

LEARNING OUTCOMES

**The doctoral school in the field of medical sciences, pharmaceutical sciences and health sciences at the Medical University of Białystok
educational cycle commencing from the academic year 2025/2026**

1. Unit responsible for the operations of the doctoral school: The Medical University of Białystok
2. **Location of the doctoral school in the field of science:** medical sciences and health sciences

<i>Symbol</i>	<i>Assumed learning outcomes after completion of the doctoral school</i>	<i>Reference to the second- cycle characteristics of the Polish Qualification Framework (level 8) SYMBOL</i>
Knowledge The student:		
SD-W01*	Knows and understands – in the degree enabling the revision of existing paradigms – world achievements in the scope of medical sciences, pharmaceutical sciences or health sciences as well as the related sciences	P8S_WG
SD-W02	Knows the sources of scientific information and the mechanisms of building data search strategies, including the use of online databases	P8S_WG
SD-W03	Knows and understands the development trends and the methodological possibilities in the scope of medical sciences, pharmaceutical sciences or health sciences as well as the related sciences	P8S_WG
SD-W04	Knows and understands the methodology of <i>in vivo</i> and <i>in vitro</i> research applied in medical sciences, pharmaceutical sciences and health sciences as well as the related sciences	P8S_WG
SD-W05	Shows the command of terms and practical applications of biostatistics solutions results of tests in medical sciences, pharmaceutical sciences or health sciences	P8S_WG
SD-W06	Knows and understands the principles of dissemination of the scientific activity results and understands the necessity of open science operations	P8S_WG
SD-W07	Is fluent in English and uses the scientific, specialist language in the scope of medical sciences, pharmaceutical sciences or health sciences	P8S_WG
SD-W08	Knows the dilemmas appearing in modern medical sciences, pharmaceutical sciences or health sciences	P8S_WK
SD-W09	Knows and understands the conditions of scientific activity, including the principles of planning and conducting scientific research, ethical and legal principles of conditionality of research with the use of experimental animals and biological material of human origin	P8S_WK
SD-W10	Knows and understands the health and safety principles for the realized scientific work and didactic tasks;	P8S_WK
SD-W11	Possesses the basic knowledge concerning the national and international sources of obtaining the funds for scientific research and promotional actions and the principles of preparing project applications and assessing them	P8S_WK
SD-W12	Knows and understands the basic principles of knowledge transfer to the economic and social sphere and the commercialization of scientific activity outcomes and the know-how related to these outcomes	P8S_WK
SD-W13	Has the basic knowledge concerning industrial property protection and intellectual property protection and developing various forms of entrepreneurship	P8S_WK
SD-W14	Knows modern concepts, methods and tools of organizing and conducting didactic classes	P8S_WK
SD-W15	Knows and understands the topic of didactic classes realized as part of professional traineeships	P8S_WK
SD-W16	Has a broad theoretical knowledge in the scope of the preparation of the doctoral dissertation	P8S_WK
SD-W17	Knows the principles of elaborating and interpreting and presenting the research outcomes	P8S_WK

<i>Skills</i>		
SD-U01	Is able to use the knowledge in the scope of medical sciences, pharmaceutical sciences or health sciences and the related sciences in order to identify the problems and formulate the goal and the research hypothesis as well as to achieve innovative solution to the assumed scientific issues	P8S_UW
SD-U02	Is able to propose modern research techniques for solving a specific scientific problem in the scope of medical sciences, pharmaceutical sciences and health sciences	P8S_UW
SD-U03	Is able to consciously use modern in vivo and in vitro techniques in biomedical and pharmaceutical research and in the scope of the related sciences	P8S_UW
SD-U04	Is able to develop methods, techniques and research tools as well as apply them in a creative manner in order to solve issues in the scope of medical sciences, pharmaceutical sciences or health sciences as well as the related sciences	P8S_UW
SD-U05	Is able to use modern research apparatus in tests from the scope of medical sciences, pharmaceutical sciences or health sciences	P8S_UW
SD-U06	Is able to apply statistical methods while elaborating the scientific research outcomes, including own research outcomes	P8S_UW
SD-U07	Has the ability to use statistical programmes for biostatistical elaborations (including the STATISTICA programme)	P8S_UW
SD-U08	Is able to draw conclusions on the basis of scientific research results	P8S_UW
SD-U09	Is able to discuss and interpret the results of own research and conduct a critical substantive discussion about them in the scientific environment with respect to the current state of knowledge	P8S_UW
SD-U10	Is able to prepare the results of own research to be presented in various forms, including a doctoral dissertation	P8S_UW
SD-U11	Is able to use the possessed knowledge, carry out a critical analysis and assessment of the scientific research results, including the results of own research and assess their input in the development of medical sciences, pharmaceutical sciences or health sciences as well as the related sciences	P8S_UW
SD-U12	Is able to collect literature and prepare as well as present the substantive presentation in the scope of medical sciences, pharmaceutical sciences or health sciences	P8S_UW
SD-U13	Is able to carry out the analysis of the possibilities of transferring the scientific research results into the economic and social sphere and to initiate actions in this direction	P8S_UW
SD-U14	Is able to communicate with regards to specialist topics in a degree allowing for an active participation in the international scientific environment	P8S_UK
SD-U15	Is able to disseminate scientific activity results, also in popular forms	P8S_UK
SD-U16	Is able to initiate a debate and learn in the course of scientific discussions	P8S_UK
SD-U17	Is able to use the foreign language at B2 level of the European System of Language Command Description in a degree enabling participation in international scientific and professional environments	P8S_UK
SD-U18	Is able to plan and realize individual and team research or creative ventures, also in the international environment	P8S_UO
SD-U19	Is able to formulate the research objective and prepare an application for financing a scientific grant as well as to realize individual and collective research ventures	P8S_UO
SD-U20	Is able to apply health and safety principles in the scientific and didactic work and knows how to provide first pre-medical aid in sudden situations	P8S_UO
SD-U21	Is able to apply the provisions of law and the principles of ethics in scientific research	P8S_UO
SD-U22	Is able to autonomously plant own development and act for its benefit and inspire as well as organize the development of others	P8S_UU
SD-U23	Is able to elaborate the educational programme and realize didactic classes with the use of modern methods and tools.	P8S_UU

<i>Social competencies</i>		
SD-K01	Is ready to conduct a critical assessment of achievements in the scope of medical sciences, pharmaceutical sciences or health sciences and the related sciences, including own input in their development and considering the importance of knowledge in developing cognitive as well as practical issues	P8S_KK
SD-K02	Is ready to cooperate with the scientific/business environment for the purpose of developing the creative thoughts with full responsibility for the results of one's own actions	P8S_KO
SD-K03	Is ready to fulfil social obligations of a scientific employee, including initiating actions in favour of the social environment	P8S_KO
SD-K04	Is ready to think and act in an entrepreneurial manner	P8S_KO
SD-K05	Is ready to sustain and develop the ethos of scientific and creative environments (including conduct of research in an autonomous manner and respect the principles of public ownership of the results of scientific tests while considering the principles of intellectual property protection)	P8S_KR

* Explanations of markings:

SD (before the hyphen) – attending the doctoral school in the field of medical sciences and health sciences

W (after the hyphen) – knowledge category

U (after the hyphen) – category of skills

K (after the hyphen) – category of social competencies

01,02,03 and further – number of the learning outcome