



Summer Semester												
Direct (contact) education							20					6
Online learning (synchronous)												
Distance learning (asynchronous)												
TOTAL per year:												
Direct (contact) education							20					6
Online learning (synchronous)												
Distance learning (asynchronous)												
Educational objectives (max. 6 items) C1. Mastering the basic techniques of molecular medicine by the student C2. Orientation in various issues and techniques of molecular medicine C3. Learning basic techniques of genetic material visualization in agarose gel electrophoresis.												
Education result matrix for module/course in relation to verification methods of the intended education result and the type of class												
Number of course education result	Number of major education result	Student who completes the module/course knows/is able to	Methods of verification of intended education results (forming and summarising)	Form of didactic class <i>**enter the abbreviation</i>								
K01	B.W13.	- knows the function of nucleotides in cell, I- and II- dary structures of DNA and RNA	Essay, discussion	LC, SK								
K02	B.W14.	- knows the function of genome, transcriptome and proteome of human body and basic methods used for its study										
K03	C.W1.	- knows the basic concepts of genetic										
K04	C.W9.	- knows the basic methods for genomic mutation diagnosis										
S01	B.U8.	- uses basic laboratory techniques such as: qualitative analysis, nucleic acids electrophoresis	Discussion, assessment of student's activity and skills during laboratory classes	LC, SK								
S02	B.U9.	- supports simple measuring instruments and evaluates the accuracy of measurements										
S03	B.U10	uses databases, including web databases, and searches for the necessary information using the available tools										
S04	B.U13.	- plans and performs simple research and interprets its results										



		and draws conclusions.	
<p>** L - lecture; SE - seminar; AC – auditorium classes; MC – major classes (non-clinical); CC – clinical classes; LC – laboratory classes; SCM – specialist classes (magister studies); CSC – classes in simulated conditions; FLC – foreign language course; PCP practical classes with patient; PE – physical education (obligatory); VP – vocational practice; SS – self-study, EL – E-learning .</p>			
<p>Please mark on scale 1-5 how the above effects place your classes in the following categories: communication of knowledge, skills or forming attitudes: Knowledge: 5 Skills: 4</p>			
Student's amount of work (balance of ECTS points)			
Student's workload (class participation, activity, preparation, etc.)		Student Workload (h)	
1. Contact hours:		20	
2. Online learning hours (e-learning):		---	
3. Student's own work (self-study):		6	
Total student's workload		26	
ECTS points for module/course		1	
Comments			
Content of classes (please enter topic words of specific classes divided into their didactic form and remember how it is translated to intended educational effects)			
Lectures			
1.			
2.			
3.			
Seminars			
1.			
2.			
3.			
Practical classes			
<p>Class I: Taking a blood sample. Separation of lymphocytes from whole blood by Gradisol gradient. Collection and storage of isolated cells. Preparing of stains from saliva on the tissue papers.</p> <p>Class II: Isolation of DNA from lymphocytes using phenol-based method. DNA extraction from bloodstain using a Chelex method.</p> <p>Class III: Total RNA isolation on-column method. The reaction of reverse transcription.</p> <p>Class IV: PCR and its application in the example of detection of polymorphisms in the <i>CCR5</i> gene.</p> <p>Class V: RFLP that is PCR and RESTRICTION ENZYMES: Restriction enzymes in the example of hemochromatosis diagnosis.</p> <p>Class VI: ELECTROPHORESIS: Agarose gel electrophoresis of products obtained in during previous exercises. Databases (NCBI, USCS): where to find information about genes, what we can find, searching for the DNA, mRNA sequence.</p> <p>Class VII: Introduction into gene therapy.</p>			
Other			
Basic literature (list according to importance, no more than 3 items)			
1. McLennan, AG, Bates, AD, Turner, PC, White, MRH Instant Notes in Molecular Biology. Published by Springer-Verlag (1997-09-01)			



2. Genomes , T.A. Brown, Garland Science Publishing, 2007
Additional literature and other materials (no more than 3 items)

Didactic resources requirements (e.g. laboratory, multimedia projector, other...)
The laboratory equipped with a basic laboratory devices: thermocyclers, centrifuges, thermomixer, authomated pipettes, the multimedia projector.

Preliminary conditions (minimum requirements to be met by the student before starting the module/course)
Sign up for the list. Basic knowledge of genetic

Conditions to receive credit for the course:
Each absence must be made up, including rector's days or dean's hours.
To receive credit for the course student is obligated to be present at 100% of classes or any absence must be made up by preparing assay discussing the topic chosen by the student.
The course is ended by a one-choice test. The mark received at the end of the course will be estimated based on a number of positive answers as presented in the table below.

Grade:	Criteria for course
Very Good (5.0)	100%-93%
Good Plus (4.5)	92,9%-85%
Good (4.0)	87,9%-78%
Satisfactory Plus (3.5)	77,9%-70%
Satisfactory (3.0)	69,9%-60%

Grade:	Criteria for exam (if applicable)
Very Good (5.0)	
Good Plus (4.5)	
Good (4.0)	
Satisfactory Plus (3.5)	
Satisfactory (3.0)	



Name of unit teaching course:	Molecular Techniques Unit
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Person responsible for course:	Dr Małgorzata Małodobra-Mazur
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<i>List of persons conducting specific classes:</i>	<i>degree/scientific or professional title</i>	<i>Discipline</i>	<i>Performer profession</i>	<i>Form of classes</i>
Aneta Cierzniaak	Mgr	Molecular biology	Medicine laboratory	Laboratory classes

Date of Syllabus development

Syllabus developed by

22.03.2021

Dr Małgorzata Małodobra-Mazur

Signature of Faculty Dean

Wrocław Medical University
Faculty of Medicine
Vice-Dean for English Studies

prof. Beata Sobieszczanska, PhD

Uniwersytet Medyczny we Wrocławiu
Signature of Head of teaching unit
ZAKŁAD TECHNIK MOLEKULARNYCH
p.o. KIEROWNIKA

Dr n. med. Małgorzata Małodobra-Mazur