



COURSE UNIT DESCRIPTION

Course unit title		Code	
PATHOLOGY (for odontology students)		PAT02115	
Lecturer(s)		Department(s)	
Coordinating: Prof. dr. Arvydas Laurinavičius Others: Prof. dr. Dainius Characiejus, Lect. Skirmantė Jokubauskienė.		Vilnius university, Faculty of Medicine, department of Pathology, Forensic Medicine and Pharmacology, M. K. Čiurlionio g. 21, Vilnius	
Cycle	Level of the course unit	Type of the course unit	
cycle (integrated studies)		Compulsory	
Mode of delivery	Period of delivery	Language of instruction	
Face-to-face	III semester	Lithuanian and English	
Prerequisites and corequisites			
Prerequisites: A student must have completed the following courses: Human anatomy, histology, physiology, biochemistry, genetics, microbiology.		Corequisites (if any): no	
Number of ECTS credits allocated to the course unit	Total student's workload	Contact hours	Self-study hours
5 credits	134	67	67

Purpose of the course unit		
Programme competences to be developed		
To provide the students with basic knowledge of disease processes, causes and mechanisms of development, to familiarize with pathologic basis of laboratory and tissue pathology features of a disease, developing skills of recognizing, interpreting and communicating pathology features of the disease.		
Learning outcomes of the course unit	Teaching and learning methods	Assessment methods
Competences		
On graduation, a dentist must be competent in a wide range of skills, including investigative, analytical, problem solving, planning, communication and presentation skills and has to demonstrate a contemporary knowledge and understanding of the broader issues of dental practice.	Lectures, seminars and practical tasks, analysis of clinical situations	Continuous assessment of theoretical knowledge and practical skills: quiz in writing (including tests), solutions to theoretical clinical situations (long and short clinical cases). Main methods of assessment: Cumulative points (CP): CP=X(20%)+Y(30%)+Z(50%)=100% X – continuous assessment during seminars and practical tasks; Y – stage control (colloquiums) Z – end control (examination in written)
On graduation a dentist must be competent to communicate effectively, interactively and reflectively with patients, their families, relatives and carers and with other health professionals involved in their care, irrespective of age, social and cultural background.	Lectures provide insights into essential knowledge on the topic and concentrate on principles of understanding pathology findings of clinical relevance. Most of the lectures are available in the digital format and can be downloaded from the VU ESEC. During the seminars students briefly discuss with tutor most important issues of the topic. Major stress is made on analysis of clinical cases with corresponding pathology images. A phenomenological approach is used to analyze clinical	
On graduation a dentist must be competent to apply knowledge and understanding of the basic biological, medical, technical and clinical sciences in order to recognize the difference between normal and pathological		

<p>conditions/disorders relevant to clinical dental practice and understand the bases of these.</p> <p>On graduation, the dentist must be competent at demonstrating appropriate information literacy to acquire and use information from library and other databases and display the ability to use this information in a critical, scientific and effective manner. A dentist should demonstrate an ability to maintain their professional knowledge and understanding throughout their professional life.</p>	<p>and laboratory manifestations of the disease as well as the results of pathology tests to arrive to the most adequate diagnosis. Diagnostic and communication skills of the students are developed in the process of the case-based study. At the same time, students learn practical issues of pathology diagnosis in contemporary medicine.</p>	
<p>On graduation dentist must be competent at in decision-making, clinical reasoning in order to develop a differential, provisional or definitive diagnosis and treatment of emergency cases connected with dental treatment and with general patient status like anaphylaxis etc. and should be competent to refer on for an appropriate specialist opinion.</p>		
<p>On graduation, a dentist must be competent in decision-making, clinical reasoning and judgement in order to develop a differential, provisional or definitive diagnosis by interpreting and correlating findings from the history, clinical and radiographic examination and other diagnostic tests, taking into account the social and cultural background of the patient. A dentist must be competent at formulating and recording a diagnosis and treatment plan which meets the needs and demands of patients. For treatments that are beyond their skills, a dentist should be competent to be able to refer on for an appropriate specialist opinion and/or treatment.</p>		

Topics	Contact work hours							Time and tasks of self-study	
	Lectures	Consultations	Seminars	Practice	Laboratory work	Practical training	Total contact hours	Self-study	Tasks
1. Introduction to pathophysiology. General nosology	2			2				4	Tasks and methods of pathophysiology discipline. Relationship with other disciplines. General nosology. Health and disease. Principles of classification of diseases. Etiology and pathogenesis of diseases. Vicious circle (circulus vitiosus) in disease pathogenesis. Periods of diseases.
2. Pathophysiology of body homeostasis	4			6				5	Pathophysiology of hypoxia and oxidative stress. Pathophysiology of

									water and electrolyte exchange. Disturbances of acid-base balance. Pathogenesis of acidosis and alkalosis. Pathophysiology of carbohydrate metabolisms. Diabetes mellitus. Fat metabolism. Pathophysiology of obesity, metabolic syndrome.
3. Pathophysiology of hematopoetic system	4			6					5 Red blood cells. Classification of anemias according to pathogenesis: posthemorrhagic, hemolytic, anemias due to inadequate red blood cell production. Leukocyte formula, significance in diagnosis of disease, leukocytosis, leukocytopenia. Pathophysiology of hemostasis. Significance of blood vessel wall, platelets, clotting factors.
4. Pathophysiology of pain	2			2					4 Causes of pain. Pain pathways. Theory of pain and pain control. Characteristics of pain: signs and symptoms; referred pain; phantom pain; factors affecting pain perception and response. Acute and chronic pain. Pain control. Methods of managing pain.
5. Pathophysiology of extreme states	2			2					4 Pathophysiology of stress response. Neuroendocrine changes during stress. Stages of general adaptation syndrome. Pathophysiology of shock. Types of shock according to pathogenesis.
6. Cell and tissue injury. Circulatory disorders	2			2,5					6 Reversible and irreversible cell damage. Apoptosis. Necrosis. Connective tissue injury. Hyperemia, general and local. Edema. Bleeding, internal and external. Thrombosis. Embolism. Ischaemia. Infarction.
7. Pathologic accumulations.	2			2,5					6 Accumulation of fatty substances. Steatosis. Obesity. Atherosclerosis. Accumulation of protein material. Paraproteinemia. Amyloidosis. Hyalinosis. Pigment accumulation. Antracosis. Hemosiderosis, local and systemic. Hemochromatosis. Pathologic calcification. Urolithiasis.
8. Inflammation. Immunopathology. Autoimmunity.	4			2,5					9 Biological significance. Acute inflammation of the regulation, phase and morphology. Acute inflammation of the types and outcomes. Chronic inflammation. Granulomatous inflammation of the phases and types. Granulomatous disease, sarcoidosis, tuberculosis. Immune tissue injury mechanisms (hypersensitivity reactions). Autoimmune diseases: Sjogren's syndrome.
9. Cell and tissue adaption	2			2,5					6 Cell cycle. Regeneration. Wound healing. Sclerosis. Hyperplasia. Hypertrophy. Atrophy. Metaplasia. Dysplasia.
10. Neoplasia	2			2,5					6 Tumour definitions and nomenclature. Tumor progression. Tumor and host interaction. Histology features. Benign and malignant tumors. Prognostic and predictive features of tumour tissue.
12. Oral Pathology-1	2			2,5					6 Teeth and jaw pathology. Jaw cysts: odontogenic, pseudocysts. Oral mucosal lesions in other diseases. Keratoses and diskeratoses. Bullous dermatosis. Stomatitis. Diffuse forms of stomatitis: catarrhal, herpetic, ulcerative-necrotizing. Granulomatous inflammation of the oral cavity: Crohn's disease, syphilis, tuberculosis. Leukoplakia, dysplasia, erythroplakia, ca in situ. Benign epithelial tumors. Malignant tumors. Salivary gland pathology: sialoadenoses. Sialoadenitis. Sjögren's syndrome. Tumors of salivary gland. Tonsillitis. Diphtheria. Scarlet
13. Oral Pathology-2	2			2,5					6

									fever. Specific tonsillitis in tuberculosis, sarcoidosis. Lymphoproliferative disorders. Barrett's esophagus. Esophageal tumors (squamous carcinoma, adenocarcinoma). Gastritis. Ulcers. Stomach cancer. Helicobacter pylori infection. Crohn's disease. Ulcerative colitis.
Total	30			36			67	67	

Assessment strategy	Weight (%)	Assessment period	Assessment criteria																					
Main method of assessment <u>Cummulative points:</u> $CP = X\% + Y\% + Z\% = 100\%$ X – continuous assessment during seminars and practical tasks Y – stage control (test, colloquium) Z – final control (test, examination)	X20%	During seminars	Continuous assessment of theoretical knowledge and practical skills: quiz in writing, solutions to theoretical clinical situations. If a student did not participate in the seminar or did not take the test, the test is evaluated at zero score.																					
	Y30%	During semester	2 assessment tests are carried during the semester. The tests are written. A percentage of correct answers is scored. The tests are provided only once and at the appointed time. If sound and documented reason prohibits a student to take the test at the time appointed, 1 test during the course can be skipped without impact to the cumulative score. In other cases, a missed test is estimated at zero score.																					
	Z50%	At the end of pathology course.	Students who achieved average of X or Y tests at 90% at the end of both semesters are awarded 10 final score without taking the examination (Z) test. Final examination is based on a written (computer) test in pathophysiology, anatomic pathology and immunology. Final grade is calculated based on the rank: <table border="1" data-bbox="829 1176 1428 1534"> <thead> <tr> <th>Cummulative score, %</th> <th>Final grade</th> </tr> </thead> <tbody> <tr><td>≥10.00</td><td>1</td></tr> <tr><td>≥20.00</td><td>2</td></tr> <tr><td>≥30.00</td><td>3</td></tr> <tr><td>≥40.00</td><td>4</td></tr> <tr><td>≥50.00</td><td>5</td></tr> <tr><td>≥55.00</td><td>6</td></tr> <tr><td>≥65.00</td><td>7</td></tr> <tr><td>≥75.00</td><td>8</td></tr> <tr><td>≥80.00</td><td>9</td></tr> <tr><td>≥85.00</td><td>10</td></tr> </tbody> </table>	Cummulative score, %	Final grade	≥10.00	1	≥20.00	2	≥30.00	3	≥40.00	4	≥50.00	5	≥55.00	6	≥65.00	7	≥75.00	8	≥80.00	9	≥85.00
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Author	Year of publication	Title	No of periodical or vol. of publication	Publication place and publisher or Internet link																				
Required reading																								
Kumar V, Abbas AK, Fausto N, Aster JC	2010	Pathologic Basis of Disease, 8/E		Saunders/Elsevier																				
Recommended reading																								
Brashers VL.	2006	Clinical applications of pathophysiology. An Evidence-Based approach. 3/E,		Morsby/Elsevier																				
Copstead L-EC, Banasik JL.	2010	Pathophysiology, 4/E		Saunders/Elsevier																				

Stevens A, Lowe J, Scott I.	2009	Core Pathology,3/E,		Morsby/Elsevier
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