution of iodine		2
10. Volumetric oxidation-reduction reactions. Determination of a solution of sulphite (SO ₃ ²⁻)		2
11. Complexometry. Determination of water hardness.		2
12. Volumetric precipitation reactions. The dosage of chlorine ions by Mohr's method.		2
13. Volumetric precipitation reactions. The dosage of chlorine ion by Volhard's method.		2
14. Verification test	2	
TOTAL		28
Bibliography		
1. Trofin Alina, Ungureanu Elena – Inorganic and analytic chemistry, PIM Press, Iași, 2011		
2. Trofin Alina, Ungureanu Elena – General chemistry applications, PIM Press, Iași, 2013		
3. Trofin Alina – Laboratory manual, online available		

9. Corroborating the contents of the discipline with the expectations of the representatives of the epistemic community, professional associations and representative employers in the field related to the program

•In order to elaborate the course content and the list of practical laboratory applications, the analytical programs of similar disciplines from other profile universities in the country, the usefulness of the knowledge to be assimilated and the possibility to apply in practice the theoretical notions and acquired skills were taken into account. in physico-chemical analysis laboratories, as well as to correlate this knowledge and to develop it in the study of specialized disciplines.

10. Assessment

Activity type	10.1 Assessment criteria	10.2 Assessment method	10.3 Percentage of final grade
10.4 Course	Knowledge of the categories of inorganic and organic chemicals and their properties	spoken/written colloquium	60 %
	Knowledge of the main uses of different classes of compounds, with specific applications in the medical field		
	Solving problems of calculating the content or concentration of a chemical element / compound		
10.5 Seminar/laboratory	Partial and final assessment of the laboratory material	written tests	20 %
	Appreciation of the activity carried out during the semester	presentation of the laboratory report, execution of the experiment, calculation and interpretation of the result	20 %
10.6 Minimal performance requirements			
Minimum promotion requirements (for grade 5):		Maximum promotion requirements (for grade 10):	
<ul style="list-style-type: none"> • correct identification of chemical compounds and knowledge of their most important properties • write the chemical equations correctly for the usual reactions • knowing the concentrations of solutions and solving simple calculation examples 		<ul style="list-style-type: none"> • correct identification of chemical compounds, knowledge of their most important properties, their importance in the biological field or in medical practice • correct writing of various chemical equations, knowledge of the types of reactions and their applicability • knowing the concentrations of the solutions and solving the calculation examples • interpretation of the presented theoretical notions, their correlation with practical activities and applications in the field of activity of the specialization 	

Date
14.09.2021...

Course coordinator
Lecturer Ph.D. Alina Trofin

Laboratory work coordinator
Lecturer Ph.D. Alina Trofin

Approved by Faculty Council
17.09.2021.

Head of the Department
Lecturer Ph.D. Ciprian Chiruță