MED 3020 - Applied Molecular Genetics

Course Name	Code	Semester	Type of course	Theory (hours)	Group Work(hours)	ECTS
Applied Molecular Genetics	MED 3020	VI	Mandatory	10	16	2

Faculty, the educational program and education level	Faculty of Medicine, one-cycle Educational Program "Medicine"
Author (s)	SOPHIKO TSKVITINIDZE –ASSISTANT PROFESSOR TEL: +995 593 744 133 /+ 995 599 122 633; E-MAIL: tskvitinidze.s@gmail.com Consulting day - individually
Educatıonal course format	LECTURE WORK İN GROUP
Educatıonal course volume	**Total:** 60 hours **Contact hours**: 30 h, that inscudes: 1. Lecture – 10 h 2. Group work – 16 h 3. Midterm Exam – 2 h 4. Final Exam -2 h **Independent work** – 30 h
Prerequisites	None
The purpose (s) of tutorial course/modules	To gain information about molecular diagnosis of genetic disorders both in theoretical and practical level and ability in interpretation of the experiment results.
Teaching and learning strategy	**Lectures will be conducted** based on the application of verbal explanation method, demonstration- the method of visual presentation of the information. In order to develop the skills of making conclusions supported by the arguments the students, during the **Group work,** will defend and justify their opinions, when dealing with situation analysis, and analyze critically the situation created by their course mate. The students will also carry out the analysis of the clinical cases, interpret, classify, assess the data and make synthesis by means of connecting and confluencing of the components comprising the separate issues.

Assessment criteria	Maximum score- 100
	 Midterm assessment -60
	    • Attendance on lectures - 0.4 score;
	    • Activity on Group work – 10 score:
	    • Project -10 score
	    • Poster preparation -10 score
	    • **Midterm Exam – 20**

Is held in the written test form (test consists of 40 multiple-choice questions, each question is rated as 0.5 score).

Group Work are Assessment Based on the Following Criteria (maximum 10 point)

10 points - Student has been able to present complete and thorough knowledge of the subject, a substantial amount of detailed and relevant information. Demonstrate considerable depth of understanding of the studied main and additional literature. Bring forward a balanced view of the main arguments on the issues.

9 points - Student has been able to bring forward a consistent number of deductions on most of the topics tackled. make very good comments on the different perspectives on most of the issues. Demonstrates knowledge of the main readers.

8 points - Student has been able to bring forward a consistent knowledge, Has properly developed terminology. Demonstrates knowledge of the main readers.

7 points - Student has been able to present some factual information sufficiently linked with the topic. demonstrate a good understanding of the topics selected. make a good attempt to bring forward a balanced view of some arguments on the issues. Terminology is partially developed.

6 points - Student has been able to make some good comments on the different perspectives on some of the issues. Make poor deductions on most of the topics tackled. analyse some causes and results of human interactivity related to the issues.

5 points - Student has been able to demonstrate inconsistent comments on the different perspectives on some of the issues. Terminology is partially developed. Present mediocre level of knowledge. Make poor deductions.

4 points - Student demonstrates general overview of the topics. Terminology is not developed. Information sufficiently linked with the topic. Demonstrate irrelevant understanding of the literature.

3 points – Student demonstrates general/superficial and inconsistent knowledge of the subject. No sufficient knowledge of the literature.

2 points - Student demonstrates general comments, no knowledge of the terminology, no consistency.

1 point – Student demonstrates insufficient answer, not terminology awareness, chronologic manner of the answer, mostly wrong, no knowledge of literature.

0   point: Student demonstrates not even elementary knowledge of the topics.

Students are admitted to the final examination if they score no less than 51 points through the midterm exam and final examinations.

Midterm Exam – 20 scores max.

Is held in the written test form (test consists of 40 multiple-choice questions, each question is rated as 0.5 score -20 scores total).

Final Exam – 40 scores max.

Is held in the written test form (test consists of 60 multiple-choice close questions, each question is rated as 0.5 score and 10 open questions each question is rated as 1 score).

The final exam would accounted as passed in case of maximum 70% or more (40X70 / 100 = 28 scores).

Credit will be given to the student if he has collected at minimum 51 scores out of 100.

The students' assessment has to be done in the following way:

Positive rate:

	(A) Excellent- 91 or more points; (B) Very Good- 81-90 points; (C) Good- 71-80 points; (D) Satisfactory- 61-70 point; (E) Enough- 51-60 points; **Negative rate**: (FX) Failure - 41-50 points, which means that a student needs to work more and an independent and considerable further work is required to pass the exam once again to be re-awarded; (F) Fail - 40 points or less, which means that the student's diligence is not sufficient and student has to learn the subject all over again. Student can pass the additional exam during the same semester. The time interval between the final and the additional exams should be not less than 10 days.
The basic literature	1. Thompson & Thompson **Genetics in Medicine**, 7th Edition, 2007, 2. May. Frederic **Current Protocols in Molecular Biolog**y, Wiley Interscience, 2010,
The auxiliary literature	

The tutorial/learning course content

N/N	Subjects	ლექცია (სთ)	ჯგუფური მუშაობა (სთ)
1	Molecular basis of genetic diseases.	1	1
2	Genetic testing and applications	1	1
3	Group Work	1	1
4	Rare genetic diseases (presentation)	1	1
5	Biosafety and Laboratory Rules. Isolation of genomic DNA, quality control of DNA (laboratory)	1	2
	Midterm exam		2
6	Polymerase chain reaction (PCR) (laboratory)	1	2
7	Deletion analysis methods	1	1
8	Point mutation analysis methods	1	1
9	RFLP Analysis (laboratory)	1	1
10	Gene expression analysis (RNA level) (laboratory). Gene expression analysis (Protein level) (laboratory)	1	1

	Final exal		2

Learning Outcomes

Criteria	Competences
Knowledge and understanding	Students has knowledge about: -molecular basis of genetic disorders, terms of monogenic and polygenic disorders, discuss the importance of rare disorders in population -the term, genetic test, and get information about issues like;
Applying knowledge application	Student is able to: -perform the informed consent form and reports of genetic tests. -gain practical experience on basic techniques related with mutation analysis . Student knows about approaches to gene expression analysis, to experiments on RNA and protein level and can interpret the results of these applications.
Communication skills	Students can communicate with patients, their relatives, collegues; can work in team