

Study program: Integrated academic studies of Pharmacy			
Type and level of the study program: integrated academic studies			
Course title: GENERAL CHEMISTRY (PhI-GCHEM)			
Teacher: Nataša B. Milić, Nataša P. Milošević			
Course status: compulsory			
ECTS Credits: 7			
Condition: -			
Course aim 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.			
Expected outcome of the course: 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.			
Course description <i>Theoretical education</i> 1. Introduction. Basic chemical laws. 2. Atomic and molecular theory. Atomic and molecular mass. 3. Aggregate state of matter. Gas laws – application. 4. The 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. Thermo chemistry. 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: exercises, other forms of education, research related activities</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 value. 12. Buffer. 13. Hydrolysis of inorganic salts. 14. Solubility products. 15. Complex compounds.			
Literature <i>Compulsory</i> 1. Whitten KW, Davis RE, Peck ML, Stanlez GG. General chemistry, 7th Edition. Thomson Brooks/Cole, Belmont USA, 2004. 2. Milić N, Milošević N. Practicum of General Chemistry for Pharmacy students (translated from Serbian), Faculty of Medicine, Novi Sad, 2012. <i>Additional</i> 1. Internal script with stoichiometric tasks.			
Number of active classes			Other:
Lectures: 45	Practice: 45	Other types of teaching: Research related activities:	
Teaching methods Lectures, experiments, demonstrations, and chemical calculations.			
Student activity assessment (maximally 100 points)			
Pre-exam activities	points	Final exam	points
Lectures		Written	60
Practices	20	Oral	20
Colloquium	2x30*	
Essay			
*Student is obliged to pass a written exam if the colloquiums during the semester are not passed			