

Study program : PHARMACY				
Type and level of studies: Integrated academic studies, Level 1/2				
<b>Course unit: IMMUNOLOGY</b>				
<b>Teacher in charge: Assistant Professor Ilija Jeftic, MD, PhD</b>				
Language of instruction : ENGLISH				
ECTS: 4				
Prerequisites: Enrolled in the fifth block of the study program				
Semester: WINTER SEMESTER				
<b>Course unit objective: Acquiring knowledge in basic immunology and immunomodulation.</b>				
<b>Learning outcomes of Course unit:</b>				
Upon completion of the course in Immunology, the student is expected to acquire the following knowledge:				
<ul style="list-style-type: none"> <li>• learn the basic principles of active and passive immunization,</li> <li>• learn the structure and function of central and peripheral lymphatic organs,</li> <li>• understand the role of immune system in body defense against pathogenic microorganisms,</li> <li>• learn the mechanisms responsible for development of autoimmune diseases,</li> <li>• learn immunopathogenesis of allergic diseases and chronic inflammatory diseases of the respiratory, gastrointestinal, musculoskeletal, central and peripheral nervous systems, as well as therapeutic approaches in the treatment of these diseases,</li> <li>• be able to explain the basic mechanisms of immunomodulatory substances action,</li> <li>• be able to explain the mechanisms of anti-inflammatory drugs action,</li> <li>• understand vaccine technology.</li> </ul>				
<b>Course unit contents</b>				
<i>Theoretical and practical classes:</i>				
<i>MODULE 1: Immunology introduction. Cells and tissues of the immune system. Innate immunity. Molecular mechanisms of inflammation. Antigen presentation. Recognition of antigens in acquired immunity. Cellular immune response. Effector mechanisms of cellular immunity. Humoral immune response. Effector mechanisms of humoral immunity.</i>				
<i>MODULE 2: Immune basis of allergic diseases. Anaphylaxis and urticaria. Immune basis of skin and respiratory allergies. Sepsis and septic shock. Inflammatory bowel disease. Immune tolerance and autoimmunity. Immune mediated diseases of joints and muscles. Immune mediated diseases of the thyroid gland. Immune basis of type 1 diabetes mellitus.</i>				
<i>MODULE 3: Immune basis of neurological diseases. Therapeutic effects of intravenous immunoglobulins, corticosteroids and nonsteroidal anti-inflammatory drugs. Immunomodulatory drugs. Therapeutic use of cytokines. Vaccines. Antibodies in therapy. Monoclonal antibodies. Immunoconjugates and immunotoxins.</i>				
<b>Literature</b>				
<ul style="list-style-type: none"> <li>• Abbas AK, Lichtman A, Pillai S. <b>Basic Immunology: Functions and Disorders of the Immune System</b>, 5<sup>th</sup> Edition. Elsevier, 2015.</li> <li>• Chapel H, Haeney M, Misbah S, Snowden S. <b>Essentials of Clinical Immunology</b>, 6th edition. Blackwell Publishing Ltd, Massachusetts, USA, 2014</li> </ul>				
<b>Number of active teaching hours</b>				<b>Other classes</b>
Lectures: 45	Practice: 30	Other forms of classes:	Independent work: 45	
<b>Teaching methods: Lectures, practice in a clinic, clinical problems solving</b>				
<b>Examination methods (maximum 100 points)</b>				
<b>Exam prerequisites</b>	<b>No. of points:</b>	<b>Final exam</b>	<b>No. of points:</b>	
Student's activity during lectures	<b>30</b>	oral examination	<b>40</b>	
practical classes/tests		written examination	<b>30</b>	
Seminars/homework		.....		
Project				
Other				

<b>Grading system</b>		
<b>Grade</b>	<b>No. of points</b>	<b>Description</b>
<b>10</b>	<b>91 – 100</b>	Excellent
<b>9</b>	<b>81 – 90</b>	Exceptionally good
<b>8</b>	<b>71 – 80</b>	Very good
<b>7</b>	<b>61 – 70</b>	Good
<b>6</b>	<b>51 – 60</b>	Passing
<b>5</b>	<b>&lt; 50</b>	Failing

**(Table 5.2) Course unit description**