



<b>Study program:</b> Integrated Academic Studies in Pharmacy			
<b>Course title:</b> General Chemistry			
<b>Teacher:</b> Nataša B. Milić, Nataša P. Milošević, Maja. Lj. Milanović			
<b>Course status:</b> compulsory			
<b>ECTS Credits:</b> 7			
<b>Condition:</b> -			
<b>Course aim</b> The main aim of this course is to teach students about the basic principles and laws in chemistry, chemical reactions, chemical elements and chemical compounds important for pharmacy. It is a basic course necessary for understanding a variety of other chemical and pharmaceutical courses.			
<b>Expected outcome of the course:</b> The goal of this course is to offer quality and applicable knowledge, theoretical and practical, necessary for successful work in all other chemical and pharmaceutical courses and pharmaceutical practice. Independent work in chemical laboratories.			
<b>Course description</b> <i>Theoretical education</i> 1. Introduction. Basic chemical laws. 2. Atomic and molecular theory. Atomic and molecular mass. 3. Aggregate states. Gas laws – application. 4. A Periodic Table of the Elements. Basic atomic structures. 5. Quantum–mechanical interpretation of the atomic structure. 6. Periodical changes. Molecular structure. 7. Chemical bonding. Ionic bonding. Covalent bonding. Metal bonding. TVB, TMO and hybridization of molecules. 8. Structure and geometry of molecules. 9. Intermolecular forces. 10. The types of inorganic chemical compounds. Nomenclature. 11. Dispersion systems - real and colloid solutions. Colligative properties of diluted solutions. 12. Chemical kinetics. Thermal effects on chemical reactions. 13. Chemical equilibrium. 14. Chemical equilibrium of electrolyte aqueous solution. Definition of pH value. 15. Acid and base theory. Ionic product of water. 16. Buffers. 17. Hydrolyses. 18. Solubility product. 19. Complex compounds.  <i>Practical education</i> Chosen experiments and mathematical tasks: 1. Good laboratory practice and chemical waste disposal. 2. Lab equipment and separation of mixture components. 3. Basic chemical laws. 4. Chemical bonding and intermolecular forces. 5. Types of inorganic chemical compounds. 6. Solutions. Colloid solutions. 7. Characteristics of dilute solutions. 8. Individual preparation of solutions. 9. Chemical reaction kinetics and chemical equilibrium. 10. Electrolyte solution equilibrium. 11. Water dissociation and the concept of pH. 12. Buffer or regulation mixtures. 13. Hydrolysis of inorganic salts. 14. Solubility products. 15. Complex compounds.			
<b>Literature</b> <i>Compulsory</i> 1. Whitten KW, Davis RE, Peck ML, Stanlez GG. General chemistry. 7th Edition. Belmont USA:Thomson Brooks/Cole; 2004. 2. Milić N, Milošević N, Milanović M. Practicum of General Chemistry (translated chapters from Serbian). Novi Sad: Faculty of Medicine; 2019. 3. Milić N, Milošević N. Inorganic chemistry (translated chapters from Serbian). Novi Sad: Faculty of Medicine; 2017.			
<b>Number of active classes</b>	<b>Theory:</b> 45	<b>Practice:</b> 45	
<b>Teaching methods</b> Lectures, experiments, demonstrations, and chemical calculations.			
<b>Student activity assessment</b> (maximally 100 points)			
<b>Pre-exam activities</b>	<b>points</b>	<b>Final exam</b>	<b>points</b>
Lectures		Written	
Practices	20	Oral	30
Colloquium	2x25	.....	
Essay			