MED 3017 -Biochemical Approach to Life and Molecules

Course Name	Code	Semester	Type of course	Theory (hours)	Work in Group (hours)	ECTS
Biochemical Approach to Life and Molecules	MED 3017	V	Elective	12	14	2
Faculty, the educational program and education level	Faculty of Medicine, one-cycle Educational Program "Medicine"					
Author (s)	**Rusudan Khukhunaishvili**- invited teacher Mob.tel.: 577 17 97 09; e-mail: kh rusudan@yahoo.com Consultation day: individually					
Educational course format	Lecture Work I group					
Educational course Loading	**Total:** 60 hours **Contact hours**: 30 h, among them: 1. Lecture – 12 h 2. Team work – 14h 3. Midterms – 2 h 4. Final exam -2 h **Independent work** –30 h					
Prerequisites	MED 1001 Molecular basis of Cells					
The purpose (s) of tutorial course/modules	The aim of the learning course is to acquire basic knowledge about the achievements of modern research of bio-molecules, development of life sciences and understanding the biochemical processes in the development of the molecular mechanisms of a disease.					
Teaching and learning methods	**Lecture - Face-to-Face -** Lecture notes and readings **Demonstration** - illustrations, slides and other visual aids; **Discussion** – questions and answers, answers analysis supported with visual aids; **Analyses and synthesis** of different medical cases; **Practical work** on the clinic base : **Brief-inquire** -short questions and answers. **Work with additional literature –**independent work with additional literature to deep knowledge about new achievement in this field of area. **Synopsis** preparation and presentation in group with the following discussion and analysis of it; student must prepare synopsis by using the appropriate literature and working method with books, searching for and finding the needed materials					

Assessment criteria	**Maximum score- 100,** that includes: **Midterm assessment -60 scores:** - Attendance on each lecture -1 score (1X10 =10 scores) - Activity in group work - 10 scores; - Discussion – 10 scores; - Synopsis preparation – 10 scores; **Midterm Exam – 20 scores** **Group Work are Assessed 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 **Discussion assessment criteria (10 score- max.)** 1. Critical thinking-2 scores; 2. Debating culture -2 scores; 3. Argumentativeness ability – 2 scores; 4. Time management - 2 scores; 5. Academic and visual side of presented material – 2 scores.

	Preparation of synopsis criteria (10 score- max.) 6. Actuality of the problem – 2 scores; 7. Research review of the material-2 scores; 8. Accuracy of the conclusion regarding the main test – 2 scores; 9. Culture of the writing – 2 scores; 10. Visual and technical side of the written material – 1 score; 11. Reference literature accuracy - 1 score **Midterm exam** is a test (multiple choice) that contains 40 questions, each rated 0.5 score – total 20 scores; The student is allowed to pass the final exam, if he accumulates not less than 11 points for the mid-term evaluations (considering that he will get the maximum score at the final exam). **Final exam - 40 scores** Final exam is a combination of tests -80 questions each one rates 0.5 scores total – 40 scores; The final exam is considered to be passed if the student accumulates at least **70% or more** out of the maximum assessment of the exam (40X70/100=28 scores). Credit will be awarded if the student accumulates at least 51 scores out of 100 scores; 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. The student can pass the additional exam during the same semester. The time interval between the final and additional exams should be not less than 10 days. The student can pass the additional exam during the same semester. The time interval between the final and additional exams should be not less than 10 days.
The basic literature	1. Jeremy M.Berg, John L.Tymoczko, Lubert Steyer. **Biochemistry.** W.H/Freeman and Company New York (Palgrave Mcmillan). 7th ed, 2012; 2. Bruce Alberts, Alexander Johnson, Julian Levis, Martin Raff keith Roberts Peter Walter. **Molecular Biology of the Cell,** 5th edition, Garland Science Taylor & Francis Group, V; 2008;
The auxiliary literature	3. **Edited by**: Carl A.Burtis, David E. Brunsietz Fundamentals of Clinical Chemistry and Molecular Diagnostics, Elsevier Evolve,VII; 2012

The tutorial/learning course content

№	Subjects	Lecture (hour)	Work in group (hour)
1	RNA interference; Hemoglobin - Hemoglobin S	2	2
2	Polymorphism and enzyme replacement therapy, Telomerases; Circadian Rhythm , Stem Cells	2	2
3	Anti-oxidants / oxidants, Topoisomerases; Biological role of RNA interference (teamwork)	2	2
	Midterm Exam		2
4	Telomerases, Molecular mechanism of telameras focus replication (teamwork)	2	2
5	Telomeras and Telomerases role in oncology (homework)	2	2
6	Preparation and presentation of the project		2
	Final Exam		2

Learning Outcomes

Criteria	Competences
Knowledge and Understanding	The student has deep and consistent knowledge of the study area, which enables to elaborate /develop new, original ideas. Understands the approaches for solving problems. knowledge about: - RNA interference applications and their importance -role of Hemoglobin and Hemoglobin S -polymorphisms and enzyme replacement therapy -role of telomerase in cancer -circadian rhythm and its biological importance -stem cells and their biochemical specialties -topoisomerases and their biological importance -oxidant-antioxidant system and its importance
Applying knowledge	Able to use the theoretical knowledge in practice
Learning ability	Can independently widen of vital processes in molecular biochemical processes of theoretical knowledge and understanding of continuous updating of knowledge and continuous professional development.