GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Nobel achievements in biotechnology, PG_00069245		
Field of study	Chemical Technology, Chemistry, Biotechnology, Engineering and Technologies of Energy Carriers, Corrosion , Green Technologies		
Date of commencement of studies	February 2025	Academic year of realisation of subject	2025/2026
Education level	second-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	2	ECTS credits	3.0
Learning profile	practical profile	Assessment form	assessment
Conducting unit	Department of Biotechnology and Microbiology -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Anna Brillowska-Dąbrowska	
	Teachers	dr hab. inż. Rafał Piątek dr inż. Monika Pawłowska dr hab. inż. Agnieszka Potęga mgr Karolina Sołowińska dr hab. inż. Marta Wanarska dr inż. Martyna Mroczyńska-Szeląg mgr inż. Aleksandra Rosińska dr hab. Beata Zalewska-Piątek prof. dr hab. inż. Maciej Bagiński dr hab. inż. Hubert Cieśliński dr hab. inż. Anna Stanisławska-Sachadyn dr hab. inż. Lucyna Holec-Gąsior	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	45.0	0.0	0.0	0.0	0.0	45

E-learning hours included: 0.0

eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=1857

Moodle ID: 1857 Noblowskie osiągnięcia w biotechnologii 2025 https://enauczanie.pg.edu.pl/2025/course/view.php?id=1857

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	45	5.0	25.0	75

Subject objectives

The lectures are devoted to presenting the most important discoveries and breakthrough technologies that have been awarded the Nobel Prize and are applied in biotechnology. Students will become familiar with both historical milestones, such as the discovery of the DNA structure, restriction enzymes, and sequencing techniques, as well as with the most recent achievements, including genome-editing methods based on CRISPR-Cas9. The course will address not only scientific aspects but also the practical and economic significance of the awarded innovations and their impact on the development of medicine, agriculture, and industry. The lectures aim to highlight biotechnology as a field that is dynamically reshaping reality and to inspire students to critically reflect on the directions of its further development.

<table>
<tr><td>Learning outcomes</td><td>
<table>
<tr><th>Course outcome</th><th>Subject outcome</th><th>Method of verification</th></tr>
<tr><td>[K7_K01] understands the need to constantly update knowledge based on the state of the art in accordance with the latest scientific literature, improve professional skills and the importance of teamwork</td><td>The student demonstrates an understanding of the significance of scientific discoveries.</td><td>[SK2] Assessment of progress of work</td></tr>
<tr><td>[K7_W05] identifies crucial developments in research, apparatus and technology in biotechnology and related fields</td><td>The student knows the scientific discoveries that contributed to the development of biotechnology and understands their impact on its advancement</td><td>[SW1] Assessment of factual knowledge</td></tr>
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<tr><td>Subject contents</td><td>Course content – lecture
Scientific achievements honored with the Nobel Prize that have influenced the development of biotechnology.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>single-choice test</td><td>60.0%</td><td>100.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>ChatGPT powiedział:

Materials provided by the individual teachers</td></tr>
<tr><td>Supplementary literature</td><td>not applied</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>A. The discovery of the mechanism of DNA replication using polymerase enzymes, which enabled the development of in vitro nucleic acid synthesis methods.
B. The development of a DNA sequencing method that revolutionised genomics.
C. The discovery of restriction enzymes, which initiated genetic engineering.
D. The invention of the PCR technique, which allowed the amplification of DNA fragments.</td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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