



Syllabus for academic year: 2021/2022 Training cycle: 2019/2020 – 2024/2025													
Description of the course													
Course	Laboratory Diagnostics								Group of detailed education results				
									Group code E	Group name Non interventional clinical sciences			
Faculty	Faculty of Medicine												
Major	medicine												
Level of studies	<input checked="" type="checkbox"/> uniform magister studies <input type="checkbox"/> 1 st degree studies <input type="checkbox"/> 2 nd degree studies <input type="checkbox"/> 3 rd degree studies <input type="checkbox"/> postgraduate studies												
Form of studies	<input checked="" type="checkbox"/> full-time <input type="checkbox"/> part-time												
Year of studies	III						Semester:	<input type="checkbox"/> winter <input checked="" type="checkbox"/> summer					
Type of course	<input checked="" type="checkbox"/> obligatory <input type="checkbox"/> limited choice <input type="checkbox"/> free choice / optional												
Language of study	<input type="checkbox"/> Polish <input checked="" type="checkbox"/> English												
Number of hours													
Form of education													
	Lectures (L)	Seminars (SE)	Auditorium classes (AC)	Major Classes – not clinical (MC)	Clinical Classes (CC)	Laboratory Classes (LC)	Classes in Simulated Conditions (CSC)	Practical Classes with Patient (PCP)	Foreign language Course (FLC)	Physical Education (PE)	Vocational Practice (VP)	Directed Self-Study (DSS)	E-learning (EL)
Winter semester:													
Department of Biochemistry and Immunochemistry (Dep. in charge of the course)													
Direct (contact) education ¹													
Distance learning ²													
Summer semester:													
Department of Biochemistry and Immunochemistry (Dep. in charge of the course)													

¹ Education conducted with direct participation of university teachers or other academics

² Education with applied methods and techniques for distance learning



Direct (contact) education						30							
Distance learning	10												
TOTAL per year:													
Department of Biochemistry and Immunochemistry (Dep. in charge of the course)													
Direct (contact) education						30							
Distance learning	10												
Educational objectives (max. 6 items) C1. Acquaintance of the students with the basic and selected specialized laboratory tests applied in diagnosis. C2. Providing guidance concerning methods of biological material collection for diagnostic tests. C3. Acquaintance of the students with laboratory diagnostics algorithms applied in recognition, differentiation and monitoring of organ and systemic disorders treatment. C4. Formation of appropriate ethical attitude as well as abilities of cooperation of physician with diagnostic laboratory C5. Development social competences needed to practice the medical profession, in accordance with graduate's profile.													
Education result for course in relation to verification methods of the intended education result and the type of class:													
Number of detailed education result	Student who completes the course knows/is able to					Methods of verification of intended education results	Form of didactic class <i>*enter the abbreviation</i>						
E. W3.	In terms of knowledge the graduate knows and understands: the causes, symptoms, principles of diagnosis and therapeutic management of the diseases that are most frequent in children: 4) anaemias, haemorrhagic diathesis, bone marrow failure, childhood cancers, including solid tumours typical of childhood 5) acute and chronic abdominal pain, vomiting, diarrhoea, constipation, gastrointestinal bleeding, peptic ulcer disease, inflammatory bowel diseases, pancreatic diseases, cholestasis and liver diseases and other acquired diseases and congenital defects of the gastrointestinal tract 6) urinary tract infections , congenital defects of the urinary tract, nephrotic syndrome, kidney stones, acute and chronic renal failure, acute and chronic nephritis , systemic kidney diseases, urinary disorders, vesicoureteral reflux disease 7) growth disorders, thyroid and parathyroid diseases, adrenal diseases, diabetes, obesity , puberty and gonadal function disorders					Written tests in the form of MCQ, MRQ tests, YES / NO choice, answer matching, with open questions. Standardized oral tests aimed at checking knowledge at the level of understanding, analysis, synthesis and problem-solving.	L, LC						
E. W7.	the causes, symptoms, principles of diagnosis and therapeutic management of the most common internal diseases affecting adults and their complications: 1) cardiovascular diseases, including ischaemic heart disease, heart defects, diseases of the endocardium, heart						L, LC						



	<p>muscle, pericardium, heart failure (acute and chronic), arterial and venous vascular diseases, hypertension - primary and secondary, pulmonary hypertension</p> <p>3) diseases of the digestive system, including diseases of the oral cavity, oesophagus, stomach and duodenum, intestines, pancreas, liver, bile ducts and gallbladder,</p> <p>4) endocrine diseases, including hypothalamus and pituitary, thyroid, parathyroid gland, cortex of the adrenal gland and suprarenal medulla, ovarian and testicular diseases and neuroendocrine tumours, polyglandular syndromes, different types of diabetes mellitus and metabolic syndrome - hypoglycaemia, obesity, dyslipidaemia</p> <p>5) kidney and urinary tract diseases, including acute and chronic renal failure, glomerular and interstitial kidney diseases, renal cysts, kidney stones, urinary tract infections, and urinary tract tumours, in particular of the bladder and kidney</p> <p>6) haematopoietic diseases including bone marrow aplasia, anaemia, granulocytopenia and agranulocytosis, thrombocytopenia, acute leukaemias, myeloproliferative neoplasms and myelodysplastic/ myeloproliferative neoplasms, myelodysplastic syndromes, mature B and T cell neoplasms, haemorrhagic diathesis, thrombophilia, life-threatening conditions in haematology, blood disorders in diseases of other organs,</p> <p>9) water-electrolyte and acid-base disorders: states of dehydration, states of overhydration, electrolyte disturbances, acidosis and alkalosis</p>		
E.W24	the basics of early cancer detection and principles of screening in oncology		L
E.W39	the types of biological materials used in laboratory diagnosis and the principles for collecting material for tests		L, LC
E.W40	the theoretical and practical background of laboratory diagnostics		L, LC
E.W41	the possibilities and limitations of laboratory tests in emergencies		L, LC
E.W42	the indications for implementing monitored therapy		L
E.U12	In terms of skills the graduate is able to: perform differential diagnosis of the most common diseases of adults and children	Direct observation of the student's research activity during the practical performance of laboratory determinations. Student's social communication skills, including in a multicultural group.	LC
E.U14	recognise immediate life-threatening conditions		
E.U15	recognise the state of a person under the influence of alcohol, drugs and other stimulants		
E.U24	interpret laboratory test results and identify causes of deviations from the norm		
E.U29	perform basic medical procedures and treatments including: 9) simple strip tests and blood glucose measurement		
* L- lecture; SE- seminar; AC- auditorium classes; MC- major classes (non-clinical); CC- clinical classes; LC- laboratory classes; CSC- classes in simulated conditions; PCP- practical classes with patient; FLC- foreign language course; PE- physical education; VP- vocational practice; DSS- directed self-study; EL- E-learning			
Student's amount of work (balance of ECTS points):			

Student's workload (class participation, activity, preparation, etc.)	Student Workload
1. Number of hours of direct contact:	30
2. Number of hours of distance learning:	10
3. Number of hours of student's own work:	15
4. Number of hours of directed self-study	n/a
Total student's workload	55
ECTS points for course	1,5
Content of classes: (please enter topic words of specific classes divided into their didactic form and remember how it is translated to intended educational effects)	
<p>Lectures</p> <p>All lectures will be performed online with Microsoft Teams platform.</p> <ol style="list-style-type: none"> The role of laboratory tests in the modern process of diagnosis and treatment of organ and systemic diseases. (1 h) The variability of the laboratory result - the assessment of factors. Cooperation between the doctor and diagnostic laboratory. (1 h) Laboratory diagnostics of thyroid diseases. (1h) Laboratory diagnostics of hypothalamus, pituitary and adrenal diseases. (1 h) Laboratory diagnostics of the secretory function of the gastrointestinal tract. (2 h) Clinical enzymology. (1h) Laboratory diagnostics of heart diseases. (1h) Tumor markers. (1h) Final test. (1h) 	
<p>Seminars</p> <ol style="list-style-type: none"> Not applicable <p>ect.</p>	
<p>Classes</p> <ol style="list-style-type: none"> Principles of collecting and handling biological material and causes of pre-laboratory and laboratory errors. (3h) Basics of diagnostics of the white and red blood cells. (2h) Laboratory diagnosis of clinical acid-base imbalances. (3h) Laboratory diagnostics of anemia. (2h) Laboratory diagnostics of the coagulation system. (3h) Laboratory diagnostics of calcium metabolism disorders. (2h) Laboratory diagnostics of urine, faeces and body fluids. (3h) Laboratory diagnostics of urinary tract diseases. (2h) Laboratory diagnostics of lipid metabolism disorders. (3h) Laboratory diagnostics of liver diseases. (2h) Laboratory diagnostics of selected metabolic disorders: diabetes, insulin resistance, metabolic syndrome. (3h) 	
<p>Other</p> <ol style="list-style-type: none"> Consultations <p>ect.</p>	
<p>Basic literature (list according to importance, no more than 3 items)</p> <ol style="list-style-type: none"> Lecture Notes: Clinical Biochemistry 9th edition, Beckett G. et all., Wiley-Blackwell, 2013, ISBN 978-1-118-71510-9 	



2. Wallach's Interpretation of Diagnostic Tests 11th Edition, Williamson M.A., Snyder L.M., 2020, ISBN 9781975105587.
3. Fundamentals of Urine and Body Fluid Analysis 4th Edition, Brunzel N.A., 2016, ISBN 9780323374798, Elsevier

Additional literature and other materials (no more than 3 items)

1. Clinical Chemistry 9th Edition, Marshall W., et al., 2020, ISBN 9780702079368, Elsevier
2. Textbook of Biochemistry with clinical correlation 7th Edition, Devlin T.M., 2010, ISBN 9780470281734

Preliminary conditions: (minimum requirements to be met by the student before starting the course)

Students should have the knowledge covering the material in physiology, pathophysiology, biochemistry and pathomorphology at the level required for the students of Medical Faculty.

Conditions to receive credit for the course: (specify the form and conditions of receiving credit for classes included in the course, admission terms to final theoretical or practical examination, its form and requirements to be met by the student to pass it and criteria for specific grades)

In order to receive credit for laboratory diagnostics it is compulsory to actively participate in practical classes, properly conduct experiments designed in the course plan, obtain credit for laboratory reports prepared on the basis of experimental results, participate in lectures, and take the final test.

Students' attendance at the classes is compulsory. All of the absences must be made up for in the form of an additional assignment delivered by the teacher. Absences include classes on which the student was absent because of justified reasons as well as rector's days and dean's hours.

The final test comprises theoretical material from lectures and practical classes.

Students' achievements during the course are evaluated in accordance with the scale given below:

Grade:	Criteria for courses ending with a grade ³
Very Good (5.0)	≥ 93% of maximal points
Good Above (4.5)	≥ 85% of maximal points
Good (4.0)	≥ 77% of maximal points
Satisfactory Plus (3.5)	≥ 69% of maximal points
Satisfactory (3.0)	> 60% of maximal points
	Criteria for courses ending with a credit³
Credit	

Grade:	Criteria for exam ³
Very Good (5.0)	Not applicable
Good Above (4.5)	Not applicable
Good (4.0)	Not applicable
Satisfactory Plus (3.5)	Not applicable
Satisfactory (3.0)	Not applicable

Department in charge of the course:	Department of Biochemistry and Immunochemistry
Department address:	ul. Chałubińskiego 10, 50-368 Wrocław
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³ The verification must cover all education results, which are realized in all form of classes within the course



Person in charge for the course:	dr n.med. Iwona Bednarz-Misa			
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List of persons conducting specific classes:				
Name and surname	Degree/scientific or professional title	Discipline	Performed profession	Form of classes
Iwona Bednarz-Misa	Doctor of Medical Sciences, specialist in medical laboratory diagnostics	Medical sciences and health sciences	Academic teacher	WY, CL
Agnieszka Bronowicka-Szydełko	Doctor of Medical Sciences	Medical sciences and health sciences	Academic teacher	CL
Ireneusz Ceremuga	Doctor of Medical Sciences	Medical sciences and health sciences	Academic teacher	CL
Łukasz Lewandowski	Doctor of Pharmaceutical Sciences	Medical sciences and pharmaceutical sciences	Academic teacher	CL
Paweł Serek	Doctor of Medical Sciences	Medical sciences and health sciences	Academic teacher	CL
Małgorzata Pupek	Doctor of Medical Sciences	Medical sciences and health sciences	Academic teacher	CL

Date of Syllabus development

30.06.2021

Syllabus developed by

Dr n.med. Iwona Bednarz-Misa

Signature of Head(s) of teaching unit(s)

Dean's signature University
Faculty of Medicine
Vice-Dean for Studies
.....prof. Beata Wójciszewska, PhD

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