

LEARNING OUTCOMES FOR POSTGRADUATE STUDIES

Offered by (name of the University unit): Faculty of Chemistry

Name of postgraduate studies: Teaching Chemistry Area(s) of education: exact sciences Polish Qualifications Framework: level 6		
Symbol of major outcomes for postgraduate studies	Major learning outcomes - textual description	A description of the process leading to the achievement of a specific outcome and of the method for verifying this outcome by assigning the following: 1. name of the module – number of course hours, forms of classes, forms of course crediting; 2. type of student placement – student placement hours
K_W01	Has substantive knowledge in the following fields: general chemistry, inorganic chemistry, organic chemistry, physical chemistry, elements of environmental protection, management of chemicals, chemistry in daily life, achievements of modern chemistry – necessary to teach chemistry.	Module: General chemistry – number of hours: 55, form of classes: lectures, discussion classes, laboratory classes, form of course crediting: written examination Module: Inorganic chemistry – number of hours: 15, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge Module: Organic chemistry – number of hours: 30, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge

		<p>Module: Physical chemistry – number of hours: 15, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Elements of environmental protection – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Management of chemicals – number of hours: 5, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Chemistry in daily life – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Achievements of modern chemistry – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p>
K_W02	<p>Knows and understands at an advanced level issues from general chemistry, inorganic chemistry, organic chemistry, physical chemistry, elements of environmental protection, management of chemicals, chemistry in daily life, achievements of modern chemistry – necessary to teach chemistry.</p>	<p>Module: General chemistry – number of hours: 55, form of classes: lectures, discussion classes, laboratory classes, form of course crediting: written examination</p> <p>Module: Inorganic chemistry – number of hours: 15, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Organic chemistry – number of hours: 30, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Physical chemistry – number of hours: 15, form of classes: lectures and laboratory classes, form of course crediting: credit based on</p>

		<p>a written test on knowledge</p> <p>Module: Elements of environmental protection – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Management of chemicals – number of hours: 5, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Chemistry in daily life – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Achievements of modern chemistry – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p>
K_W03	Knows and understands the fundamental dilemmas of modern civilisation	<p>Module: Elements of environmental protection – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Management of chemicals – number of hours: 5, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Chemistry in daily life – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Achievements of modern chemistry – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p>
K_W04	Knows and understands the basic economic, legal, and other implications of various activities associated with the practice of the profession of chemistry	<p>Module: Elements of environmental protection – number of hours: 10, form of classes: lectures,</p>

	<p>teacher, including the basic terms and rules relating to industrial property protection and copyright law</p>	<p>form of course crediting: credit based on a written test on knowledge Module: Management of chemicals – number of hours: 5, form of classes: lectures, form of course crediting: credit based on a written test on knowledge Module: Chemistry in daily life – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge Module: Achievements of modern chemistry – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge Module: Teaching chemistry – number of hours: 60, form of classes: lectures, discussion classes, laboratory classes, form of course crediting: written examination Student placement – number of hours: 60</p>
K_U01	<p>Can use the acquired chemical necessary to understand and explain chemical phenomena and processes that occur in the surrounding world as well as formulate and solve complex and unusual problems under not fully predictable conditions through:</p> <ul style="list-style-type: none"> - proper selection of sources and information derived from them, evaluation, analysis, synthesis of such information; - selection and use of appropriate methods and tools, including advanced information and communication techniques (ICT). 	<p>Module: General chemistry – number of hours: 55, form of classes: lectures, discussion classes, laboratory classes, form of course crediting: written examination Module: Inorganic chemistry – number of hours: 15, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge Module: Organic chemistry – number of hours: 30, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge Module: Physical chemistry – number of hours: 15, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge</p>

		Module: Elements of environmental protection – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge
K_U02	Can communicate using specialist chemical terminology	<p>Module: General chemistry – number of hours: 55, form of classes: lectures, discussion classes, laboratory classes, form of course crediting: written examination</p> <p>Module: Inorganic chemistry – number of hours: 15, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Organic chemistry – number of hours: 30, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Physical chemistry – number of hours: 15, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Elements of environmental protection – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Management of chemicals – number of hours: 5, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Chemistry in daily life – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Achievements of modern chemistry – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a</p>

		<p>written test on knowledge</p> <p>Module: Teaching chemistry – number of hours: 60, form of classes: lectures, discussion classes, laboratory classes, form of course crediting: written examination</p> <p>Student placement – number of hours: 60</p>
K_U03	Can participate in a debate – to present and assess different opinions and positions as well as discuss with them	<p>Module: General chemistry – number of hours: 55, form of classes: lectures, discussion classes, laboratory classes, form of course crediting: written examination</p> <p>Module: Inorganic chemistry – number of hours: 15, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Organic chemistry – number of hours: 30, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Physical chemistry – number of hours: 15, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge</p> <p>Teaching chemistry – number of hours: 60, form of classes: lectures, discussion classes, laboratory classes, form of course crediting: written examination</p> <p>Student placement – number of hours: 60</p>
K_U04	Can plan and organise a student' individual work and team work.	<p>Module: Teaching chemistry – number of hours: 60, form of classes: lectures, discussion classes, laboratory classes, form of course crediting: written examination</p> <p>Student placement – number of hours: 60</p>
K_U05	Can independently plan and pursue lifelong learning.	<p>Module: General chemistry – number of hours: 55, form of classes: lectures, discussion classes, laboratory classes, form of course crediting:</p>

		<p>written examination</p> <p>Module: Inorganic chemistry – number of hours: 15, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Organic chemistry – number of hours: 30, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Physical chemistry – number of hours: 15, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Elements of environmental protection – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Management of chemicals – number of hours: 5, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Chemistry in daily life – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Achievements of modern chemistry – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Teaching chemistry – number of hours: 60, form of classes: lectures, discussion classes, laboratory classes, form of course crediting: written examination</p> <p>Student placement – number of hours: 60</p>
K_K01	Has the ability to critically assess his/her knowledge and can use this knowledge in	Module: Teaching chemistry – number of hours:

	the process of chemistry teaching	60, form of classes: lectures, discussion classes, laboratory classes, form of course crediting: written examination Student placement – number of hours: 60
K_K02	Has the ability to recognise the importance of knowledge in solving cognitive and practical problems	Module: Teaching chemistry – number of hours: 60, form of classes: lectures, discussion classes, laboratory classes, form of course crediting: written examination Student placement – number of hours: 60
K_K03	Is ready to fulfil social obligations and co-organise activities for the social environment	Module: Teaching chemistry – number of hours: 60, form of classes: lectures, discussion classes, laboratory classes, form of course crediting: written examination Student placement – number of hours: 60
K_K04	Is ready to	Module: Teaching chemistry – number of hours: 60, form of classes: lectures, discussion classes, laboratory classes, form of course crediting: written examination Student placement – number of hours: 60
K_K05	Is ready to think and act in an entrepreneurial way	Module: Teaching chemistry – number of hours: 60, form of classes: lectures, discussion classes, laboratory classes, form of course crediting: written examination Student placement – number of hours: 60
K_K06	Is ready to perform professional functions in a responsible way, including the following: - to observe professional ethics and require this from others; - to exercise care for the output of the profession of chemistry teacher	Module: General chemistry – number of hours: 55, form of classes: lectures, discussion classes, laboratory classes, form of course crediting: written examination Module: Inorganic chemistry – number of hours: 15, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge Module: Organic chemistry – number of hours: 30, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written

		<p>test on knowledge</p> <p>Module: Physical chemistry – number of hours: 15, form of classes: lectures and laboratory classes, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Elements of environmental protection – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Management of chemicals – number of hours: 5, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Chemistry in daily life – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p> <p>Module: Achievements of modern chemistry – number of hours: 10, form of classes: lectures, form of course crediting: credit based on a written test on knowledge</p>
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K_W – knowledge; K_U – skills; K_K – personal and social competencies

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Signature of Course Manager

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Signature of Dean/Manager of University Unit