

SYLLABUS - Aneks

The academic year when the cycle of instruction is commenced 2019-2025 INT

Module/course name:	Laboratory Diagnostics	Module code	LK.3.E.004
Faculty:	Faculty of Medicine MUL		
Major:	Medical		
Specialty:			
Level of study:	I (Bachelor studies) <input type="checkbox"/> II (Master studies) <input type="checkbox"/> Integrated Master studies X Doctoral studies <input type="checkbox"/>		
Mode of study:	full-time X		
Year of study:	I <input type="checkbox"/> II <input type="checkbox"/> III X IV <input type="checkbox"/> V <input type="checkbox"/> VI <input type="checkbox"/>	Semester:	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 X 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 <input type="checkbox"/>
Module/course type:	obligatory X elective <input type="checkbox"/>		
Language of instruction:	Polish <input type="checkbox"/> English X		
Form of education		Hours	
Lecture		10	
Seminar		9	
Laboratory class		51	
E-learning		e-lecture, e-seminar	
Practical class			
Internship			
Other			
TOTAL		70	
Student's work input (participation in class, preparation, evaluation, etc.)		Student's hourly workload	
1. In class		70	
2. Student's own work including: 1 Preparation for class 2 Preparation for partials and finals		30	
Summary of the student's workload		100	
ECTS points for module/course		4	

Educational objectives:

The aim of teaching is to provide students with the knowledge and skills to understand biochemical consequences of systemic disorders and learning about analytical methods enabling their recognition and monitoring. The student has the diagnostic skills that allow for the accurate selection and ordering of laboratory tests as well as correct interpretation, both in the process of prevention, diagnosis and differentiation of pathological changes and in analysis of the treatment effectiveness.

The matrix of learning outcomes for module/ subject with reference to verification methods of the intended educational outcomes and forms of instruction:			
Learning outcome code	A student who has obtained a credit for the module/course has the knowledge/skill to:	Methods of verifying the achievement of the intended learning outcomes:	Form of instruction * provide the symbol
E. W5.	Knows the basic principles of prenatal diagnostics and therapy	MCQ	S
E. W7.	Knows and understands the causes, symptoms, diagnostics principles and therapeutic procedures in respect to most common internal diseases in adults and their complications	MCQ,	L, S
E. W24.	Knows basics of early cancer diagnosis and principles of screening programs in oncology	MCQ	L
E. W39	Knows the types of biological materials used in laboratory diagnostics and the principles of specimen collection	MCQ	S, LC
E.W40.	Knows theoretical and practical basis of laboratory diagnostics	MCQ	L, S, LC
E.W41.	Knows and understands possibilities and limitations of laboratory tests in emergencies	MCQ	L
E. W42.	Can list indications to introduce monitored therapy	MCQ	L
E. U12.	Performs differential diagnostics of most common diseases in adults and children	completion of a given assignment	LC
E. U16.	Develops plan for diagnostic, therapeutic and prophylactic procedures	completion of a given assignment	LC
E. U24.	Interprets laboratory results and identifies reasons for deflection from normal	completion of a given assignment	LC
E. U29.	Can perform basic medical procedures, including: i/simple strip tests and blood glucose measurement, Urinalysis with using dipstick test	an observation of the student by a supervisor/tutor at given assignment	LC

EXAMPLES OF METHODS VERIFYING THE ACHIEVEMENT OF THE INTENDED LEARNING OUTCOMES:

In terms of knowledge: Oral exam (*non-standardized, standardized, traditional, problem-based*).

Written exam – the student produces/identifies answers)*essay, report; structured short-answer questions /SSQ/; multiple choice questions /MCQ/; multiple response questions /MRQ/; matching test; true/false test; open cloze test*)

In terms of skills: practical exam; Objective Structured Clinical Examination /OSCE/; Mini-CEX (mini – clinical examination); completion of a given assignment; project, presentation.

In terms of social competences:

A reflective essay; an extended observation by a supervisor/tutor; 360-degree assessment (feedback from teachers, peers, patients, other co-workers); self-assessment (portfolio included).

Course content: (use keywords referring to the content of each class following the intended learning outcomes):

Lectures:

1. Laboratory diagnostics of calcium and phosphorus homeostasis.
2. Tumor markers.
3. Laboratory diagnostics of porphyria's, hemochromatosis and Wilson disease.
4. POCT.
5. Monitored therapy.

Seminar:

1. Principles of laboratory test interpretation. Specimen collection and processing. Reliability of laboratory test: analysis of clinical aspects of laboratory tests like sensitivity, specificity and predictive values. Quality assurance in laboratory.
2. Prenatal laboratory tests.
3. Laboratory diagnostics of selected autoimmune disorders.

Laboratory class:

1. Laboratory diagnostics of water, electrolytes and acid-base balance disturbances. Laboratory diagnostics of hypo- and hyper hydration, acidosis and alkalosis. Analysis of blood gasses results.
2. Laboratory diagnostics of kidney disorders. Diagnostic usefulness of creatinine, urea, uric acid, eGFR, GFR in acute and chronic renal failure diagnostics. Urinalysis.
3. Diagnostic enzymology. Laboratory diagnostics of stomach, pancreas, liver and intestines disorders.
4. Laboratory diagnostics of plasma proteins homeostasis (total protein, ESR, SPE). Acute phase reactants in diagnosis and monitoring of inflammatory processes. Methods of serum proteins determination and division; electrophoresis and immunofixation of serum and urine in physiology and selected disorders.
5. Lipidogram. Laboratory diagnostics of lipids and lipoproteins metabolism abnormalities: dyslipidemias and dyslipoproteinemias; cardiovascular risk evaluation; atherosclerosis markers. Laboratory diagnostics of myocardial infarction and hypertension.
6. Laboratory assessment of endocrine disorders part I and II.
7. Laboratory tests for diabetes diagnosis and management. Glucose measurement.
8. Blood morphology parameters. Laboratory diagnostics of red blood cells disorders.
9. Laboratory diagnosis of white blood cells disorders.
10. Laboratory diagnostics of hemostasis and platelets disorders.
11. Blood groups systems and pre-transfusion testing.

Obligatory literature:

The lectures and classes given materials

1. Laposata's Laboratory Medicine Diagnosis of Disease in Clinical Laboratory Third Edition 3rd Edition, 2019
2. McClatchey Kenneth D. : Clinical Laboratory Medicine. Lippincott & Williams 2001 Mayne

Complementary literature:

- Bishop M.L., Fody E.P., Schoeff L.: Clinical Chemistry: Principles, procedures, correlations, Lippincott Williams & Wilkins 2017

Requirements for didactic aids (e.g. laboratory, multimedia projector, others...)

1. Multimedia projector, computer or notebook
2. Urine dipstick analyzer and urine dipstick tests
3. Glucometer
4. Microscope
5. Disposable gloves, laboratory equipment
6. Office supplies, color markers, whiteboard

Conditions for obtaining a credit for the subject:

Presence and active participation in the laboratory classes, seminars and lectures. Passing of 3 partial tests and final test.

1. The **Partial tests / Partial test - e-learning Moodle platform** consists of: test with 20 multiple choice questions and a “case to analysis” which cover knowledge from given classes. Students need to pass all of the three partial quizzes to be allowed to take the Final Test.

- Students may receive maximum 20 points from test and 10 points from a “case analysis” which gives 30 points from the whole Partial Quiz
- Students need to obtain minimum 60% of positive answers (12 points) from test part and 6 points from “case” part of Partial Quiz to have a passing grade from every Block of classes.
- In the case of failure of Partial Quiz students have maximum 2 retakes in the term stated by respective Teacher
- The final score will be counted as a mean from the summed points

During the semester students may obtain maximum 90 points from partial quizzes.

2. Students also obtain points from Teachers during the classes which will be given by analyzing theirs:

- activity/knowledge/skills(maximum 0-3 points) especially during practical classes

3. Students who were present on every lecture obtain 1 point

Summary: during the semester students may reach: 90 points from quizzes, 9 points from classes and 1 point from lecture presence which gives 100 points.

4. The **Final Test / Final test e-learning MOODLE platform** is a multiple choice questions test and consists of 100 questions. Test questions cover knowledge from given classes and lectures. Students need to obtain min. 60% of positive answers to pass the test and take the final evaluation. In the case of failure students have possibility of two retake terms. The Final score will be counted as a mean value from the Final test and retake/retakes.

5. **Final evaluation algorithm: $(0,6 \times \text{points from Final Test}) + (0,4 \times \text{points obtained during the class and lectures})$**

Grading:

- (2) failed: less than 60 points
- (3) satisfactory: 60-67 points
- (3,5) fairly good: 68-76 points
- (4) good: 77-82 points
- (4,5) better than good: 83-89 points
- (5) very good: 90-100 points

Rules for Students:

- The presence during laboratory classes and seminars is obligatory. Presence on lectures is optional.
- Students are allowed to have only one unjustified absence per semester
- A medical certificate or other documents must be provided not later than within two weeks after the last evidenced day of an absence. The maximum absence cannot be more than 20%. If the absence is longer or the a

more than one unjustified absences student is not allowed to take the final test.

- If student is absent on the Final test excuse for the absence should be submitted to the examiner on the same day of the final test, or in justified circumstances, within three days after the final test.

All other details regarding class, seminars and lectures attendance, absences, tardiness, uniforms, missed exams/assignment are recorded in internal department regulations and will be presented to Students during the first laboratory class

The name and address of the department/clinic where the course is taught (module/course); contact details (phone number/ email address):

Chair and Department of Laboratory Diagnostics, Collegium Universum Lublin 20-093, ul. Chodźki 1, phone: 81 4487120

Names of the author/authors of this syllabus:

dr n. farm. Magdalena Hałabiś-Kalinowska

Names of the teacher/teachers conducting classes:

1. dr n. farm. Magdalena Hałabiś-Kalinowska,
2. lek med. Katarzyna Strawa-Zakościelna
3. mgr anal. med. Magdalena Nieśpiałowska
4. dr n. farm. Magdalena Izdebska

Signature of the head of the department/clinic

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Dean's signature

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