


**KAPITAŁ LUDZKI**  
NARODOWA STRATEGIA SPÓJNOŚCI

Projekt współfinansowany przez  
Unię Europejską w ramach  
Europejskiego Funduszu  
Społecznego

**UNIA EUROPEJSKA**  
EUROPEJSKI  
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Course title			ECTS code	
Monographic lecture - Radiosensitizers - in the service of oncology			13.3.1102	
Name of unit administrating study				
Faculty of Chemistry				
Studies				
faculty	field of study	type	drugiego stopnia	
Wydział Chemii	Biznes chemiczny	form	stacjonarne	
		specialty	wszystkie	
		specialization	wszystkie	
Teaching staff				
dr Lidia Chomicz-Mańka				
Forms of classes, the realization and number of hours			ECTS credits	
Forms of classes			3	
Lecture			classes - 30 h	
The realization of activities			tutorial classes – 10 h	
classroom instruction			student's own work – 35 h	
Number of hours			Total: 75 h - 3 ECTS	
Lecture: 30 hours				
The academic cycle				
2023/2024 winter semester				
Type of course		Language of instruction		
obligatory		polish		
Teaching methods		Form and method of assessment and basic criteria for eveluation or examination requirements		
- multimedia-based lecture - •Led discussion		Final evaluation		
		Graded credit		
		Assessment methods		
		- (mid-term / end-term) test - oral exam		
		The basic criteria for evaluation		
		To complete the course, students need to correctly answer at least 51% questions from written exam test. People who do not get the required threshold during written test, take an oral exam.		
Method of verifying required learning outcomes				
Required courses and introductory requirements				
A. Formal requirements				
Physical and Organic Chemistry				
B. Prerequisites				
Introductory requirements:				
- knowledge of the structure and biosynthesis of DNA				
- knowledge of the types and role of eklectromagnetic radiation				
- the ability to present the mechanisms of simple radical reactions.				
Aims of education				
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The aims are:				
to acquaint students with the basics of cancer treatment, with particular emphasis on radiotherapy and the role of radiosensitizers				
to develop the ability to describe the processes and reactions taking place in cancer cells during irradiation with high-energy radiation				

to develop skills to describe the mechanisms of action of basic types of radiosensitizers	
<b>Course contents</b>  Course contents Carcinogens, basics of tumor biology, cancer cell hypoxia, survival of patients with malignant tumors, tumor markers and selected laboratory indicators, cancer treatment methods, chemotherapy, hormonal therapy, photodynamic therapy, targeted therapy, radiotherapy, combination therapy (including chemoradiotherapy), side effects of radiotherapy, radioprotectors and radiosensitizers, direct and indirect effects of irradiation with ionizing radiation, water radiolysis products, radiation-induced DNA damage, hydroxyl radical, hydrated electrons, types of radiosensitizers, uracil derivatives as radiosensitizers, oxygen mimetics, novel anticancer drugs and treatments as well as official procedures for their introduction into clinical practice, unconventional activities in oncology.	
<b>Bibliography of literature</b>  Bibliography of literature Literature required to pass the course 1. „Onkologia. Podręcznik dla studentów i lekarzy” red. Radzisław Kordek; Via Medica, Gdańsk 2007. 2. „Chemical Radiosensitizers for Use in Radiotherapy” P. Wardman, Clinical Oncology (2007) 19: 397-417. 3. „Basic Clinical Radiobiology” ed. Michael Joiner, Albert van der Kogel; Hodder Arnold, Londyn 2009. 4. „Free-Radical-Induced DNA Damage and its Repair. A Chemical Perspective” Clemens von Sonntag; Springer, Berlin 2006.  Extracurricular readings 5. „Druga twarz tlenu” Grzegorz Bartosz; Wydawnictwo Naukowe PWN, Warszawa 2003.	
<b>The learning outcomes (for the field of study and specialization)</b>	<b>Knowledge</b>  Knowledge - the student knows the basics of anticancer treatment - understands the role of high energy radiation in radiotherapy - explains the process of the formation and role of genotoxic factors (hydroxyl radical and hydrated low energy electrons therein) - identifies basic types of radiosensitizers and characterizes the mechanisms of their action - knows the directions of development of novel anticancer treatments and understands the complexity of procedures for introducing new drugs into clinical practice.
	<b>Skills</b>  Skills The student can use the suggested English literature in the process of self-education and can verify gained information in reliable sources of knowledge.
	<b>Social competence</b>  Social competence The student works independently, behaves with caution and criticism in expressing opinions, argues his opinion with the help of reliable information.
<b>Contact</b>  lidia.chomicz@ug.edu.pl	