UNIWERSYTET IM. ADAMA MICKIEWICZA W POZNANIU

Biotechnology

Educational subject description sheet

Basic information

Study programme Liberal Arts and Sciences (English programme) **Speciality** - **Organizational unit** Faculty of History **Study level** First-cycle programme **Study form** Full-time **Education profile** General academic	**Didactic cycle** 2024/25 **Subject code** 18LENS.12K.02962.24 **Lecture languages** English **Course type** Obligatory **Block** Major subjects

Subject coordinator	Jakub Rybka
Lecturer	Jakub Rybka

Period	**Activities and hours**	**Number of ECTS points**
Semester 2	• Classes: 30, Graded credit	3

Goals

Code	Goal
C1	Transfer of knowledge in the history of biotechnology.
C2	Transfer of knowledge about fundamentals of Biotechnology (division) and discussion of individual branches.
C3	Transfer of knowledge in [lant Biotechnology (green biotechnology)
C4	Transfer of knowledge in biotechnology of the Sea (blue biotechnology)
C5	Transfer of knowledge in medical biotechnology (red biotechnology)
C6	Transfer of knowledge in industrial biotechnology (white biotechnology)
C7	Transfer of knowledge in biotechnology in its social aspect (purple biotechnology)
C8	Transfer of knowledge in biotechnology related to bioterrorism and biological weapons (dark biotechnology)
C9	Transfer of knowledge in nanobiotechnology (gold biotechnology)
C10	Presentation of the basics of Bioinformatics

Entry requirements

There are no prerequisites.

Subject learning outcomes

Code	Outcomes in terms of	Learning outcomes	Examination methods
Knowledge – Student:			
W1	knows the basics of biotechnology	LEN_K1_W01, LEN_K1_W04, LEN_K1_W08, LEN_K1_W10	Written colloquium, Test, Multimedia presentation
W2	knows and understands green, white, red, white, purple, dark and gold biotechnology	LEN_K1_W08, LEN_K1_W09, LEN_K1_W10	Written colloquium, Test, Multimedia presentation
W3	knows the history of biotechnology in its basic outline	LEN_K1_W04, LEN_K1_W05, LEN_K1_W08, LEN_K1_W10	Written colloquium, Test
Skills – Student:			
U1	can explain the use of nanomaterials in biotechnology	LEN_K1_U01, LEN_K1_U04, LEN_K1_U09	Written colloquium, Test, Multimedia presentation
U2	can explain the use of 3D printing in biotechnology	LEN_K1_U02, LEN_K1_U03, LEN_K1_U04	Written colloquium, Test, Multimedia presentation
U3	can explain the basics of bioinformatics	LEN_K1_U01, LEN_K1_U02, LEN_K1_U03, LEN_K1_U04, LEN_K1_U06	Written colloquium
Social competences – Student:			

Code	Outcomes in terms of	Learning outcomes	Examination methods
K1	is ready to act in accordance with professional ethics, to apply in practice the knowledge acquired and to disseminate knowledge in the field of biotechnology	LEN_K1_K01, LEN_K1_K03, LEN_K1_K04, LEN_K1_K05	Written colloquium, Test, Multimedia presentation

Study content

No.	Course content	Subject learning outcomes	Activities
1.	History of Biotechnology.	W1, W2, W3, K1	Classes
2.	Basics of Biology.	W1, W2, K1	Classes
3.	Basics of Biotechnology.	W1, W2, U1, U2, U3, K1	Classes
4.	Laboratories in Biotechnology.	W1, W2, U1, U2, U3, K1	Classes

Additional information

Activities	Teaching and learning methods and activities
Classes	Problem-based lecture, Discussion, Work with text, Case study, Problem-based learning, Solving tasks (e.g. computational, artistic, practical), Classes method, Laboratory method, Research method (scientific inquiry), Workshop method, Project method, Demonstration and observation, Work in groups

Activities	Credit conditions
Classes	Attendence, oral presentation and written colloquium/test. Grade scale: very good (bdb; 5.0): achievement by the student of at least 90% of the expected learning outcomes good plus (+db; 4.5): achievement by the student of at least 80% of the expected learning outcomes good (db; 4.0): achievement by the student of at least 70% of the expected learning outcomes Sufficient plus (+dst; 3.5): Achievement of expected learning outcomes by the student at a minimum of 60%. Sufficient (dst; 3.0): Achievement of at least 50% of the expected learning outcomes. unsatisfactory (ndst; 2.0): the student does not achieve the expected learning outcomes.

Literature

Obligatory

1. Nelson D.L., Cox M., Lehninger M., Principles of Biochemistry, 6th Ed. W.H. Freeman and Company, NY, USA, 2013.

Optional

1. Kristiansen B., Ratledge C., Basics of Biotechnology, Cambridge University Press, 2006.

Calculation of ECTS points

Activities	Activity hours*

Classes	30
Preparation for classes	10
Preparation for the assessment	30
Reading the indicated literature	20
Student workload	**Hours** 90
Number of ECTS points	**ECTS** 3

* academic hour = 45 minutes

Efekty uczenia się dla kierunku

Kod	Treść
LEN_K1_K01	The graduate is ready to act in accordance with the norms of social and research ethics
LEN_K1_K03	The graduate is ready to apply the acquired knowledge to solve practical problems
LEN_K1_K04	The graduate is ready to promote science among non-specialists
LEN_K1_K05	The graduate is ready to initiate action on behalf of the social environment and public interest
LEN_K1_U01	The graduate can plan and carry out group or independently simple research projects in the humanities and sciences, including with the use of digital tools digital
LEN_K1_U02	The graduate can apply in-depth knowledge of the humanities and sciences in research
LEN_K1_U03	The graduate can read with an understanding professional scientific texts in the humanities and sciences, with an awareness of the need for their critical evaluation
LEN_K1_U04	The graduate can perform critical interpretation of sources (historical, literary) in the humanities
LEN_K1_U06	The graduate can use knowledge of the humanities, social sciences, and sciences to diagnose and evaluate developments in society
LEN_K1_U09	The graduate can plan and implement a lifelong learning process
LEN_K1_W01	The graduate knows and understands philosophical approaches defining the role, and goals of science and its place in European civilization over the centuries
LEN_K1_W04	The graduate knows and understands the key terminology of the main disciplines in the humanities, social sciences, sciences and natural sciences
LEN_K1_W05	The graduate knows and understands determinants of research within the humanities and sciences in the era of the digital revolution
LEN_K1_W08	The graduate knows and understands the processes of development of the sciences and selected issues of contemporary research
LEN_K1_W09	The graduate knows and understands the processes of development of social sciences and selected issues of contemporary research
LEN_K1_W10	The graduate knows and understands the processes of development of experimental sciences and selected issues of contemporary research