

**DESCRIPTION OF COURSE UNIT FOR DOCTORAL STUDIES
AT VILNIUS UNIVERSITY**

Scientific Area/eas, Field/ds of Science	Medical and Health Sciences (M 000): Medicine (M001)			
Faculty, Institute, Department/Clinic	Faculty of Medicine Institute of Clinical Medicine Clinic of Rheumatology, Orthopaedics Traumatology and Reconstructive Surgery			
Course unit title (ECTS credits, hours)	Rheumatology and Musculoskeletal System 9 credits (240 hours)			
Study method	Lectures	Seminars	Consultations	Self-study
Number of ECTS credits	-	-	2	7
Method of the assessment (in 10 point system)	<p>Preparation of presentation and its evaluation: the presentation is on a relevant topic, which is coordinated with the consulting lecturers (the doctoral student must analyse and present the latest scientific literature related to the topic). <u>Criteria for evaluating the presentation (minimum – 5 points):</u></p> <p>a) relevance, novelty of the material, and compliance with the submitted topic (2 points), b) general structure and amount of the presentation, clarity of knowledge, argumentation, and specificity (2 points), c) summary, presentation, and justification of conclusions (1 point), d) emphasis on problematic issues, presentation of knowledge application in the dissertation (3 points), e) use of visual measures, ability to participate in a discussion, answering questions, oratory skills (2 points).</p>			
PURPOSE OF THE COURSE UNIT				
<p>To provide theoretical and practical knowledge about the structure, physiology, congenital and acquired pathology of the human musculoskeletal system, the etiopathogenesis of rheumatic diseases, the importance of epigenetic, sociodemographic factors for their development and course, clinical manifestations, diagnostics, and innovations in treatment.</p>				
THE MAIN TOPICS OF COURSE UNIT				
<p>The structure of the human musculoskeletal system, anomalies of physiological functions. Characteristics of development. Connective tissue development, possible defects, morphology, function, metabolism in cartilage, bone, and muscle. Morphology of bones, cartilage, muscles, tendons, synovium, changes in various pathological processes, their determining factors.</p> <p>Inflammation and musculoskeletal system. The role of cytokines, free radicals, metalloproteinases, oxygen radicals, prostaglandins, leukotrienes, etc. in the development of inflammation. The role of the HLA system, protein coding, antigen-receptor binding. HLA phenotype and disease.</p> <p>Congenital and acquired immunity. Autoimmunity. Apoptosis and defective apoptosis in systemic connective tissue diseases. Activation pathway of cellular and humoral immunity. Possible antigens, cellular and humoral response, types of immune reactions. Immunodeficiency.</p> <p>History of rheumatology in Lithuania and in the world. Etiological and predisposing factors of rheumatic diseases. Epidemiology and burden of rheumatic diseases.</p>				

Classification of rheumatic diseases from an academic and practical point of view. Symptomatology. Syndromes. Differential diagnosis of syndromes. Modern diagnostics of rheumatic diseases. Diagnostic algorithms. Laboratory diagnostics of rheumatic diseases. Tissue morphology, light microscopy, and immunohistochemistry. Cytological techniques. Modern instrumental diagnostics. Image analysis methods in rheumatology. Radiological examination in rheumatology.

Rheumatoid arthritis and its differential diagnosis. Spondyloarthropathies and diseases of this group, their interrelationships and differential diagnosis. Systemic connective tissue diseases: systemic lupus erythematosus, systemic sclerosis and related diseases, mixed connective tissue disease, overlap syndromes, myositis and myopathies, lupus-like syndrome, Sjogren's disease, systemic vasculitides, autoinflammatory and rare rheumatic diseases. Diagnostics of antiphospholipid syndrome. Pregnancy and connective tissue diseases. Diagnosis and differential diagnosis of degenerative diseases of the spine and joints. Soft tissue damage in rheumatology. Musculoskeletal tumors. Rheumatic syndromes in malignancies of other systems. Rheumatic diseases and the risk of cardiovascular diseases. Sexually transmitted diseases and their association with disorders of joints. Impairment of bone density and structure, osteomalacia, osteonecrosis, osteopetrosis, Paget's disease. Microcrystalline arthropathies, their laboratory diagnostics. Amyloidosis and modern methods of its diagnosis, prevention, and treatment.

Modern treatment of rheumatic diseases. The role of diet and nutrition in the treatment of rheumatic diseases, food supplements and vitamins. Pharmacological classification of drugs. Empirical and evidence-based treatment of rheumatic diseases. Biological therapy in rheumatology. Treatment algorithms of rheumatic diseases, the importance of early intervention in rheumatology. Current issues and trends in rheumatology. Clinical trials and links to good clinical practice. Epidemiological and statistical methods in medicine and rheumatology.

RECOMMENDED LITERATURE SOURCES

1. M. C. Hochberg, A. J. Silman, S. Smolen. Rheumatology, 2-Volume Set, 6th Edition, 2015.
2. J.WJ.Bijlsma 2018 EULAR Textbook on Rheumatic Diseases 1-th ed. BMJ group.
3. Csernok E, Bossuyt X. Investigations in systemic vasculitis. The role of the laboratory. *Best Pract Res Clin Rheumatol*. 2018 Feb;32(1):52-62.
4. Patel L, Gizinski AM. A Primer on Rheumatologic Laboratory Tests: What They Mean and When to Order Them. *Prim Care*. 2018 Jun;45(2):181-191.
5. Dörner T, Fleck M. Laboratory diagnostics in rheumatology. *Z Rheumatol*. 2016 May;75(4):354-5.
6. Willis R, Lakos G, Harris EN. Standardization of antiphospholipid antibodytesting – historical perspectives and ongoing initiatives. *Semin Thromb Hemost* 2014;40:172–7.
7. Choi MY, Fritzler MJ. Progress in understanding the diagnostic and pathogenic role of autoantibodies associated with systemic sclerosis. *Curr Opin Rheumatol* 2016;28:586–94.
8. Mandl P, Navarro-Compán V, Terslev L, et al. European League Against Rheumatism (EULAR). EULAR recommendations for the use of imaging in the diagnosis and management of spondyloarthritis in clinical practice. *Ann Rheum Dis*. 2015 Jul; 74(7):1327-39.
9. Rider LG, Ruperto N, Pistorio A et al. International Myositis Assessment and Clinical Studies Group and the Paediatric Rheumatology International Trials Organisation. 2016 ACR-EULAR adult dermatomyositis and polymyositis and juvenile dermatomyositis response criteria-methodological aspects. *Rheumatology (Oxford)*. 2017 Nov 1;56(11):1884-1893.

10. G. S. Firestein, R. C. Budd, S. E. Gabriel, I. B. McInnes, J.R. O'Dell. Firestein & Kelley's Textbook of Rheumatology, 2-Volume Set, 11th Edition, 2020. p 1-131.
https://www.eular.org/recommendations_management.cfm

CONSULTING LECTURERS

1. Coordinating lecturer: Irena Butrimienė (Prof. Dr.).

2. Sigita Stropuvienė (Assoc. Prof. Dr.).

3. Rita Rugienė (Assoc. Prof. Dr.).

4. Dalia Miltinienė (Assist. Prof. Dr.).

APPROVED:

By Council of Doctoral School of Medicine and Health Sciences at Vilnius University:
29th of September 2022

Chairperson of the Board: Prof. Janina Tutkuvienė