1. COURSE DESCRIPTION – GENERAL INFORMATION			
1.1. Course teacher	Associate Professor Nada Vrkić, PhD Associate Professor Dunja Rogić, PhD	1.6. Year of study	4th
1.2. Name of the course	Special areas of clinical biochemistry	1.7. Credit value (ECTS)	5
1.3. Associate teachers	Assistant Professor Ksenija Fumić, PhD	1.8. Type of instruction (number of hours L+E+S+e-learning)	15+30-15
1.4. Study programme (undergraduate, graduate, integrated)	Integrated study of Medical biochemistry	1.9. Expected enrolment in the course	25
1.5. Status of the course	Compulsory	1.10. Level of use of e-learning (1, 2, 3 level), percentage of instruction in the course on line (20% maximum)	2nd
2. COURSE DESCRIPTION			
2.1. Course objectives	Present special areas of clinical biochemistry, samples, procedures, and pathological conditions to be encountered in practice and belonging to the scope of medical biochemist's work.		
2.2. Enrolment requirements and required entry competences for the course	Audited course in Clinical Chemistry of Organs and Organ Systems 2		
2.3. Learning outcomes at the level of the study programme to which the course contributes	• Defining, analysing and proposing procedures related to research, practice, and monitoring of quality and implementation of new laboratory diagnostic procedures for detection and follow-up of disease and therapy. • Assessment of clinical significance of biochemical indicators, detection of the source of errors and variability of results of laboratory analyses, interpretation of results of laboratory analyses. • Development and implementation of solutions for practical problems in laboratory diagnostics.		
2.4. Expected learning outcomes at the level of the course (4-10 learning outcomes)	After completed course, students will be able to: 1. State the biochemical and molecular bases of inherited metabolic diseases and psychosomatic disorders; 2. Propose laboratory procedures and samples in screening and confirmation of the diagnosis of metabolic disease; 3. Describe the method of monitoring drug concentration in the body; 4. List and describe the most significant laboratory tests in neonatology; 5. Explain the role of pharmacogenomics in treating neuropsychiatric patients;		

	6. Predict oral anticoagulant dose on the basis of determined laboratory parameters; 7. Describe principles of pharmacogenetic testing; 8. Explain the principle of GCMS and tandem mass spectrometry.
2.5. Course content broken down in detail by weekly class schedule (syllabus)	LECTURES AND SEMINARS: • Hereditary metabolic diseases. • Laboratory and neonatology. • Psychosomatic disorders - molecular and biochemical indicators. • Therapeutic drug monitoring (TDM) and toxicology. • The role of liquid chromatography - tandem mass spectrometry in laboratory medicine. • The role of pharmacogenetics in treatment of neuropsychiatric patients. • The role of pharmacogenetics in oral anticoagulant therapy. EXERCISES • Predicting the dose of anticoagulant therapy. • Pharmacogenetics. • Analytical toxicology. • GC MS and tandem mass spectrometry.

2.6. Type of instruction	**lectures** **seminars** and workshops **exercises** online in entirety mixed e-learning field work	independent study multimedia and the internet **laboratory** work with the mentor (other)	2.7. Comments:

2.8. Student responsibilities	Attendance to lectures and active participation in seminars, performance of exercises. Written and oral examination.					
2.9. Screening of student's work (specify the proportion of ECTS credits for each activity so that the total number of CTS credits is equal to the credit value of the course)	Class attendance	0.5	Research		Practical training	
	Experimental work	1	Report			
	Essay		Seminar essay	0.5	(Other--describe)	
	Tests	0.5	Oral exam	1	(Other—describe)	
	Written exam	1.5	Project		(Other—describe)	
2.10. Grading and evaluation of student work over the course of instruction and at a final exam	Preliminary exam is taken after carrying out exercises. On completion of classes, students' knowledge is evaluated through oral and written examination.					

2.11. Required literature (available at the library and via other media)	**Title**		
	Štrausova medicinska biokemija. Medicinska naklada, Zagreb, 2009.		
	Topić E, Primorac D, Janković S. Medicinsko-biokemijska dijagnostika u kliničkoj praksi. Medicinska naklada, Zagreb, 2004.		

2.12. Optional literature	Čepelak I. i sur. Medicinsko-biokemijske smjernice, Medicinska naklada, Zagreb, 2004.
2.13. Methods of monitoring quality that ensure acquisition of exit competences	Outcomes 1-5 are attained by attendance to lectures and seminars, and are evaluated through oral and written exam. Outcomes 6-8 are realized through exercises and evaluated through preliminary examination.