SYLLABUS

Academic year 2017/2018

Name of a course / module	**Laboratory Diagnostics**	
Name of a department where course is held	**Department of Neurodegeneration Diagnostics**	
E-mail of department	**zdchn@umb.edu.pl**	
Faculty of	Medicine with Division of Dentistry and Division of Medical Education in English	
Name of a field of study	Medicine	
Level of education	First degree studies, Uniform master's degree studies	
Form of study	full time ×	part time ☐
Language of instruction	Polish ☐	English ×
Type of course	obligatory ×	facultative ☐
Year of study / Semester	I ☐ II ☐ III × IV ☐ V ☐ VI ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 × 6 ☐ 7 ☐ 8 ☐ 10 ☐ 11 ☐ 12 ☐
Introductory courses with preliminary requirements	Pathophysiology – realization education effects in the range of knowledge, skills and social competence from the previous years of studies. Introduction to Internal Medicine - realization education effects in the range of knowledge, skills and social competence from the previous years of studies. Introduction to Pediatrics - realization education effects in the range of knowledge, skills and social competence from the previous years of studies. Introduction to Oncology - realization education effects in the range of knowledge, skills and social competence from the previous years of studies. Laboratory Diagnostics course should be teaching at least in parallel with clinical subjects eg. internal medicine, family medicine, oncology, pediatrics, surgery and infectious disease.	
Number of didactic hours with specification of forms of conducting classes	lectures – 20h classes – 40h	
Assumptions and aims of the course	Education in modern diagnostic techniques, interpretation of laboratory tests results in different organic and systemic disturbances, with short discussion about etiology, pathogenesis and clinical symptoms of diseases.	
Didactic methods	- providing knowledge in a form of a lectures - discussion during the classes - presentation of laboratory methods and appliances - case description - consultation (every Monday at 12 - 1 p.m.) - self study - study of the literature	
Full name of the person conducting the course	employed scientific and teaching staff from Department of Neurodegeneration Diagnostics, Department of Biochemical Diagnostics, Department of Hematological Diagnostics and Department of Clinical Laboratory Diagnostics	
Full name of the person responsible for teaching	Prof. dr hab. Barbara Mroczko	

Symbol and number of learning outcomes according to the teaching standards and other learning outcomes	Description of directional learning outcomes	Form of classes	Verification methods for achieving intended learning outcomes
	Knowledge		
E.W7.	Causes, symptoms and principles of diagnostic and therapeutic actions in case of adults' most common internal diseases and subsequent complications: a) circulatory system diseases such as ischemic heart disease, organic heart disease, endocardium heart disease, heart muscle disease, pericardium heart disease, heart failure (acute and chronic), arterial angiopathy, venous angiopathy, primary and secondary arterial hypertension, pulmonary hypertension; b) respiratory system diseases such as airways diseases, chronic obstructive pulmonary disease, bronchial asthma, bronchiectasia, fibrocystic disease, respiratory system infections, interstitial pulmonary disease, pleural disease, mediastinal disease, central and obstructive sleep apnea disorder, acute and chronic respiratory failure, respiratory neoplasm; c) digestive system diseases, including oral cavity disease, esophagus disease, stomach disease, duodenum disease, enteropathy, pancreas disease, liver disease, bile ducts disease, gallbladder disease; d) endocrine system diseases, among others hypothalamus-pituitary disease**,** thyroid disease, parathyroid glands disease, adrenal cortex and adrenal medulla diseases, ovariopathy, testicles disease, neuroendocrine tumors, multiple endocrine syndrome, different types of diabetes mellitus and metabolic syndrome such as hypoglycaemia, obesity and dislipidaemia; e) renal and urinary tracts diseases: acute and chronic renal failure, renal glomerular disease, interstitial renal disease, renal cysts, nephrolithiasis, urinary system infections, urinary system neoplasm, especially bladder and renal neoplasm f) hematopoietic system diseases: panmyelophthisis, anemia granulocytopenia and agranulocytosis, thrombocytopenia, acute leukemia, myeloproliferative and myelodysplastic neoplasms, myelodysplastic syndromes, B and T lymphocyte neoplasms, hemorrhagic diathesis, thrombophilia, life-threat situation in hematology**,** blood disorders in different organ diseases; g) rheumatic disease: connective tissue systemic diseases, vessel inflammation systemic diseases, joints inflammation with the spine affected **,** metabolic bone diseases – osteoporosis, degenerative joint disease and gout disease, in particular; h) allergic diseases, among others anaphylaxis,	lectures and classes	<u>Summarizing methods</u> - written exam (test) <u>Forming methods</u> - observation of the student's work - evaluation of the activity in the classroom - assessment of preparation for classes - discussion in class - case description

	anaphylactic shock and Quincke's edema, i) water-electrolyte and acid-alkaline disorders such as dehydration, overhydration, water-electrolyte equilibrium disorder, acidosis and alkalosis;		
E.W37	Types of biological materials used in a laboratory diagnosis; standards of sampling	lectures and classes	
E.W38	Theoretical and practical standards of laboratory diagnoses	lectures and classes	
E.W39	Possibilities and limitations of laboratory examinations in the emergency case	lectures and classes	
Skills			
E.U24	Interpreting laboratory results and identifying causes of differences	classes	Summarizing methods - written exam (test) Forming methods - observation of the student's work - evaluation of the activity in the classroom - assessment of preparation for classes - discussion in class - case description
E.U28	Collecting test materials for laboratory diagnoses	classes	
Social competence			
	He /She recognizes his/her own diagnostic and therapeutic limitations, educational needs, planning of educational activity		Summarizing methods Continuous assessment by teachers (observation) Forming methods - observation of the student's work - discussion in class - opinion od colleagues
	He /She is able to work in a team of professionals, in a multicultural and multinational environment		
	He /She implements the principles of professional camaraderie and cooperation with representatives of other professionals in the range of health care		
	He /She observes doctor-patient privilege; and patient rights		

ECTS points	**5**
Student Workload	
Form of activity	**Number of hours to complete the activity**
Classes that require the participation of a teacher	
1. Realization of the course: lectures (according to the curriculum)	15×1,33 h = 20 h
2. Realization of the course: classes (according to the curriculum)	15×2,67 h = 40 h
3. Realization of the course: seminars; (according to the curriculum)	-
4. Realization of the course: electives	-
5. Participation in consultation	15 h
6. Final exam	2 h
	Total hours:77 h
Student self-study	
1. Preparation for the theoretical and practical classes (realization of projects, documentation, case description etc.)	15×2 h = 30 h
2. Preparation for tests/credits	15 h

3. Preparation for an exam/final test-credit	5 h
	Total hours: 50 h

Course contents:	
Learning outcomes (symbol and number)	**Topics**
E.W7. - Causes, symptoms and principles of diagnostic and therapeutic actions in case of adults' most common internal diseases and subsequent complications: a) circulatory system diseases such as ischemic heart disease, organic heart disease, endocardium heart disease, heart muscle disease, pericardium heart disease, heart failure (acute and chronic), arterial angiopathy, venous angiopathy, primary and secondary arterial hypertension, pulmonary hypertension; b) respiratory system diseases such as airways diseases, chronic obstructive pulmonary disease, bronchial asthma, bronchiectasia, fibrocystic disease, respiratory system infections, interstitial pulmonary disease, pleural disease, mediastinal disease, central and obstructive sleep apnea disorder, acute and chronic respiratory failure, respiratory neoplasm; c) digestive system diseases, including oral cavity disease, esophagus disease, stomach disease, duodenum disease, enteropathy, pancreas disease, liver disease, bile ducts disease, gallbladder disease; d) endocrine system diseases, among others hypothalamus-pituitary disease**,** thyroid disease, parathyroid glands disease, adrenal cortex and adrenal medulla diseases, ovariopathy, testicles disease, neuroendocrine tumors, multiple endocrine syndrome, different types of diabetes mellitus and metabolic syndrome such as hypoglycaemia, obesity and dislipidaemia; e) renal and urinary tracts diseases: acute and chronic renal failure, renal glomerular disease, interstitial renal disease, renal cysts, nephrolithiasis, urinary system infections, urinary system neoplasm, especially bladder and renal neoplasm f) hematopoietic system diseases: panmyelophthisis, anemia granulocytopenia and agranulocytosis, thrombocytopenia, acute leukemia, myeloproliferative and myelodysplastic neoplasms, myelodysplastic syndromes, B and T lymphocyte neoplasms, hemorrhagic diathesis, thrombophilia, life-threat situation in hematology**,** blood disorders in different organ diseases; g) rheumatic disease: connective tissue systemic diseases, vessel inflammation systemic diseases, joints inflammation with the spine affected **,** metabolic bone diseases – osteoporosis, degenerative joint disease and gout disease, in particular; h) allergic diseases, among others anaphylaxis, anaphylactic shock and Quincke's edema, i) water-electrolyte and acid-alkaline disorders such as dehydration, overhydration, water-electrolyte equilibrium disorder, acidosis and alkalosis; E. W.37. - types of biological materials used in a laboratory diagnosis; standards of sampling E.W.38. - theoretical and practical standards of laboratory	**LECTURES:** • Markers of malignant neoplasms. • Plasma proteins in laboratory diagnostics. Diagnostic enzymology. • Laboratory diagnostics of water and electrolyte balance disorder. • Laboratory diagnostics of acid-base balance. Laboratory diagnostics of bone metabolism disorders. • Laboratory diagnostics of atherosclerosis and lipid status disorders. • Laboratory diagnostics of endocrine disorders. Diabetes mellitus. • Laboratory blood tests of kidney diseases. • Diagnostic value and quality control of laboratory tests. • Laboratory diagnosis of erythropoiesis disorders. Laboratory diagnosis of myeloproliferative and lymphoproliferative disorders. • Diagnosis of hemostasis disorders. • Laboratory investigations of human organism excrements and secretions. • Immunological diagnostics of parasitological diseases. • The role of laboratory medicine in the diagnosis of diseases. Pre-analytical errors. The diagnostics differences depended on sex and age. **CLASSES:** • Urinalysis of kidney and urinary tract diseases. • Laboratory tests in diabetes mellitus (DM). • Laboratory diagnostics of acute and chronic inflammatory states. • Plasma proteins. • Laboratory tests in endocrinology. • Diagnostic significance of peripheral blood morphology. • Blood cell differential count- diagnostic significance. • Hemostasis- basic tests. • Water, electrolytes and acid-base balance. • Clinical enzymology. • Laboratory tests of cerebrospinal fluid (CSF) and other fluids from body cavities. • Laboratory diagnostics of alimentary tract disorders and parasitological diseases. • Tumor markers. • Lipid status. • Laboratory diagnostics of emergency states.

diagnoses E.W39. – possibilities and limitations of laboratory examinations in the emergency case E.U15. – recognizing conditions indicating consumption of alcohol, drugs or other stimulants E.U16. - planning diagnostic, therapeutic and preventive procedures	

Obligatory textbook:

1. Marshall WJ, Bangert SK: „Clinical Chemistry". Mosby 2005
2. Kemona H. Laboratory diagnostics of selected clinical conditions: academic students book. 2016.

Optional textbook:

1. Lichtman M. et al.: Manual of Hematology. 6th edition, Williams, McGraw-Hill, Medical Publishing Division, 2003.
2. Pagana, Deska-Pagana: „Mosby's manual of diagnostic and laboratory tests". Elsevier 2006.

Criteria for assessing the achieved learning outcomes and the form and conditions for receiving credit:

Attendance during lectures and exercises is mandatory.

1. Students take exercises only in the groups to which they are assigned according to the timetable. In random situations, doing exercises with another group is possible only after prior contact with the Teaching Coordinator.
2. Scores criteria (classes and exam):
   To pass the exercise, the student need to achieve 60% of the knowledge in the current class.
   - >60% - satisfactory
   - 61-70% - quite good
   - 71-80% - good
   - 81-90% - more than good
   - >90% - very good
3. For all classes (exercices and lectures) students should report on time. Three lateness equal one absence. An unjustified presence is equivalent to not attending the exercise.
4. Retake of the classes is possible after giving a medical leave or a dean's leave certificate within 7 days after the end of the absence period.
5. In random situations, the assignments of abandoned classes are made after prior contact with the Teaching Coordinator.
6. Students are required to prepare themselves for classes from the obligatory literature and lectures in accordance with the schedule and to participate actively in the exercises. A written or oral test may be performed on each exercise.
7. The condition for completing the exercises is to complete the didactic effects described in the sylabus at least at a satisfactory level. The obtained score is entered into the student card. Student is informed about the results of his written work and the final assessment directly by the teacher.
8. Each time the obtained score is entered into the student card. Student is informed about the results of his written work and the final assessment directly by the teacher.
9. It is mandatory to pass at least 14 exercises in order to take an exam.
10. The final exam is a written test that covers verification of aquired didactic effects described in the syllabus.
11. A student who got an average grade at least 4,5 will get final grade at the exam raised by half ot the grade.
12. A justified absence on the exam allows to take the next exam date - the justification must be provided within 7 days of the exam date (medical leave certificate or Dean's leave certificate). Unjustified absence equals to not taking the retake.
13. In case of doubts concerning the course of a lectures or classes, the student has the right and obligation to contact the Teaching Coordinator.

28.09.2017, Dr Paweł Muszyński
(date and signature of the person preparing the syllabus)

28.09.2017, Prof. Barbara Mroczko

(date and signature of the Head of the Department where the course is held)

and

Prof. Barbara Mroczko

(course coordinator)