





Educational objectives (max. 6 items)

**C1.** Understanding of the immune system development, components of the immune response, specific and nonspecific humoral and cellular immunity, major histocompatibility complex, the immune response regulation.

**C2.** Understanding the different types of hypersensitivity reactions and mechanisms of hypersensitivity-mediated diseases (allergic diseases, autoimmune diseases)

**C3.** Understanding the basics of neoplasm immunity and the immune aspects of transplantation and principles of donor and recipient selection.

**C4.** Understanding the primary and secondary immune deficiencies.

**C5.** Introduction to the immune-mediated diseases diagnostics (immunodeficiency, allergic diseases, autoimmune diseases, immune malignancies), developing skills in interpreting laboratory findings.

**C6.** Understanding the principles and forms of immunotherapy. Developing the skills to use knowledge of the regulation of the immune response.

Education result matrix for module/course in relation to verification methods of the intended education result and the type of class

Number of course education result	Number of major education result	Student who completes the module/course knows/is able to	Methods of verification of intended education results (forming and summarising)	Form of didactic class <i>**enter the abbreviation</i>
K 01	C.W21.	Describes the development and the role of individual components of the immune system. Clarifies the regulation of the immune response. Characterizes the specific and non-specific mechanisms of humoral and cellular immunity.	Oral answer Colloquium Written exam – a test	L, MC
K 02	C.W22.	Explains the role and mechanism of action of the major histocompatibility complex.	Oral answer Colloquium Written exam – a test	L, MC
K 03	C.W23.	Characterizes various types of hypersensitivity reactions and explains the pathomechanisms of diseases of hypersensitivity. Describes the pathogenesis of primary and secondary immunodeficiencies. Explains the mechanisms of immunomodulation.	Oral answer Colloquium Oral presentation Written exam – a test	L, MC, SE
K 04	C.W24.	Characterizes by basic concepts of tumor immunology. Describes the mechanisms of anti-tumor response.	Oral answer Colloquium Oral presentation Written exam – a test	L, MC, SE
K 05	C.W25.	Describes basic definitions of transplantation immunology. Explains basics of donor-recipient matching.	Oral answer Colloquium Written exam – a test	L, MC, SE
K 06	C.W42.	Clarifies the regulation of the immune response in allergic diseases, autoimmune and proliferative diseases of the immune system. Characterizes different forms of immunotherapy.	Oral answer Colloquium Oral presentation Written exam – a test	L, MC, SE
S 01	C.U8.	Selects appropriate diagnostic methods for the detection of immunodeficiency, allergic diseases, autoimmune and proliferative diseases of the immune system.	Observe preformation of the tests, perform selected test on its own, interpret results on its own	L, MC, SE
S 02	C.U11.	Differentiate symptoms of immunocompromise. Correctly interprets the results of diagnostic studies evaluating the immune system.	Knows examples of possible clinical symptoms, interpret results with respect to clinical anamnesis on its own	L, MC, SE



S 03	C.U12.	Properly analyzes clinical cases concerning disturbances in the immune system.	Analyse clinical cases on its own during classes	MC, SE
S 04	E.U24.	Interprets laboratory tests concerning immune system. Pinpoint reasons of immune deviations.	Observe preformation of the tests, perform selected test on its own, can interpret results on its own	MC
S 05	E.U30	Assists during test performance, is able to perform basic skin prick tests (SPT) and interprets results.	Performs SPT tests on its own, can interpret results on its own	MC
<p>** L - lecture; SE - seminar; AC – auditorium classes; MC – major classes (non-clinical); CC – clinical classes; LC – laboratory classes; SCM – specialist classes (magister studies); CSC – classes in simulated conditions; FLC – foreign language course; PCP practical classes with patient; PE – physical education (obligatory); VP – vocational practice; SS – self-study, EL – E-learning .</p>				
<p>Please mark on scale 1-5 how the above effects place your classes in the following categories: communication of knowledge, skills or forming attitudes: Knowledge: 5 Skills: 4</p>				
Student's amount of work (balance of ECTS points)				
Student's workload (class participation, activity, preparation, etc.)			Student Workload (h)	
1. Contact hours:			70	
2. Student's own work (self-study):			107,8	
Total student's workload			177,8	
ECTS points for module/course			5,5	
Comments				
Content of classes (please enter topic words of specific classes divided into their didactic form and remember how it is translated to intended educational effects)				
<p>Lectures (10 meetings, duration: 2h each)</p> <ol style="list-style-type: none"> <li>1. General information on the subject – Immunology. The human immune system – characteristics of the immune response cells.</li> <li>2. Nonspecific cellular and humoral immunity.</li> <li>3. Specific (adaptive) immune response. The major histocompatibility complex - HLA.</li> <li>4. The anti-infectious response. Vaccines.</li> <li>5. The mechanisms of the immune response regulation. The role of cytokines.</li> <li>6. Primary and secondary immune deficiencies.</li> <li>7. Hypersensitivity type I, II, III and IV. The immune tolerance.</li> <li>8. Mechanisms of autoimmune diseases.</li> <li>9. The basics of tumor immunity.</li> <li>10. The basics of transplant immunity.</li> </ol>				
<p>Seminars (2 meetings, duration: 3h each)</p> <ol style="list-style-type: none"> <li>1. Tumour immunity. Diagnostics and monitoring of the proliferative disease treatment. Reproductive immunology.</li> <li>2. Immune therapies in allergic, autoimmune and neoplastic diseases.</li> </ol>				
<p>Practical classes (10 meetings, duration: 4h each)</p> <ol style="list-style-type: none"> <li>1. Introduction to the immunology. The structure and basics of the immune system functioning. Possibilities of the immune parameter assessment.</li> <li>2. Cellular immunity –the phenotype assessment.</li> <li>3. Cellular immunity – the function assessment.</li> <li>4. Humoral immunity – antibodies, the complement system, cytokines assessment.</li> <li>5. Immune deficiencies. Diagnostics of primary and secondary immune deficiencies.</li> <li>6. Hypersensitivity. Gell and Coombs classification. Allergic reactions. Allergy diagnostics.</li> </ol>				



<ol style="list-style-type: none"><li>7. Hypersensitivity – autoaggression. Detection of organ-specific and organ-non-specific autoantibodies.</li><li>8. Immune aspects of the respiratory and the digestive tract diseases.</li><li>9. Immune aspects of the circulatory and the nervous system diseases.</li><li>10. Immunohematology – selected aspects. Immune aspects of transplantation.</li></ol> <p>2 meetings-duration 2h each (13<sup>th</sup> and 14<sup>th</sup> week of the semester)</p> <ol style="list-style-type: none"><li>1. Re-take classes</li><li>2. 2.Credit Colloquium</li></ol>
Other none
Basic literature (list according to importance): <ol style="list-style-type: none"><li>1. K. Abbas, A. H. Lichtman, S. Pillai: <b>“Basic Immunology. Functions and disorders of the immune system”</b>; Elsevier Saunders, 2015.</li><li>2. K. Abbas, A. H. Lichtman, S. Pillai: <b>“Cellular and Molecular Immunology”</b>; 6<sup>th</sup> Edition, Elsevier, 2012.</li><li>3. M. Peakman, D. Vergani: <b>“Basic and Clinical Immunology”</b>; 2<sup>nd</sup> edition, Elsevier – Churchill Livingstone, 2009 Nature reviews. Immunology. Nature New York, London.</li></ol> Additional literature and other materials (no more than 3 items) <ol style="list-style-type: none"><li>1. D. Male, J. Brostoff, D. Roth &amp; I. Roitt: <b>“Immunology”</b>, 8<sup>th</sup> Edition, Elsevier, 2013.</li><li>2. <b>“Allergy: European Journal of Allergy and Clinical Immunology”</b>; Wiley Blackwell, Journal of Allergy and Clinical Immunology. Elsevier.</li></ol>
Didactic resources requirements (e.g. laboratory, multimedia projector, other...) <ul style="list-style-type: none"><li>▪ Multimedia projector, computers, boards, pointers.</li><li>▪ Laboratory, centrifuges, light microscopes, fluorescent microscopes, lab dishes, lymphocyte isolation kits, surface antigen staining kits, autoantibody detection kits, immunohistochemistry kits, lab consumables.</li></ul>
Preliminary conditions (minimum requirements to be met by the student before starting the module/course) Credited courses: Anatomy, Histology with Cytology, Physiology (years I and II) on the level of 3 <sup>rd</sup> year ED students requirements.
Conditions to receive credit for the course (specify the form, criteria and conditions of receiving credit for classes included in the module/course, admission terms to final theoretical or practical examination, its form and requirements to be met by the student to pass it and criteria for specific grades). <ul style="list-style-type: none"><li>▪ Each absence must be made up, including rector’s days or dean’s hours.</li><li>▪ The student knowledge will be verified systematically with following activities: oral answers during classes, referred to the previous class topic.</li><li>▪ During the course 2 seminars are scheduled – topics to be prepared by students in groups and presented during the seminar meetings.</li><li>▪ Three mid-term colloquia are scheduled (single-choice, 12 questions, 8 correctly answered to pass). Student may collect up to 36 points from all mid-term tests. Not credited oral answers and/or mid-term tests require subsequent crediting during office consultation hours.</li></ul> Classes crediting conditions: <ul style="list-style-type: none"><li>▪ All classes are credited (in case of cancelled classes due to rector’s/dean’s hours/days students need to credit classes by preparing presentations (topics established) in group of 4-6 students (self-education).</li><li>▪ Positive grade from 3 mid-term colloquia. Student may obtain maximum of 36 points from 3 mid-</li></ul>



term colloquia, upon acquire minimal score of 24 points (66%) student will not be obliged to write final credit colloquium. For the final scoring of each colloquium, the mean of the failed and improved tests will be taken. Students that will not obtain 24 points from mid-term tests write a final credit colloquium from all material presented during classes (single choice test- 30 questions, threshold to pass: 18 positive answers (60%).

- Positive completion of all forms of activities enables the approach to the course final exam: a written theoretical single-choice, 50 single choice questions tests. Questions check the student knowledge of facts and understanding of phenomena related to the development, operation and regulation of the immune system, as well as the knowledge of disorders of the immune system and the ability to plan and interpret laboratory tests in relation to a specific pathology.

<b>Grade:</b>	<b>Criteria for course</b>
Very Good (5.0)	35-36 points from 3 mid-term tests
Good Plus (4.5)	33-34 points from 3 mid-term tests
Good (4.0)	30-32 points from 3 mid-term tests
Satisfactory Plus (3.5)	27-29 points from 3 mid-term tests
Satisfactory (3.0)	24-26 points from 3 mid-term tests / or 18-30 points from final test
<b>Grade:</b>	<b>Criteria for exam (if applicable)</b>
Very Good (5.0)	94-100% 47-50 points
Good Plus (4.5)	86-92% 43-46 points
Good (4.0)	78-84% 39-42 points
Satisfactory Plus (3.5)	70-76% 35-38 points
Satisfactory (3.0)	60-68% 30-34 points

Name of unit teaching course:	Department of Clinical Immunology
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Person responsible for course:	Prof. Marek Jutel, MD
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<i>List of persons conducting specific classes:</i>	<i>degree/scientific or professional title</i>	<i>Discipline</i>	<i>Performer profession</i>	<i>Form of classes</i>
<b>Marek Jutel</b>	Prof., MD	Medicine	Director	L
<b>Paweł Gajdanowicz</b>	PhD	Medical biology	Adjunct	L, MC, SE
<b>Ewa Sobańska</b>	PhD	Medical biology	Lecturer	L, MC, SE
<b>Magdalena Zemelka-Wiącek</b>	PhD	Medical Biology	Adjunct	L, MC, SE
<b>Ewa Wyrodek</b>	PhD	Medical biology	Lecturer	L, MC, SE
<b>Anna Kosowska</b>	MD	Medicine	Assistant	MC, SE
<b>Sylwia Smolińska</b>	PhD	Medical biology	Adjunct	MC, SE



**Date of Syllabus development**

20.05.2020

**Syllabus developed by**

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**Signature of Head of teaching unit**

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