

Course title				ECTS code		
Molecular diagnostics (lab.)				13.1.0178		
Name of unit administrating study						
Teaching staff						
dr Joanna Nakonieczna; mgr Katarzyna Meller; mgr Alicja Sznarkowska						
Studies						
faculty	field of study	type	form	specjalty	specialization	semester
Intercollegiate Faculty of Biotechnology UG- MUG	Biotechnology	second tier studies (MA)	full-time	all	all	1
Forms of classes, the realization and number of hours				ECTS credits		
Forms of classes				2		
Ćw. laboratoryjne (to translate)						
The realization of activities						
lectures in the classroom						
Number of hours						
Ćw. laboratoryjne (to translate): 30 hours						
The academic cycle						
2013/2014 winter semester						
Type of course			Language of instruction			
obligatory			polish			
Teaching methods			Form and method of assessment and basic criteria for evaluation or examination requirements			
ćwiczenia laboratoryjne - wykonywanie doświadczeń (to translate)			Final evaluation			
			Zaliczenie na ocenę (to translate)			
			Assessment methods			
			<ul style="list-style-type: none"> - wykonanie pracy zaliczeniowej - przeprowadzenie badań i prezentacja ich wyników (to translate) - ustalenie oceny zaliczeniowej na podstawie ocen cząstkowych otrzymywanych w trakcie trwania semestru (to translate) - wykonanie pracy zaliczeniowej - wykonanie określonej pracy praktycznej (to translate) 			
			The basic criteria for evaluation			
			<p>The evaluation will be based on performance of the assigned tasks. The examination results must be prepared by the student as a written report (the first constituent grade). The student will obtain the next constituent grade for a particular practical assignment, performed properly (ability to stick to the rules of health and safety; ability to work with potentially contagious material; performing a correct analysis of genetic material by means of methods presented during classes; ways of dealing with medical waste) The next constituent grade will be based on at least 3 colloquia checking the student's theoretical knowledge necessary to perform laboratory tasks properly. The colloquia cover theoretical issues concerning the laboratory task planned for the particular day.</p> <p>The final grade for the laboratory classes is calculated in accordance with the following principle: conducting research work - 35% of the final grade, performing a particular practical task - 35%, the average of the grades for the three tests of theoretical knowledge - 30% of the final grade.</p>			
Required courses and introductory requirements						
A. Formal requirements						
B. Prerequisites						
Preferred - knowledge, skills and competence obtained during laboratory classes in General Biology, Molecular Biology						

Aims of education

The aim of the laboratory is to acquaint students with the practical aspect of molecular diagnostics, in particular with the techniques and tools used in the analysis of genetic material. The student will get to know limitations and the choice of techniques used in the analysis of genetic material.

During the course the student will:

K_U01 – acquire abilities indispensable for working in a molecular diagnostics laboratory, an ability to plan an experiment, including the planning of place and time of work. The student will acquire an ability to conduct an experiment on his own and will get to know the method and the necessity of documenting the steps performed during the experiment, as well as of the acquired results. During the course the student will acquire an ability to apply complex research techniques (PCR with product detection in real time; genotyping techniques, ddPCR) as well as to use the equipment applied in the detection of genetic material and data analysis (Light Cycler, Quantity One, Nanodrop- type equipment).

K_U05 – acquire an ability to collect results obtained in the self-performed experiments, moreover, to apply selected statistical methods to obtain the final result, on whose basis the student will be able to formulate final conclusions and eventually plan further analyses.

K_K02 – acquire the attitudes indispensable in teamwork, mutual planning, and subsequently, in the mutual realization of laboratory tasks. During the classes the student will acquire competency to prepare theoretical reviews concerning the subject of particular experiments.

K_K05 – acquire competency to work in accordance with the rules of health and safety in a diagnostic laboratory with the potentially contagious material, he will be able to apply safety rules in a diagnostic lab. Moreover, he will acquire an ability to react properly in a hazardous situation.

Course contents

The laboratory course involves learning about molecular biology techniques used in diagnostics based on the analysis of genetic material (human, microbiological). Moreover, laboratory classes cover the ways of assessing the quality of genetic material, its usefulness in performing certain analyses. An important element of the course is learning how to work in sterile conditions and the ability of individual organization of the place and time of work.

Bibliography of literature

A. Literatura podstawowa

Materiały przygotowane przez prowadzącego zajęcia

B. Literatura uzupełniająca

Analiza DNA. Teoria i praktyka. Pod redakcją Ryszarda Słomskiego. Wydawnictwo Uniwersytetu Przyrodniczego w Poznaniu, Poznań.

Badania molekularne i cytogenetyczne w medycynie. Elementy genetyki klinicznej. Pod redakcją Jerzego Bała, Springer PWN.

Biologia molekularna w medycynie. Pod redakcją Jerzego Bała, Wydawnictwo Naukowe PWN, Warszawa.

Źródła literaturowe dostępne w internetowych bazach danych (PubMed)

The learning outcomes

K_U01

K_U05

K_K02

K_K05

Knowledge

Skills

K_U01 Has the skills indispensable for lab work; is able to plan conducting an experiment and carry it out, is able to document on his own operations and results; in lab work, under the supervision of the tutor, uses complex techniques and research tools, is able to use lab equipment.

K_U05 Collects and interprets empirical data, in data analysis uses statistical methods and informatics tools, draws conclusions on the basis of empirical data

Social competence

K_K02 Has an ability to work in a team, in particular, while performing laboratory work or preparing theoretical reviews within the field of biotechnology and related scientific areas and disciplines

K_K05 Is aware of the significance of rules of safety at work, particularly in a laboratory; applies the rules of safety at work; is responsible for his/her own safety and the safety of others; can react properly in hazardous situations

Contact

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