



UNIwersytet  
IM. ADAMA MICKIEWICZA  
W POZNANIU

## MSc project: human disease and therapy

### Educational subject description sheet

#### Basic information

<b>Study programme</b> Biotechnology		<b>Didactic cycle</b> 2024/25	
<b>Speciality</b> -		<b>Subject code</b> 01BTES.2EN.15712.24	
<b>Organizational unit</b> Faculty of Biology		<b>Lecture languages</b> English	
<b>Study level</b> Second-cycle programme		<b>Course type</b> Elective	
<b>Study form</b> Full-time		<b>Block</b> Subjects not assigned	
<b>Education profile</b> General academic			
<b>Subject coordinator</b>	Zbigniew Czapla		
<b>Lecturer</b>	Zbigniew Czapla		
<b>Period</b> Semester 2	<b>Activities and hours</b> • Laboratories: 100, Graded credit		<b>Number of ECTS points</b> 12
<b>Period</b> Semester 3	<b>Activities and hours</b> • Laboratories: 120, Graded credit		<b>Number of ECTS points</b> 14
<b>Period</b> Semester 4	<b>Activities and hours</b> • Laboratories: 140, Graded credit		<b>Number of ECTS points</b> 16

## Goals

Code	Goal
C1	Develop the knowledge and skills necessary to conduct research aimed at solving problems in the field of human disease and therapy.
C2	Develop knowledge and skills to select and use tools and methods for solving the complex of human disease and therapy problems using multidisciplinary approach.
C3	Introduce step-by-step to methods of systematical analysis, appraising and using research findings.
C4	Demonstrate and practice different forms of biotechnological data presentation.
C5	Develop skills necessary for writing a publication / thesis describing issues related to human disease and therapy.
C6	Provide the knowledge on the process of describing and publishing the data connected with human disease and therapy.
C7	Develop the skills necessary for substantial discussion on topics related to human disease and therapy.

## Subject learning outcomes

Code	Outcomes in terms of	Learning outcomes	Examination methods
<b>Knowledge - Student:</b>			
W1	apply the knowledge obtained during the studies to solve a specific research problem related to human disease and therapy.	BTY_K2_W01, BTY_K2_W02, BTY_K2_W03, BTY_K2_W04, BTY_K2_W05, BTY_K2_W08, BTY_K2_W09	Project
W2	select the state-of-the-art literature including breakthrough and hot topics of human disease and therapy.	BTY_K2_W09	Project
W3	present the results of a study using various forms of scientific expression.	BTY_K2_W05	Project
<b>Skills - Student:</b>			
U1	apply the skills obtained during the studies to solve a specific research problem related to human disease and therapy.	BTY_K2_U01, BTY_K2_U02, BTY_K2_U03, BTY_K2_U04, BTY_K2_U05, BTY_K2_U06, BTY_K2_U07	Project
U2	use the right research methods for his/her purposes.	BTY_K2_U01, BTY_K2_U02, BTY_K2_U03	Project
U3	find the literature useful for analysis of a particular scientific issue/problem concern human disease and therapy.	BTY_K2_U03	Project
U4	present research results using various forms of scientific expression.	BTY_K2_U04, BTY_K2_U05	Project
<b>Social competences - Student:</b>			

Code	Outcomes in terms of	Learning outcomes	Examination methods
K1	assess the appropriateness of the methods used in the reviewed literature.	BTY_K2_K01, BTY_K2_K04	Project
K2	selects the most modern literature containing the latest information in the field of human disease and therapy.	BTY_K2_K01, BTY_K2_K02, BTY_K2_K04	Project
K3	assess the adequateness of the conclusions with reference to results of Master project.	BTY_K2_K01, BTY_K2_K04	Project

### Study content

No.	Course content	Subject learning outcomes	Activities
1.	Analyzing the problem or topic.	W1, W2, U1, U3	Laboratories
2.	Conducting extensive research.	U2	Laboratories
3.	Summarizing findings from the research investigation.	W1, U1, U2	Laboratories
4.	Recommending additional research on the topic.	W2, K1, K2, K3	Laboratories
5.	Drawing conclusions and making recommendations.	K3	Laboratories
6.	Documenting the results of the research.	W2, U3, K1, K2, K3	Laboratories
7.	Defending conclusions and recommendations.	W3, U4	Laboratories

### Additional information

#### Semester 2

Activities	Teaching and learning methods and activities
Laboratories	Discussion, Laboratory method, Project method

Activities	Credit conditions
Laboratories	A student's work is assessed continuously by the supervisor, and feedback is provided to the student orally. The assessment includes: a) substantive preparation for classes, b) proper application of research techniques, c) proper use of scientific equipment, d) compliance with health and safety regulations, e) rational use of materials and reagents, e) preparation of correct documentation for each experiment, f) cooperation and collaboration with other team members. The design and analysis of experiment results are assessed continuously by the supervisor and provided to the student in oral form. The assessment includes: a) the student's knowledge of the state of research in the field of the master's project, b) planning of experiments in accordance with the methodology of scientific research and knowledge of the use of specific techniques, c) proper analysis of results, d) drawing correct conclusions from the conducted experiments.

#### Semester 3

Activities	Teaching and learning methods and activities
Laboratories	Discussion, Laboratory method, Project method

Activities	Credit conditions
Laboratories	A student's work is assessed continuously by the supervisor, and feedback is provided to the student orally. The assessment includes: a) substantive preparation for classes, b) proper application of research techniques, c) proper use of scientific equipment, d) compliance with health and safety regulations, e) rational use of materials and reagents, e) preparation of correct documentation for each experiment, f) cooperation and collaboration with other team members. The design and analysis of experiment results are assessed continuously by the supervisor and provided to the student in oral form. The assessment includes: a) the student's knowledge of the state of research in the field of the master's project, b) planning of experiments in accordance with the methodology of scientific research and knowledge of the use of specific techniques, c) proper analysis of results, d) drawing correct conclusions from the conducted experiments.

## Semester 4

Activities	Teaching and learning methods and activities
Laboratories	Discussion, Laboratory method, Project method

Activities	Credit conditions
Laboratories	A student's work is assessed continuously by the supervisor, and feedback is provided to the student orally. The assessment includes: a) substantive preparation for classes, b) proper application of research techniques, c) proper use of scientific equipment, d) compliance with health and safety regulations, e) rational use of materials and reagents, e) preparation of correct documentation for each experiment, f) cooperation and collaboration with other team members. The design and analysis of experiment results are assessed continuously by the supervisor and provided to the student in oral form. The assessment includes: a) the student's knowledge of the state of research in the field of the master's project, b) planning of experiments in accordance with the methodology of scientific research and knowledge of the use of specific techniques, c) proper analysis of results, d) drawing correct conclusions from the conducted experiments.

## Literature

### Obligatory

1. literature recommended by the thesis supervisor

## Calculation of ECTS points

### Semester 2

Activities	Activity hours*
Laboratories	100
Preparation for classes	60
Reading the indicated literature	60
Preparation of a project	80

<b>Student workload</b>	<b>Hours</b> 300
<b>Number of ECTS points</b>	<b>ECTS</b> 12

\* academic hour = 45 minutes

### Semester 3

<b>Activities</b>	<b>Activity hours*</b>
Laboratories	120
Preparation for classes	65
Reading the indicated literature	65
Preparation of a project	100
<b>Student workload</b>	<b>Hours</b> 350
<b>Number of ECTS points</b>	<b>ECTS</b> 14

\* academic hour = 45 minutes

### Semester 4

<b>Activities</b>	<b>Activity hours*</b>
Laboratories	140
Preparation for classes	75
Reading the indicated literature	75
Preparation of a project	110
<b>Student workload</b>	<b>Hours</b> 400
<b>Number of ECTS points</b>	<b>ECTS</b> 16

\* academic hour = 45 minutes

## Efekty uczenia się dla kierunku

Kod	Treść
BTY_K2_K01	The graduate is ready to critically assess knowledge and use it in solving research and technological problems
BTY_K2_K02	The graduate is ready to improve and update their knowledge of biotechnology and related areas of study
BTY_K2_K04	The graduate is ready to assess publicly available information concerning biotechnology, and participate responsibly in social discourse
BTY_K2_U01	The graduate can independently select and use the tools and methods for solving research and technological problems, and act based on state-of-the-art findings of science, including medical biotechnology
BTY_K2_U02	The graduate can design and test biotechnological solutions for medical applications
BTY_K2_U03	The graduate can creatively utilize and update their knowledge of biotechnology – identify, formulate, and solve research problems, conduct critical analysis and selection of information coming from publicly available sources
BTY_K2_U04	The graduate can present and review different opinions and positions, and moderate a discussion on the subject of biotechnology and related disciplines as well as interdisciplinary subjects, while complying with applicable laws and norms of ethics
BTY_K2_U05	The graduate can use English language and specialist terminology related to natural sciences, in accordance with requirements for level B2+ of CEFR (Common European Framework of Reference for Languages)
BTY_K2_U06	The graduate can organize teamwork and cooperate with other individuals assuming various roles within the group
BTY_K2_U07	The graduate can design their self-education, improve professional competence, and advise other individuals on their education
BTY_K2_W01	The graduate knows and understands up-to-date research technology that provides solutions to innovative problems on the verge of technology and contemporary biology/medicine
BTY_K2_W02	The graduate knows and understands issues related to the use of living organisms in biotechnological solutions for medical applications
BTY_K2_W03	The graduate knows and understands at the advanced level – complex biological phenomena at different levels of the hierarchical organization of life and their importance to biotechnology
BTY_K2_W04	The graduate knows and understands mechanisms of the functioning of organisms under the physiological norm and pathological conditions
BTY_K2_W05	The graduate knows and understands advanced tools of statistics and bioinformatics which are indispensable in designing/performing experiments and in the interpretation of the results
BTY_K2_W08	The graduate knows and understands at the advanced level – the laws and rules of ethics concerning biotechnological and biomedical research, and biomaterials as well as protection of personal data, intellectual and industrial property rights
BTY_K2_W09	The graduate knows and understands at the advanced level– the categories of notions in natural sciences and other sciences, and specialist terminology, specifically in the field of biotechnology