SYLLABUS

concerning the cycle of education 2024-2030

1. BASIC INFORMATION CONCERNING THIS SUBJECT

Subject	**LABORATORY DIAGNOSTICS**
Course code *	**Bm/B**
Faculty of (name of the leading direction)	**Medical College of Rzeszow University**
Department Name	**Department of Laboratory Diagnostics and Clinical Epigenetics**
Field of study	**medical direction**
level of education	**uniform master's studies**
Profile	**General academic**
Form of study	**stationary / extramural**
Year and semester	**year III, semester III**
Type of course	**Obligatory**
Language	**English**
Coordinator	**Natalia Frączek-Chudzik, PhD**
First and Last Name of the Teachers	**Mateusz Fic, PhD – Lecture, practice** **Natalia Frączek-Chudzik, PhD - Lecture, practice**

* - According to the resolutions of Educational Unit

1.1. Forms of classes, number of hours and ECTS

Semester No.	Lecture	Exercise	Conversation	Laboratory	Seminar	ZP	Praktical	Other	**Number of points ECTS**
III	20	-	-	-	24	-	-	-	3

1.2. The form of class activities
x classes are in the traditional form
☐classes are implemented using methods and techniques of distance learning

1.3 Examination Forms (exam, **credit with grade** or credit without grade)

2.BASIC REQUIREMENTS

The student should know the basics of cell biochemistry, biology and physiology.

3. OBJECTIVES, OUTCOMES, AND PROGRAM CONTENT USED IN TEACHING METHODS

3.1 Objectives (Os) of this course

O1	To develop the skills of the correct selection of laboratory tests and their proper use (interpretation) for further diagnostic and therapeutic procedures.
O2	Basic knowledge in biochemistry and hematology.
O3	Ability to use correct biochemical naming and the ability to interpret basic biochemical changes in the case of disturbed homeostasis.
O4	The habit of self-education and the ability to work in a team.

3.2 OUTCOMES FOR THE COURSE

EK (the effect of education)	The content of learning outcomes defined for the class (module)	Reference to directional effects [1]
EK01	knows environmental and epidemiological conditions of most frequent diseases	**E.W01**
EK02	knows types of biological materials used in laboratory diagnostics and rules governing sampling	**E.W37**
EK03	knows theoretical and practical bases of laboratory diagnostics	**E.W40**
EK04	knows and understands possibilities and limitations of laboratory examinations in emergency situations	**E.W39**
EK05	interprets laboratory investigations and identifies reasons for deviations	**E.U24**

3.3 CONTENT CURRICULUM
A. Problems of the lecture

Course contents
Introduction to rational laboratory diagnostics. Analytical basics of laboratory diagnostics.
Laboratory-dependent and -independent causes of laboratory test result inconsistency. Laboratory methods in clinical practice, including the selection of tests in emergency conditions. Quality control of laboratory tests.
Basics of hematological diagnostics: the red blood cells.

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[1]In the case of a path of education leading to obtaining teaching qualifications, also take into account the learning outcomes of the standards of education preparing for the teaching profession.

Basics of hematological diagnostics: the white blood cells.
Blood and its components - discussion of the different types. Blood plasma proteins and proteins of diagnostic significance
Diagnostics of acid-base imbalance.
Diagnostics of water and electrolyte disturbances.
Laboratory diagnosis of kidney diseases.
Laboratory diagnostics of acute and life-threatening conditions.
Laboratory diagnostics in endocrinology.

B. Problems of auditorium, seminar,

Course contents
Diagnostics of lipid disorders. Discussing the risk of atherosclerosis. Coronary artery disease, myocardial infarction.
Laboratory diagnostics in oncology.
Introduction to laboratory genetic diagnostics.
Good Laboratory Practice (GLP)
Differences in laboratory diagnostics in childhood, elderly and pregnancy.
Anemia: algorithmus for laboratory diagnostics and analysis of clinical cases
Diagnostic algorithmus for selected clinical cases.
Serological diagnosis of the blood donor and diagnosis of post-transfusion reactions.

3.4 Didactic methods

Lecture: problem lecture / <u>lecture with multimedia presentation,</u>
Seminar: project method (research project, implementation, group work / problem solving / discussion /)

4. METHODS AND EVALUATION CRITERIA

4.1 Methods of verification of learning outcomes

Symbol of effect	Methods of assessment of learning outcomes (Eg.: tests, oral exams, written exams, project reports, observations during classes)	Form of classes

EK_01 , EK_02, EK_03, EK_04, EK_05	Colloquium /test/ + exam /test/	Lecture, Seminar

4.2 Conditions for completing the course (evaluation criteria)

Lectures, seminars (EK_01, EK_02, EK_03, EK_04, EK_05)

Positive assessment of the tests, positive assessment of the report, positive assessment of the student's work during classes, 100% attendance.

Final colloquium – single-choice test.

Assessment criteria:

5.0 - has knowledge of the education content at the level of 93% -100%

4.5 - shows knowledge of the content of education at the level of 85% -92%

4.0 - shows knowledge of the content of education at the level of 77% -84%

3.5 - shows knowledge of the content of education at the level of 69% -76%

3.0 - shows knowledge of the content of education at the level of 60% -68%

2.0 - shows knowledge of the educational content below 60%
Positive evaluation of the subject can be obtained only on condition of obtaining a positive assessment for each of the established learning outcomes.

5. Total student workload required to achieve the desired result in hours and ECTS credits

Activity	The average number of hours to complete the activity
Contact hours (with the teacher) resulting from the study schedule of lectures and seminars	44
Contact hours (with the teacher) participation in the consultations, exams	3
Non-contact hours - student's own work (preparation for classes, exam, writing a paper, etc.)	33
SUM OF HOURS	80
TOTAL NUMBER OF ECTS	3

It should be taken into account that 1 ECTS point corresponds to 25-30 hours of total student workload.

6. TRAINING PRACTICES IN THE SUBJECT

NUMBER OF HOURS	-
RULES AND FORMS OF APPRENTICESHIP	-

7. LITERATURE

Literature:

1. Allan Gaw, Michael J Murphy, Rajeev Srivastava, Robert A Cowan, Denis St J O'Reilly. Clinical Biochemistry. 2013

2. Bradham WS, Bell SP, Adkisson DW, Smith HM, Harrell Jr FE, et.al. Myocardial T1 Measurement Predicts Beneficial LV Remodeling After Long-Term Heart Failure Therapy. J Card Fail. 2017 Mar;23(3):262-265.

3. Bozkurt B, Aguilar D, Deswal A, Dunbar SB, Francis GS, et al. Contributory Risk and Management of Comorbidities of Hypertension, Obesity, Diabetes Mellitus, Hyperlipidemia, and Metabolic Syndrome in Chronic Heart Failure: A Scientific Statement From the American Heart Association. Circulation. 2016 Dec 6;134(23):e535-e578

4. Gupta M, Tummala R, Ghosh RK, Blumenthal C, Philip K, et al. An update on pharmacotherapies in diabetic dyslipidemia. Prog Cardiovasc Dis. Jul-Aug 2019;62(4):334-341.

5. OECD SERIES ON PRINCIPLES OF GOOD LABORATORY PRACTICE AND COMPLIANCE MONITORING Number 24 Position Paper on Quality Improvement Tools and GLP. Paris 2022. ENV/CBC/MONO(2022)21

Acceptance Unit Manager or authorized person