

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

<b>Scientific Area/eas, Field/ds of Science</b>	Medical and Health Sciences (M 000): Medicine (M 001)			
<b>Faculty, Institute, Department / Clinic</b>	Medical Faculty Institute of Clinical Medicine Clinic of Children's Diseases			
<b>Course unit title</b> (ECTS credits, hours)	<b>Paediatric Rheumatology</b> (6 credits, 160 hours)			
<b>Study method</b>	<b>Lectures</b>	<b>Seminars</b>	<b>Consultations</b>	<b>Self-study</b>
Number of ECTS credits	-	0,5	1,5	4
<b>Method of the assessment</b> (in 10 point system)	Oral exam, 4 theoretical questions and 1 clinical situation			
<b>PURPOSE OF THE COURSE UNIT</b>				
<p>Make aware of paediatric rheumatic diseases, their etiopathogenesis, classification, current diagnostic and treatment methods, principals of long-term patients' monitoring.</p>				
<b>THE MAIN TOPICS OF COURSE UNIT</b>				
<p><u>Anatomical peculiarities of children's musculo-skeletal system.</u> Bone structure and function. Anatomy and biomechanics of the joints. Connective tissue anatomy and physiology.</p> <p><u>Paediatric rheumatic diseases and genetics.</u> Possibilities of genetic research of rare rheumatic and auto-inflammatory diseases. Investigation of gene coding sequences by next generation sequencing.</p> <p><u>Acquired, innate immunity and autoimmunity.</u> Inflammation and its mediators, Immune response to infection, immune tissue damage, immune cells (T, B lymphocytes, NK cells, cytokines)</p> <p><u>Physical examination of a patient with rheumatic disease, other examination methods.</u> Examination of the musculoskeletal system - pGALS, pREMS. Laboratory, instrumental, radiological examinations, evaluation of their results. Interpretation of immunological tests. Capillaryoscopy and its application in the diagnosis of systemic connective tissue diseases. Intraarticular drug injections. Synovial fluid analysis. Interpretation of skin and muscle biopsy.</p> <p><u>Semiotics of rheumatic diseases in children.</u> Pain in the musculoskeletal system (joints, muscles, bones, entheses) in children and their reasons. Differential diagnosis of joint diseases. Differentiation of skin rashes, baldness, nail damage, mucosal ulcers and their reasons. Eyes, gastrointestinal tract, urinary tract, otorhinolaryngological, genital, endocrine, cardiovascular and respiratory systems involvement in patients with rheumatic diseases.</p> <p><u>Non - inflammatory pain in children 's musculo-skeletal system.</u> Benign joint hypermobility syndrome, "growth pain", fibromyalgia, reflex sympathetic dystrophy, psychogenic pain. Osteochondropathy. Pain associated with overuse: patellofemoral pain syndrome, (<i>chondromalacia patelae</i>), medial wrinkle of knee (<i>plica mediana</i>) syndrome, calf pain, elbow epicondylitis, pain in the musicians' hands.</p> <p><u>Juvenile idiopathic arthritis (JIA).</u> Classification and general features. Systemic juvenile idiopathic arthritis. Juvenile idiopathic oligoarthritis. Juvenile idiopathic polyarthritis without RF. Juvenile idiopathic polyarthritis with RF. Juvenile idiopathic arthritis and enthesitis. Juvenile psoriatic arthritis. Undifferentiated arthritis. Epidemiology, diagnostic criteria, clinic, course and outcome. Uveitis and JIA.</p>				

Systemic connective tissue diseases. Systemic lupus erythematosus. Mixed connective tissue disease. Undifferentiated connective tissue diseases. Antiphospholipid syndrome (primary, secondary), diagnosis, treatment. Neonatal lupus. Juvenile dermatomyositis and other inflammatory diseases of the muscles. Juvenile systemic sclerosis. Local scleroderma and eosinophilic fasciitis. Sjogren's syndrome and Immunoglobulin G4 disease. *Raynaud's* phenomenon and other vasomotor syndromes. Prevalence of diseases, etiology, pathogenesis, clinic, diagnosis, treatment.

Vasculitis. Paediatric vasculitis and their classification. Inflammatory lesions of central nervous system. Immune complexes small vessel vasculitis: IgA vasculitis (*Henoch-Schonlein purpura*) and hypersensitivity vasculitis (leukocytoclastic, hypocomplementemic). Polyarteritis nodosa. *Kawasaki* disease, PIMS (Pediatric Multisystem Inflammatory Syndrome in Covid-19 Infection), their differential diagnosis. ANCA-related vasculitis. *Takayasu* arteritis and other vasculitis. *Behcet's* disease: clinic, diagnosis, treatment. Paniculitis: classification, differential diagnosis (erythema nodosum, *Weber-Christian* disease, etc.).

Immune system dysfunction: auto-inflammatory diseases and immunodeficiency. Periodic fever syndromes and other inherited auto-inflammatory diseases. Auto-inflammatory bone diseases. Childhood sarcoidosis. Macrophage activation syndrome. Primary, secondary immunodeficiency and rheumatic diseases.

Infection and damage of musculoskeletal system in children. Infectious (bacterinic, viral, fungal) arthritis and osteomyelitis. Lyme disease. Reactive arthritis: enteropathic, urogenic, post-respiratory, idiopathic. Reiterio liga: paplitimas, etiologija, patogenezė, klinika, diagnostika, gydymas.

Rheumatic manifestations in non-rheumatic diseases. Malignant bone diseases and related disorders. Bone density, possibilities of its examination, secondary osteoporosis in children. Skeletal dysplasia. Rheumatic manifestation in inflammatory bowel disease. Rheumatic expression of other systemic diseases.

Principles of treatment of rheumatic diseases in children. Pharmacokinetics, pharmacodynamics, dosing principles of non-steroidal anti-inflammatory (NSAID) drugs, glucocorticoids, disease modifying anti-rheumatic (DMARD) drugs (methotrexate, sulfasalazine, cyclophosphamide, azathioprine), biological immunotherapy agents.

Principles of rehabilitation of rheumatic diseases in children: physiotherapy, physical therapy, occupational therapy.

Monitoring and disease exacerbation and progression prevention of children with rheumatic diseases. Children with Rheumatic Diseases Healthcare Team.

## RECOMMENDED LITERATURE SOURCES

1. J.T. Cassidy, R. E. Petty, R. M. Laxer, C. B. Lindsley. Textbook of Pediatric Rheumatology. Elsevier Saunders, 2015.
2. John H. Klippel. Primer on the Rheumatic Diseases. Springer. 2008
3. P.Woo, R.M. Laxer. D.D.Sherry. Pediatric Rheumatology in Clinical Practice. 2013
4. Seyberth, Hannsjörg W., Rane, Anders, Schwab, Matthias Pediatric Clinical Pharmacology, 2011
5. El Miedany, Yasser Musculoskeletal Ultrasonography in Rheumatic Diseases, 2015
6. Nelson Textbook of Pediatrics, 20th edition, 2015
7. Cimaz, Rolando (Ed.). Periodic and non-periodic fevers. Springer, 2020
8. Hashkes, Philip J., Laxer, Ronald M., Simon, Anna (Eds.). Textbook of autoinflammation. Springer, 2019.
9. Edited by Helen E. Foster and Paul A. Brogan. Oxford Specialist Handbooks in Paediatrics. 2018
10. Alan Hakim, Gavin Clunie, Inam Haq. Oxford Handbook of Rheumatology. 2nd edition. 2008 Gavin Spckett. Oxford Handbook of
11. Clinical Immunology and Allergy. 4th edition. 2019.

12. Ross E Petty, Ronald Laxer, Carol Lindsley, Lucy Wedderburn, Robert C Fuhlbrigge, Elizabeth D. Mellins. Textbook of Pediatric Rheumatology (2021)
13. [www.ped-rheum.biomedcentral.com](http://www.ped-rheum.biomedcentral.com)
14. [www.printo.it](http://www.printo.it)
15. [www.eular.org](http://www.eular.org), <https://ern-rita.org/>

### **CONSULTING LECTURERS**

1. Coordinating lecturer: Violeta Panavienė (Assoc. Prof. Dr.).
2. Skirmantė Rusonienė (Assist. Prof. Dr.).
3. Giedrius Bernotavičius (Dr.).

### **APPROVED:**

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

Chairperson of the Board: Prof. Janina Tutkuvienė