

Name of field: <b><i>international doctoral studies in chemistry</i></b>			
Level: III			
Area/areas of education with the determination of the percentage of the share of outcomes in each of the following areas: science; discipline: chemistry science			
Level of the Polish Qualification Framework: 8			
Field effects symbols	FIELD LEARNING OUTCOMES <sup>i</sup>	Relation	
		First level universal descriptors PQF	Second level descriptors PQF general
1	2	3	4
	KNOWLEDGE	Code of the description component	Code of the description component
K_W01	The graduate knows and understands world scientific achievements in the field of chemistry and the consequences resulting from it for chemical practice and research	P8U_W	P8S_WG
K_W02	The graduate has a broad knowledge of the selected specialty allowing to solve defined research problems	P8U_W	P8S_WG
K_W03	The graduate knows and understands theoretical foundations as well as general and selected detailed issues from important branches of chemistry crucial to further development of chemical sciences	P8U_W	P8S_WG
K_W04	The graduate knows and understands the main development trends of modern chemistry, understands the importance of chemistry for the progress of exact and natural sciences, the knowledge of the world and the development of civilization	P8U_W	P8S_WK
K_W05	The graduate knows and understands the methodology of scientific research, the basics and capabilities of the most important research techniques and has an extended knowledge about the choice of methods in the study of matter	P8U_W	P8S_WK
K_W06	The graduate knows and understands the fundamental dilemmas of modern civilization connected with the discipline studied	P8U_W	P8S_WK
K_W07	The graduate knows and understands economic, legal and other important determinants of research activity in the field of chemistry	P8U_W	P8S_WK
K_W08	The graduate has the necessary knowledge in the field of methods and techniques of teaching classes	P8U_W	P8S_WK
	SKILLS	Code of the description component	Code of the description component
K_U01	The graduate can analyse and synthesize scientific achievements in the field of chemistry to identify and solve research problems; is able to create new elements of this achievement contributing to the development of contemporary issues in the field of chemistry	P8U_U	P8U_UW
K_U02	The graduate can apply his/her knowledge to solve problems of a medium and high complexity level, both in the theoretical and practical range	P8U_U	P8U_UW
K_U03	The graduate can independently plan his/her own development and inspire the development of other people through participation in the exchange of experiences and ideas, also in the international environment	P8U_U	P8U_UW
K_U04	The graduate can effectively transfer the results of research to the economic and social sphere	P8U_U	P8U_UW
K_U05	The graduate can plan and carry out scientific research aimed at solving scientific problems related to a selected specialty and	P8U_U	P8U_UW

	related specialties, in particular: defining the goal and subject of research, formulating a research hypothesis, developing methods, techniques and research tools and applying them creatively as well as reason based on the results obtained		
K_U06	The graduate can disseminate the results of research in the form of written papers on a selected topic within his/her specialty, prepare oral presentations supported by computer graphics, participate in scientific discourse and use a foreign language to the extent enabling participation in an international scientific environment including communication, presenting research results, translation and understanding of scientific texts	P8U_K	P8U_UK
K_U07	The graduate can disseminate the results of research, also in popular forms and initiate the debate	P8U_K	P8U_UK
K_U08	The graduate can plan and implement an individual and team research project, also in an international environment	P8U_K	P8U_UO
K_U09	The graduate can plan and act for his/her own development and inspire and organize the development of other people, including planning didactic activities and implement them using modern methods and tools	P8U_K	P8U_UU
	<b>SOCIAL COMPETENCE</b>	<b>Code of the description component</b>	<b>Code of the description component</b>
K_K01	The graduate is ready to face challenges in the professional and public sphere in the field of chemistry, taking into account his/her ethical dimension and responsibility for their effects and shaping patterns of proper behaviour, understands social and environmental aspects of chemistry development and its practical use	P8U_K	P8U_KK
K_K02	The graduate is ready to critically evaluate the achievements in the field of chemistry, including his/her own contribution to the development of the discipline, recognize of the importance of knowledge in solving cognitive and practical problems	P8U_K	P8U_KK
K_K03	The graduate is ready to work in a team; understands the necessity of teamwork in research in the field of modern chemistry	P8U_K	P8U_KO
K_K04	The graduate is ready to fulfil social obligations, initiate activities for the public interest, think and act in an entrepreneurial way	P8U_K	P8U_KO
K_K05	The graduate is ready to conduct research in an independent manner, respecting the principle of public ownership of the results of scientific research, taking into account the principles of intellectual property protection	P8U_K	P8U_KR

<sup>†</sup>The description of the intended learning outcomes for the field of studies, level and educational profile includes:

- 1) all the universal first level descriptors defined in the Act of December 22, 2015 on the *Integrated Qualification System (ZSK)* (Journal of Laws of 2016, item 64 and 1010) appropriate for a given level of the Polish Qualification Framework;
- 2) all the second level descriptors (general) defined in the regulation of the Minister of Science and Higher Education of September 26, 2016 *on the second level descriptors of the Polish Qualification Framework typical of the qualifications obtained in higher education after obtaining a qualification on level 4 - level 6-8 (part I)*;
- 3) selected learning outcomes relevant to the area or areas of education to which the field of study was assigned for qualifications at a given level of the Polish Qualifications Framework contained in the Regulation of the Minister of Science and Higher Education of September 26, 2016 *regarding the second level descriptors of the Polish Qualification Framework typical of the qualifications obtained within higher education after obtaining a qualification on level 4 - level 6-8 (part II - appropriate for a given area/areas of education, level and profile)*.