

**Resolution No. 6/2024
of February 1, 2024
of the Senate of the Medical University of Lodz**

on the programme of studies at the Doctoral School of Molecular Medicine

Pursuant to Article 28(1)(12) and Article 201(4) of the Act of July 20, 2018 – Law on Higher Education and Science (Journal of Laws of 2021, Item 478, as amended), and § 21(2)(1) and § 76(1) of the Statutes of the Medical University of Lodz of June 27, 2019 as amended, the following resolution is hereby adopted:

§ 1

The Doctoral School of Molecular Medicine run by the Medical University of Lodz specifies the programme of studies in the following disciplines: pharmacology and pharmacy and medical sciences. The programme of studies is enclosed as the Annex hereto.

§ 2

The programme of studies specified in § 1 applies to the cycle of studies commencing in the academic year 2024/2025.

§ 3

The Resolution becomes effective upon being adopted.

RECTOR: *Prof. Radziław Kordek, MD PhD*

PROGRAMME OF STUDIES AT THE DOCTORAL SCHOOL OF MOLECULAR MEDICINE

I. GENERAL OUTLINE OF THE PROGRAMME OF STUDIES

The Doctoral School of Molecular Medicine is an organized form of education for doctoral students. It is run by the Medical University of Lodz in the following disciplines: pharmacology and pharmacy and medical sciences.

Education at the Doctoral School of Molecular Medicine:

- 1) lasts eight semesters and ends with submission of a doctoral dissertation;
- 2) ensures preparation for obtaining the doctoral degree;
- 3) is provided in compliance with the programme of studies and an individual research plan;
- 4) is conducted in cooperation with other universities and research institutions (partners) under an agreement made with them by the University.

The main lecture language at the Doctoral School of Molecular Medicine is English.

Implementation of the programme of studies at the Doctoral School of Molecular Medicine results in achieving learning outcomes at level 8 of the Polish Qualifications Framework specified in the Act of December 22, 2015 on the Integrated Qualifications System (Journal of Laws of 2020, Item 226) and regulations passed under Article (7)(3) thereof.

II. RELATION OF THE PROGRAMME OF STUDIES WITH THE MISSION AND DEVELOPMENT STRATEGY OF THE MEDICAL UNIVERSITY OF LODZ

The programme of studies at the Doctoral School of Molecular Medicine complies with the mission of the Medical University of Lodz and was developed based on its key ideas, i.e. ensuring an outstanding quality of conducted research studies, updating the educational offer in response to the needs of the community, particularly patients and entities providing healthcare services, making a significant contribution to development of the healthcare system by promoting modern prevention and treatment standards, and establishing strong relations of cooperation with institutions that carry out public health tasks at the regional, national and international level.

The programme of studies at the Doctoral School of Molecular Medicine complies with the development strategy of the Medical University of Lodz, including the objectives specified for the field of science and research and development activity, i.e. increasing the impact of the University's research activity on development of science, synergy of research, innovation and implementation, and advancement of clinical studies.

III. MAIN LEARNING OBJECTIVES

The main learning objective at the Doctoral School of Molecular Medicine is submission of a doctoral dissertation by a doctoral student and preparation for obtaining the doctoral degree.

The main learning objectives at the Doctoral School of Molecular Medicine also include:

- 1) preparing doctoral students for work involving teaching, research as well as research and development, also in an international community;
- 2) acquiring the skill of taking advantage of the world's scientific achievements, identifying and solving research problems, planning and conducting research studies as well as analyzing their results for the purpose of patents, publications or presentations at scientific conventions;
- 3) obtaining high research competencies and scientific independence by doctoral students;
- 4) preparing doctoral students for autonomous planning of their own scientific development and facing professional and public challenges, including the ethical aspect and responsibility, in compliance with the European Charter for Researchers;
- 5) preparing doctoral students for active exchange of research experience and ideas, also in an international community.

The Doctoral School of Molecular Medicine promotes mobility of students and establishing of international relations by providing them with an opportunity for participation in international exchange programmes and international scientific conferences.

IV. PRELIMINARY REQUIREMENTS – CANDIDATE PROFILE

Admission to the Doctoral School of Molecular Medicine may be applied for by a candidate holding a professional title of *magister*, *magister inżynier* or an equivalent title, being a graduate in the fields of studies such as in particular medicine, dentistry, public health, biology, biotechnology, or pharmacy.

In exceptional cases, justified by the highest quality of scientific achievements, the Doctoral School of Molecular Medicine may also admit a graduate of a first-cycle programme or a student who completed the third year of a uniform long-cycle programme. Scientific achievements of such a candidate are assessed by the Recruitment Committee which may ask a relevant scientific discipline council or the Scientific Council of the Medical University of Lodz for their opinion.

A candidate applying for admission to the Doctoral School of Molecular Medicine should have competences and scientific achievements that allow for taking up education at level 8 of the Polish Qualifications Framework in the following disciplines: pharmacology and pharmacy and medical sciences. They should also have knowledge of the English language at B2 level at least.

V. PROCEDURE OF RECRUITMENT TO THE DOCTORAL SCHOOL

Candidates applying for admission to the Doctoral School of Molecular Medicine are recruited by way of a contest, in compliance with the rules and regulations specified by the Senate of the Medical University of Lodz. The results of the contest are open to the public. Both candidates being Polish citizens and foreigners may apply for admission to the Doctoral School of Molecular Medicine.

Limits of admissions to the Doctoral School of Molecular Medicine, for specific scientific disciplines in which studies are offered, are set by the Rector based on applications for awarding places at

the Doctoral School of Molecular Medicine filed by the heads of the University research and teaching units in a given academic year and an analysis of costs of educating doctoral students incurred by the University.

The procedure of recruitment to the Doctoral School of Molecular Medicine includes the following stages:

- 1) registration of candidates in the University electronic recruitment system;
- 2) submission of documents required in the recruitment procedure by candidates;
- 3) verification of documents submitted by candidates;
- 4) qualification procedure;
- 5) entry into the register of doctoral students or issue of an administrative decision.

In the qualification procedure, a candidate is awarded recruitment points in particular for the following: scientific achievements, including scientific articles and scientific meeting communications, published within five years prior to filing an application for admission to the Doctoral School, and qualification exam including assessment of a research project prepared by the candidate and knowledge of the English language. Candidates are qualified for admission to the Doctoral School of Molecular Medicine based on ranking lists.

A candidate applying for admission to the Doctoral School of Molecular Medicine is obliged to present, in English, a research project related to the selected topic of a research study.

The rules of recruitment to the Doctoral School of Molecular Medicine are specified in a separate resolution of the Senate.

VI. DESCRIPTION OF INTENDED LEARNING OUTCOMES

A description of the intended learning outcomes includes the second-degree characteristics for qualifications at level 8 of the Polish Qualifications Framework, as specified in the Regulation of the Minister of Science and Higher Education of November 14, 2018 on the characteristics of the second degree of learning outcomes for qualifications at levels 6-8 of the Polish Qualifications Framework (Journal of Laws, Item 2218). The learning outcomes refer to the following scientific disciplines: pharmacology and pharmacy and medical sciences.

Key descriptive categories	Description component code	Characteristics of the second level of learning outcomes for qualifications at level 8 of the Polish Qualifications Framework
KNOWLEDGE (a person knows and understands):		
Scope and depth of understanding – completeness of the cognitive perspective and dependencies	P8S_WG	<ul style="list-style-type: none"> • to an extent allowing for a review of the existing paradigms - the world's achievements, including theoretical fundamentals and general issues as well as selected detailed issues related to a specific scientific discipline; • main development trends of the scientific disciplines in which studies are offered; • methodology of scientific research; • rules of dissemination of research findings results, also as open access resources.

Context – conditions and effects	P8S_WK	<ul style="list-style-type: none"> • fundamental dilemmas of the contemporary civilization; • economic, legal, ethical and other significant conditions of research activity; • basic principles of transfer of knowledge to economic and social sphere and commercialization of research findings and related know-how.
SKILLS (a person is able to):		
Applying knowledge in practice – problem solving and performed tasks	P8S_UW	<ul style="list-style-type: none"> • apply knowledge in different fields of science for creative identification, formulation and innovative solutions of complex problems or performance of various research tasks, in particular: <ul style="list-style-type: none"> - define the objective and subject of research studies, formulate a research hypothesis, - develop research methods, techniques and tools and apply them creatively, - draw conclusions based on research results; • make a critical analysis and assessment of research findings, expert activity and other creative studies and their contribution to the development of knowledge; • transfer research findings into the economic and social sphere.
Communication – interpreting and making statements, dissemination of knowledge in the scientific community and using a foreign language	P8S_UK	<ul style="list-style-type: none"> • communicate on specialized topics to an extent ensuring active participation in an international scientific community; • disseminate results of scientific activities, including in popular forms; • initiate a debate; • participate in scientific discourse; • use a foreign language at B2 level of the Common European Framework of Reference for Languages to an extent required for participation in international scientific and professional community.
Work organization – planning and teamwork	P8S_UO	<ul style="list-style-type: none"> • plan and perform individual and team research undertakings, also in an international community.
Learning – planning one’s own development as well as development of others	P8S_UU	<ul style="list-style-type: none"> • independently plan and act for the purpose of one’s own development as well as inspire and organize development of others; • plan courses or groups of courses and conduct them using modern methods and tools.
SOCIAL COMPETENCE (a person is ready to):		
Evaluation – critical approach	P8S_KK	<ul style="list-style-type: none"> • critically assess achievements in a given scientific discipline; • critically assess one’s own contribution to the development of a given scientific discipline; • recognize the significance of knowledge for solving cognitive and practical problems.
Responsibility – fulfilling social tasks and acting for the public interest	P8S_KO	<ul style="list-style-type: none"> • fulfil social responsibilities of researchers and creators; • initiate activities for the public interest;

		<ul style="list-style-type: none"> • think and act as an entrepreneur.
Professional role – independence and development of the ethos	P8S_KR	<ul style="list-style-type: none"> • maintain and develop the ethos of scientific community, including: <ul style="list-style-type: none"> - conducting research activity in an independent way, - respect the principle of public property of research findings and the rules of intellectual property protection.

VII. VERIFICATION OF THE LEARNING OUTCOMES

Following completion of a course in a subject included in the programme of studies, the learning outcomes achieved by doctoral students are verified in examinations, credit tests or credits with grades. The form of obtaining a credit is defined in the schedule of implementation of the programme of studies. Doctoral students are informed about the procedure of holding an examination or awarding a credit by an academic teacher who conducts a course before the commencement of a cycle of classes.

Examinations and credit tests may be a written or spoken verification of knowledge and skills. Credits may be awarded based on written papers (essays), multimedia projects or presentations on a specific subject prepared by doctoral students.

The learning outcomes achieved by the doctoral student are also verified by assessment of:

- 1) their presentations given during an annual public debriefing session (aimed at obtaining credit for a doctoral seminar) including a presentation of research hypotheses, methods and research results given in English;
- 2) implementation of an individual research plan, including a schedule of the doctoral dissertation preparation; the assessment is made by an evaluation committee that awards a mid-semester grade in the middle of the education period; the mid-semester assessment results in a positive or negative result, and the result along with the reasons is open to the public.

VIII. SCHEDULE OF IMPLEMENTATION OF THE PROGRAMME OF STUDIES

The schedule of implementation of the programme of studies at the Doctoral School of Molecular Medicine defines:

- 1) subjects taught in obligatory and elective courses, including the number of hours;
- 2) number of hours of professional placement training;
- 3) plan of obligatory and elective courses and professional placement training in each semester of studies;
- 4) forms of conducting classes and awarding credits for courses and professional placement training.

**Schedule of implementation of the programme of studies at the Doctoral School
of Molecular Medicine of the Medical University of Lodz
(for the cycle of studies commencing in the academic year 2024/2025)**

MODULE I – OBLIGATORY COURSES

YEAR 1 (SEMESTERS 1 and 2)

No.	Name of the course	Type of classes			Total number of hours	Form of awarding a credit for the course
		lecture	practical class	seminar		
1	Occupational health and safety training (e-learning)		4		4	CREDIT
2	Plagiarism and research abuses (e-learning)	1			1	CREDIT
3	Legal protection of intellectual property and commercialization of research studies (3h-e-learning)	5			5	CREDIT
4	Scientific information – library training, use of the University databases, bibliometric parameters, library workshop, information search, reference management software (e-learning)	6			6	CREDIT
5	Legal and ethical conditions of conducting medical experiments and preparation of an application for the Bioethics Committee (e-learning)	6			6	CREDIT
6	Fundamentals of didactics (e-learning)		10		10	CREDIT WITH A GRADE
7	Obtaining funds for scientific research	4			4	CREDIT
8	Structure of a scientific paper		4		4	CREDIT
9	Principles of conducting research studies and preparing scientific publications			4	4	CREDIT
10	DOCTORAL SEMINAR – PUBLIC DEBRIEFING SESSION			10	10	EXAM
TOTAL		22	18	14	54	

YEAR 2 (SEMESTERS 3 and 4)

No.	Name of the course	Type of classes			Total number of hours	Form of awarding a credit for the course
		lecture	practical class	seminar		
1	DOCTORAL SEMINAR – PUBLIC DEBRIEFING SESSION			10	10	EXAM
	TOTAL	0	0	10	10	

YEAR 3 (SEMESTERS 5 and 6)

No.	Name of the course	Type of classes			Total number of hours	Form of awarding a credit for the course
		lecture	practical class	seminar		
1	DOCTORAL SEMINAR – PUBLIC DEBRIEFING SESSION			10	10	EXAM
	TOTAL	0	0	10	10	

YEAR 4 (SEMESTERS 7 and 8)

No.	Name of the course	Type of classes			Total number of hours	Form of awarding a credit for the course
		lecture	practical class	seminar		
1	DOCTORAL SEMINAR – PUBLIC DEBRIEFING SESSION			10	10	EXAM
	TOTAL	0	0	10	10	

MODULE II – TECHNIQUES IN MOLECULAR MEDICINE

Techniques in molecular medicine - obligatory course, covering the issues of laboratory methodology, analytical methods, bioinformatics and visualization. The issues will be discussed by experts in the respective fields, selected from among representatives of the University and partner organizational units.

Courses are grouped into the so-called "thematic schools", conducted in the winter and summer semesters at the University and partner organizational units (full-time classes, two thematic schools per year, each school with a minimum of 30 hours).

MODULE III – ELECTIVE COURSES

Elective courses are chosen by doctoral students from among courses offered by the University research and teaching units or partner organizational units in each academic year. The total number of hours of elective courses during the period of studies may not be lower than 30 hours. In order to complete an elective course, a doctoral student has to obtain a credit.

TOTAL NUMBER OF HOURS

	MODULE I (obligatory courses)	MODULE II – Techniques in molecular medicine (obligatory courses)	MODULE III (elective courses)	Total
Year 1	54	60	30	144
Year 2	10	60		70
Year 3	10	60		70
Year 4	10	60		70
Total	84	240	30	354