

Study program: Integrated academic studies of Pharmacy			
Type and level of the study program: integrated academic studies			
Course title: TOXICOLOGICAL CHEMISTRY (PhIV-TOXCH)			
Teacher: Velibor M. Vasović, Branislava U. Srdenović Čonić			
Course status: compulsory			
ECTS Credits: 8			
Condition: Basic toxicology			
Course aim Toxicological chemistry course is intended to provide a basic understanding of different fields of toxicology (forensic toxicology, professional toxicology, toxicology of food, toxicology of drugs, ecotoxicology, analytic toxicology) and provide students basic knowledge of poison investigation and interpretation of obtained results.			
Expected outcome of the course: Students will gain knowledge of the basic principles of toxic exposure, toxicity mechanisms, toxicokinetics, toxodynamics, poison investigation, poisoning treatment and antidotes. Students will gain skills in sample preparation, qualitative and quantitative analytical methods in toxicological practice, interpretation of obtained results and be able to estimate procedures of first aid and therapy and apply principles of regulatory toxicology.			
Course description <i>Theoretical education</i> 1. Characteristics of exposure -route and site of exposure, duration and frequency of exposure 2. Analytic toxicology – poison sampling, isolation, purification, analysis 3. Gaseous poisons 4. Volatile poisons 5. Mineral poisons 6. Mineral poisons that are being investigated without destruction of organic materials 7. Herbal poisons 8. Animal poisons 9. Synthetic poisons 10. Basics of ecotoxicology and the most important pollutants of atmosphere, hydrosphere, and soil. 11. Legislation and interpretation of toxicological results <i>Practical education: exercises, other forms of education, research related activities</i> Introductory lecture - introduction to the work in the laboratory and risk assessment 1. Determination of ammonia in the air 2. Determination of hydrogen sulfide in the air 3. Determination of nitric oxide in the workplace 4. Determination of carboxyhemoglobin in the blood 5. Determination of methemoglobin in the blood 6. Determination of atrazine in surface water -HPLC 7. Determination of PCBs in soil -GC / ECD 8. Determination of PAHs in soil -HPLC / DAD / FLD 9. Determination of fluoride in urine 10. Determination of fluoride in mineral water 11. Determination of aromatic hydrocarbons in air -GC / FID 12. Determination of hippuric acid in urine 13. Determination of ethanol in the blood by Widmark 14. Determination of lead in urine 15. Determination of iron in drinking vodi 16. Determination of serum acetylcholinesterase 17. Determination of serum butyrylcholinesterase 18. Determination of delta aminolevulinic acid in the urine 19. Determination of coproporphyrin and uroporphyrin in urine			
Literature <i>Compulsory</i> 1. True BL, Dreisbach RH. Dreisbach's Handbook of Poisoning. Prevention, Diagnosis and Treatment, Thirteenth Edition: Taylor & Francis, 2001. 2. Klaassen CD. Casarett & Doull's Toxicology. The Basic Science of Poisons, 6th Edition: mcgraw-Hill, 2001. <i>Additional</i> 1. Srdenović Čonić B, Sudi J, Milić Torres V. Analytic toxicology-laboratory practice, internal script.			
Number of active classes			Other:
Lectures: 45	Practice: 60	Other types of teaching:	Research related activities:
Teaching methods: lectures, practical classes – poison sampling, isolation, purification, analysis and interpretation of obtained results.			
Student activity assessment (maximally 100 points)			
Pre-exam activities	points	Final exam	points
Lectures	5	Written	
Practices	30	Oral	60
Colloquium		
Essay	5		