University of Gdańsk

Subject card

Subject name and code	Nuclear chemistry, PG_00016490		
Field of study	Chemistry		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2024/2025
Education level	Bachelor's studies	Subject group	Optional subject group
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish Polish language
Semester of study	3	ECTS credits	2.0
Learning profile	academic	Assessment form	credit

Conducting unit	Laboratory of Environmental Analytics and Radiochemistry -> Department of Environmental Chemistry and Radiochemistry -> Faculty of Chemistry -> Rector	
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. Bogdan Skwarzec
	Teachers	prof. dr hab. Bogdan Skwarzec

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	0.0	0.0	0.0	30

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	30	5.0	15.0	50

Subject objectives

The aim of the course is to familiarize chemistry students with the content of lectures and auditorium exercises in nuclear chemistry and to consolidate the knowledge resulting from the physical and chemical processes occurring in the atomic nucleus.

Learning outcomes

Course outcome	Subject outcome	Method of verification
	1. knows and understands the basic concepts of nuclear chemistry and radiochemistry 2. knows and understands the basic concepts related to the structure of the atomic nucleus, elementary particles and processes occurring in the nucleus 3. has knowledge about natural and artificial radioactive elements and their occurrence in nature, 4. knows the concept of radiation dose and distinguishes its types and units, 5. has knowledge about the use of radionuclides in science, technology and medicine,	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SU4] test/exam - oral or written [SK4] test/exam - oral or written

Subject contents

structure of matter and elementary particles, radioactivity, process of formation of chemical elements, natural and artificial radioactive elements, radiogenic heat of the Earth, nuclear energy, interaction of ionizing radiation with matter, radiation chemistry and radiolysis of water, dosimetry, radiometric and radiochemical methods, isotope separation and labeling methods compounds, use of radionuclides in science, technology and medicine.

Prerequisites and co-requisites

knowledge of the theory of the structure of matter and atoms of chemical elements

lecture on the basics of chemistry and physics

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>writting exam</td><td>51.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>Bogdan Skwarzec, Environmental radiochemistry, University of Gdańsk Publishing House, 2021, ISBN 978-83-8206-111-6

Sobkowski J. Jelińska-Kaźmierczuk M., Nuclear chemistry, Adamantan Publishing House, Warsaw 2006, ISBN: 83-7350-080-4</td></tr>
<tr><td>Supplementary literature</td><td></td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">The main elementary particles

Radioactive decay

Radiation doses</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
</table>

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