University of Niš Faculty of Medicine	Study program: INTEGRATED ACADEMIC STUDIES OF MEDICINE *ACCREDITATION 2018*	

Course: Clinical biochemistry

Course head: prof. dr Ivana Stojanović

Course status:	Required
Semester: VII	**Study year:** IV
ECTS: 1	**Course code:** M-IV-25

Course purpose:

The purpose of the course of Clinical Biochemistry is to provide students with:

- comprehensive understanding and knowledge of general biochemistry, physiology, and clinical biochemistry relevant for pathogenic mechanisms;
- understanding of biochemical mechanisms in pathogenesis;
- acquisition of knowledge about lab indicants characteristic for particular organ & system diseases, factors of influence and their reference values;
- proper association of disease symptoms with clinical and lab findings for the purpose of timely diagnosis and treatment;
- ability to select rationally diagnostic and follow-up lab parameters;
- understanding of the significance of lab medicine in clinical practice;
- experience using the acquired knowledge about lab findings in clinical problem solving;
- comprehensive understanding of the abilities of clinical biochemistry procedures and development of abilities of critical assessment of methods and techniques in clinical biochemistry, and the significance of obtained results for disease treatments.

Course outcome: (knowledge, skills, attitudes)

Upon completion of the course of Clinical Biochemistry, students will be able to:

- demonstrate the knowledge of biochemical background of diseases;
- discuss metabolic pathway disorders in particular pathologies;
- critically analyze and assess the significance of diagnostic approaches in clinical biochemistry;
- competently select diagnostic biomarkers (for initial diagnosis, differential diagnosis, disease courseand treatment monitoring;
- select appropriate clinical samples for lab diagnosis and make provisions for proper sampling;
- adequately use and interpret lab results in making the diagnosis, disease and treatment follow-up;
- use expert and scientific literature in the field.

No. of classes of active teaching: 45

Lectures: 30	**Practice: 10**	**Other: 5**

Садржај предмета

Theoretical and practical teaching in clinical biochemistry will enable students to get deeper insight and acquire integral knowledge about biochemical background of diseases, diagnostic lab procedures in particular diseases and organ systems, clinical validity of available biomarkers and role of clinical biochemistry in patient management, critical evaluation and selection of adequate lab procedures in diagnosis, disease course and treatment effect monitoring.

Active teaching:

1. Lectures		**No of classes**
1.	The subject of Clinical biochemistry	2
2.	Laboratory diagnostics of liver and gut diseases	2
3.	Biochemical characteristics of urine	2
4.	Laboratory diagnostics of kidney diseases	2
5.	Biochemical aspects of hematopoiesis	2
6.	Biochemical diagnostics of myocardium and skeletal muscle diseases	2
7.	Functional examination of endocrine system	2
8.	Metabolic characteristics of malignant tissues	2
9.	Biochemical possibilities of CNS and PNS diseases investigation	2

10.	Biochemical aspects of pregnancy. Prenatal diagnostics.	2
11.	Biochemical diagnostics of bone system metabolism disorders	2
12.	Biochemical characteristics of body fluids	2
13.	Biochemical parameters of inflammation	2
14.	Choices of biochemical sets of organ and tissue function analyses	2
15.	Organ specific enzymes and isoenzymes. Organ specific substrates	2
	Total:	**30**

2. Practice		
1.	The collection, processing and storage of biological samples; sources of biological variations Blood sampling and plasma and serum separation	1
2.	The importance of biochemical examinations in diagnostics and the treatment of liver and gut diseases	1
3.	Laboratory possibilities of kidney diseases examination	1
4.	The first colloquia	1
5.	Diagnostics of myocardium and skeletal muscle diseases	1
6.	The second colloquia	1
7.	Analysis of hematological status (physiological and pathological states)	1
8.	The third colloquia	1
9.	Laboratory diagnostics of pregnancy. Prenatal diagnostics	1
10.	Laboratory diagnostics of CNS diseases	1
	Total:	**10**

3. Other:		
1.	Liver and gut diseases. Case reports Checking knowledge by solving set tasks	1
2.	Kidney diseases. Case reports Checking knowledge by solving set tasks	1
3.	Endocrine system diseases. Case reports Functional examination of endocrine system	1
4.	CNS diseases. Case reports.	1
5.	Revision: solving set tasks, case reports discussion	1
	Total:	**5**

Recommended literature:

1. Liberman M, Peet A. Marks' Basic Medical Biochemistry: A Clinical Approach, 6th Edition, Wolters Kluwer, USA, 2022.
2. Devlin MTH, Textbook of BiochemistrywWith Clinical Correlations, Sixth Ed, Wiley-Liss Inc, USA, 2006.
3. Caplan L. A., Pesce J. P., Kazmierzak C. K.: Clinical Chemistry, 4th ed., Mosby, Maryland Heights,Missouri, 2004.

Teaching methods:

The teaching process combines several educational approaches, such as: theoretical teaching (lectures), practical in small groups, problem-oriented teaching. Through case reports and presentation of lab findings students learn to apply their theoretical knowledge and successfully make working and final diagnosis, closely abiding by the approved diagnostic algorithms.

Required previously passed exams:

Biochemistry

Grade (max. 100 points)

Pre-exam obligations

- Activity during classes: 0 – 10
- Colloquia (tests): 0 – 40

Final exam

- Final exam (test): 0 – 50

For more information: Rulebook on the formation of the final grade at Clinical Biochemistry course