

DESCRIPTION OF THE COURSE OF STUDY

Course code	0512.6.BIOT1.B/C.PI	
Name of the course in	Polish	Podstawy immunologii
	English	Basics of immunology

1. LOCATION OF THE COURSE OF STUDY WITHIN THE SYSTEM OF STUDIES

1.1. Field of study	Biotechnology
1.2. Mode of study	Full time
1.3. Level of study	Bachelor's degree
1.4. Profile of study*	General academic
1.5. Person/s preparing the course description	Prof. dr hab. Anna Lankoff
1.6. Contact	anna.lankoff@ujk.edu.pl

2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

2.1. Language of instruction	English
2.2. Prerequisites*	Basic knowledge of genetics, molecular biology and cell biology

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes	e.g. lectures, classes, (including e-learning)	
3.2. Place of classes	Institute of Chemistry UJK/ Microsoft Teams online sessions	
3.3. Form of assessment	lecture-exam, classes-credit with grade	
3.4. Teaching methods	lectures/classes, consultation, presentation, self-study, online self-study	
3.5. Bibliography	Required reading	Abul K. Abbas, Andrew H. Lichtman, Shiv Pillai. Basic Immunology (2023), 7 th Edition, Elsevier
	Further reading	Roitt I., Brostoff J., Male D. (2001), Immunology. Wydawnictwo Lekarskie PZWL, Warszawa

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES

<p>4.1. Course objectives (including form of classes)</p> <p>Lectures: C1- Introduction of basic immunological concepts and familiarization with the molecular processes and mechanisms occurring in the human body during immune reactions. C2- Using knowledge about immunological mechanisms in everyday life and professional work</p> <p>Lab: C1- Familiarization with basic immunological concepts and molecular processes and mechanisms occurring in the human body during immune reactions. C2- Familiarization with the methods used in immunological research</p>
<p>4.2. Detailed syllabus (including form of classes)</p> <p>Lectures (including e-learning) Introduction to immunology. Central and peripheral immune system. Immunocompetent cells and their functions. Mechanisms of non-specific immunity - immunophagocytosis and the complement system. Mechanisms of specific immunity - maturation of T and B lymphocytes. Antigen recognition by T lymphocytes - TCR receptors. Structure and function of antibodies - BCR receptors. Monoclonal antibodies. Major histocompatibility system. Migration and activation of T and B lymphocytes. Mechanisms of natural cytotoxicity (mechanisms of action of Tc lymphocytes and NK cells). Cytokines. Immunological memory. Anti-infective immunity and vaccines. Hypersensitivity of the immune system type I, II, III and IV. Immunological tolerance. Autoimmunity. Introduction to immunohematology.</p> <p>Lab (including e-learning) Central and peripheral immune system. Immunocompetent cells and their functions. Immunophagocytosis. Differentiation markers and surface receptors, maturation of T and B lymphocytes (blast transformation, apoptosis), ABO blood group system.</p>

4.3. Intended learning outcomes

Code	A student, who passed the course	Relation to learning outcomes
within the scope of KNOWLEDGE :		
W01	describes the structure, function and activities of the human immune system and explains the functioning of the immune system in the body as a whole, regarding immunological mechanisms	BIOT1A_W02
W02	knows and understands the principles of occupational health and safety when working with biological material	BIOT1A_W10
W03	knows the principles of operation of basic scientific and measurement equipment used in immunology and understands the methodology of immunological research	BIOT1A_W08
within the scope of ABILITIES :		
U01	is able to apply basic techniques and research tools in the field of immunology, including advanced immunocytochemical and cytometric techniques	BIOT1A_U01
U02	is able to properly select and apply statistical methods to describe the results of laboratory work	BIOT1A_U03
U03	conducts, analyzes and documents the results of biological (immunological) laboratory work	BIOT1A_U05
U04	is able to synthesize data in the field of immunology and use them in biotechnology	BIOT1A_U07
U05	is able to plan and organize own work and work in a team	BIOT1A_U10
within the scope of SOCIAL COMPETENCE :		
K01	complies with ethical principles in immunological research	BIOT1A_K03
K02	feels responsible for the scientific equipment on which he performs measurements	BIOT1A_K04

4.4. Methods of assessment of the intended learning outcomes

Teaching outcomes (code)	Method of assessment (+/-)																							
	Exam oral/written*			Test*			Project*			Effort in class*			Self-study*			Group work*			Others* e.g. standardized test used in e-learning					
	Form of classes			Form of classes			Form of classes			Form of classes			Form of classes			Form of classes			Form of classes					
	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...
W01	X					X																		
W02	X																							
W03	X																							
U01						X																		
U02						X									X									
U03															X									
U04						X																		
U05												X												
K01												X												
K02												X												

*delete as appropriate

4.5. Criteria of assessment of the intended learning outcomes

Form of classes	Grade	Criterion of assessment
lecture (L) (including e-learning)	3	obtaining 51% - 65% of points in the written exam
	3,5	obtaining 66% - 75% of points in the written exam
	4	obtaining 76% - 85% of points in the written exam
	4,5	obtaining 86% - 95% of points in the written exam
	5	obtaining 96% - 100% of points in the written exam
classes (C)* (including e-learning)	3	obtaining 51% - 65% of the test points
	3,5	obtaining 66% - 75% of the test points
	4	obtaining 76% - 85% of the test points
	4,5	obtaining 86% - 95% of the test points
	5	obtaining 96% - 100% of the test points

5. BALANCE OF ECTS CREDITS – STUDENT’S WORK INPUT

Category	Student's workload	
	Full-time studies	Extramural studies
<i>NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT HOURS/</i>	60	60
<i>Participation in lectures*</i>	30	30
<i>Participation in classes, seminars, laboratories*</i>	30	30
<i>INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/</i>	40	40
<i>Preparation for the lecture*</i>	5	5
<i>Preparation for the classes, seminars, laboratories*</i>	10	10
<i>Preparation for the exam/test*</i>	25	25
<i>TOTAL NUMBER OF HOURS</i>	100	100
ECTS credits for the course of study	4	4

**delete as appropriate*

Accepted for execution (date and legible signatures of the teachers running the course in the given academic year)