MED 3013 - BIOLOGICAL BASIS of DISEASES

Course Name	Code	Semester	Type of course	Lecture	Work in group`	ECTS
BIOLOGICAL BASIS of DISEASES	MED 3013	VI	Elective	10	16	2

Faculty, Educational program	Medical Faculty, one-cycle educational Program "Medicine"
Author (s) of the course	**Marina Kunchulia-** Invited teacher Mob.: 593 42 48 49 E-MAIL: m.kunchulia@agruni.edu.ge; **Prof. Leila Akhvlediani -** Doctor of Biology; Mobile:593537072; Tel.: +995422212535; Fax:+995422212537 E-mail: Leila.akhvlediani@bauinternational-uni.ge; Consultation days in accordance with the individual agreement
Educatıonal course format	Lecture, group work, laboratory, practical work
Educational Course Volume	**Total:** 60 hours **Contact hours** : 30 hrs, including: 1. Lecture -10 hrs.; 2. Group Work - 10 hrs.; 3. Laboratory work – 4 hr; 4. Practical work -2 hr; 5. Mid-term exam - 2 hrs.; 6. Final Exam - 2 hrs.; **Independent work:** 30 hrs.
Prerequisites	MED 1003
The purpose (s) of tutorial course/modules	The aim of the course is to give the students the knowledge of the biological mechanisms of the process which proceeds during illnesses, disorders of cellular adaptation, general perspectives of inflammation, processing and presentation of antigens, reparation and regeneration, cancer, diabetes, mental illness and immune mediated diseases and factors such as lifestyle and genetic predispositions.
Teaching and learning methods	Verbal and explanation method as well as demonstration method – visual presentation of information - will be enjoyed during the **Lecture**; To develop practical skills during **laboratory sessions** student shall conduct tests independently under under the supervision of a teacher and analyze the results. In order to develop argumentative skills in **group work** discussing during situational tasks, students will defend their opinion, justify and analyze critically the situational task worked out by the mate based on the results of laboratory studies. Moreover, they will analyze clinical cases proving the necessity of laboratory diagnostic method for.

Assessment criteria	Student's knowledge is assessed based on the 100-score system, of which 60 scores are addressed to the mid-term evaluations, and 40 scores are allocated for the final exam. **Mid-term assessment includes the following components: (total 60 scores):** • Attendance at every lecture- 1 score (1X10 = 10 scores) • Active participation in the group work- 10 scores ; • Active participation in the laboratory work-10 scores; • Active participation in the practical work- 10 scores • **Mid-term exam - 20 scores;** The final score for each group work is calculated through the average. **Active participation during the group/ practical work is assessed in accordance with the following criteria (10 scores):** **10 scores**–has the deep and detailed knowledge on the topic: presents the topic in the consistent and laconic way. The student thinks quickly and expresses the opinion around the promlematic question. The answer is correct from the terminology point of view. Sound knowledge and the ability of application of the basic as well as the auxiliary literature is revealed. **9 scores** -has the deep knowledge on the topic: presents the topic in the consistent and laconic way. The student shows the ability of thinking however sounds not that confident when expressing the opinion on the problematic question. The answer is correct from the terminology point of view. Sound knowledge and the ability of application of the basic literature is revealed. **8 scores**– has the deep knowledge on the topic: presents the topic in the consistent way. The student shows the ability of thinking, however sounds not that laconic when expressing the opinion on the problematic question. The answer the correct from the terminology point of view. The sound knowledge and the ability of application of the basic literature is revealed. **7 scores** – does not have such fundamental knowledge of the topic: the answer is complete but inconsistent, has difficulties in presenting arguments on the problematic issue. Terminoogy is partially developed. Demonstrates the knowledge on the topic on the satisfactory level. Reveals the knowledge of the basic literature. Reveals difficulties in making conclusions; **6 scores –** the answer is complete, but inconsistent; terminology partially developed; reveals the knowledge of the topic on the satisfactory level; Reveals difficulties in making conclusions; **5 scores** – the answer is inconsistent, terminology partially developed; is not able to provide the answer to the problematic issue. Demonstrates the knowledge on the satisfactory level. Has difficulties in making conclusions. **4 scores** – student demonstrates the general overview of the topic. Terminology is not developed. Content consistency is not followed. Demonstrates irrelevant knowledge of the literature; **3 scores** – student demonstrates the general overview of the topic. Content consistency is not followed. Has difficulties in providing arguments and carry discussions on the topic. Demonstrates irrelevant knowledge of the literature; **2 scores** – student demonstrates the general overviews of the topic; complete absence of the ability to provide arguments; terminology is not developed at all, content consistency is not followed; **1 score** – the answer is insufficient, no terminology awareness, no chronologic manner of the answer or the answer is mostly wrong, no knowledge of literature.

0 score – Student demonstrates not even elementary knowledge of the topics.

Laboratory work assessment criteria (max 10 p):

10-9 p: laboratory method is properly planned; student applies laboratory tools and equipment precisely; Is able to record accurately, determine made mistake and plan way to correct. Is able to analyze applied method and interpret the results. Laboratory work is performed accurately and thoroughly.

8-7 p: laboratory method is properly planned; student applies laboratory tools and equipment precisely; Is able to record accurately, determine made mistake and plan way to correct. However, he lacks skills to analyze results. Laboratory work is performed with minor faults.

6-5 p: laboratory method is properly planned; student cannot demonstrate relevant knowledge in laboratory tools and equipment application; Makes minor mistakes in using the tools; Records properly, but is not able to notice the mistakes; thus, is hard to find ways to correct. Laboratory work was performed minor faults.

4-3 p: laboratory method is planned with minor faults; student cannot demonstrate relevant knowledge in laboratory tools and equipment application; Makes minor mistakes in using the tools; Records properly, but is not able to notice the mistakes; thus, is hard to find ways to correct. Laboratory work was performed essential faults.

2-1 p: Laboratory work was planned with essential faults; student is almost unfamiliar with laboratory tools and equipment application; Records properly, but is not able to notice the mistakes; thus, is hard to find ways to correct. Laboratory work was performed essential faults.

0 ქულა: Student is absolutely unfamiliar with laboratory method and tools and equipment. The work is not performed.

Midterm exam is a test (multiple choice) that contains 40 questions, each rated 0.5 scores and totally counts 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/she will get the maximum score at the final exam).

Final exam - 40 scores

Is also the test (closed questions). It contains 80 questions (multiple choice); each one rates 0,5 scores (totally 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 score).

Credit will be awarded if the student accumulates at least 51 scores out of 100 scores;

Positive assessments:

- (A) Excellent - 91scores and more;
- (B) Very good - 81-90scores;
- (C) Good - 71-80 scores;
- (D) Satisfactory - 61-70 scores;
- (E) Enough - 51-60 scores;

Negative assessments:

- (FX) didn't pass - 41-50 scores that means that student needs more work and is allowed to pass one additional exam;
- (F) Failed – 40 scores or less that means that the student did not perform enough and has to take the course again.

The student has the right to pass an examination in the same semester. The interval

	between the final and additional exams should not be less than 10 days.
The basic literature	**1.** Peter J. Delves, Seamus J. Martin, Dennis R. Burton, Ivan M. Roitt. **Roitt's Essential Immunology.** 12th Edition. Wiley –Blackwell. 2011.
The auxiliary literature	1. Jawetz-Melnick-Adelberg, **Basic Immunology** 2. Abbas & Lichtman Pathology: Robbins and Cotran Pathologic Basis of Diseases 3. Beauchamp TL, Childress JF. Principles of Biomedical Ethics. 6th ed. USA: Oxford University Press; 2009.

The tutorial/training course content

№	Topics	Lecture (hour)	Gr. Work/App (hour)	Lab
1	Disorders of cellular adaptation, inflammation, histamine, biogenic amines, antigens, antigens, processing and presentation of antigens, regeneration and repair, immunological mechanisms against disease. Distribution & evaluation of drugs, disorders of lipid, carbohydrate &protein metabolism, ion channel dysfunctions.	2	4	
	Techniques used in pathology laboratory; Cancer: Principles of Neoplasia · The molecular basis of cancer · Tumour viruses and human cancer · Cancer: Invasion and Metastasis · Screening programmes. Infection Disease: prevention, reason.	2		4
	Mid-term Exam		2	
	Immune mechanisms of Diabetes. Mental disorders and its biological basis. Prevalence and prevention. Disorders of fluid- electrolyte metabolism, metabolism, excretion, & toxic effects of drugs, disorders of vitamin metabolism.	2	4	
	Sex determination, pathology of genetic disorders, hemodynamic disorders, vasoactive peptides, adverse effects of drugs, statistical methods. Side effects of drugs.	2	4	
	Viruses and immunodeficiency, clinical ethics, ethical dilemma, ethical analysis, clinical ethical decision	2		
	Final Exam		2	

Learning Outcomes

Criteria	Competences
KNOWLEDGE AND UNDERSTANDING	Has deep knowledge in the main directions: • Define morphological properties of cellular and tissue injury, types of inflammation and related changes in tissues; • Types of Inflammation, its role in Immune defense, changes occurring in the tissue; Explain the fate of drugs in the body (absorption, distribution and elimination) • Define the properties of antigens, immune regulation, and the T and B lymphocytes that function in immunity to infections; • Define and explain the pathogenesis of the diseases that develop due to functional disorders of ion channels, Characterize the properties and control of metabolic pathways that involve carbohydrates, lipids, amino acids, proteins, vitamins, nucleotides, and porphyrins; • Define sex chromosomes and classify their abnormalities and inheritance pattern • Molecular bases of cancer; • Immunological mechanisms of diabetes.
COMMUNICATION SKILLS	Ability to communicate with the colleagues on the contemporary ideas about the molecular basis of disease and make presentation use the modern technology.
ABILITY TO LEARN	Is able to manage the learning process independently, find the new literature and elicit novelties from the information sources.
VALUES	Love of mankind, humanism, sympathy, respect of the person and his/her rights, support of patients.