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### თბილისის ჰუმანიტარული სასწავლო უნივერსიტეტი

**TBILISI HUMANITARIAN TEACHING UNIVERSITY**

**Syllabus**

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| **Name of the course /module** | **General Immunology** |
| **Code of the course** | **GCM0404DM** |
| **Status of the course****(elective/compulsory)** | **C**ompulsory coursefor the one-cycle higher educational Programme-Dentistry |
| **ECTS** | **4 credits.Total:100 hours**Contact Hours – 49 hours (Class Meeting Time Period:15L/30Pr.) + 4 hours (Midterm:2h and Final Examinations 2h):Individual Work-51 hours |
| **Authors (lecturer)** | Ekaterine Sanikidze - MD,Ph.D,THU invited lecturer,Tel. 599328922, email-ekasanikidze@yahoo.comConsultation days: according to consultation schedule Wednesday, 13.00-15.00 |
| **Aim of the course** | The course aims to introduce the student the underlying principles of immunology. Its primary emphasis will be on the cellular and non-cellular components of the human immune system and the ways these components interact to provide immunity, explain the causes and mechanisms of human health and disease development. On the basis of this knowledge the students will develop diagnostic skills and clinical thinking. They will be aware to identify problems and to plan a relevant research; to analyze the results and to properly present them in the form of posters, presentations and reports.  |
| **Program prerequisits** |  |
| **Assessment system and criteria** | **Assessment system of the Tbilisi Humanitarian Teaching University's**is divided into the following components:The total marks of the mid term Out of the overall assessment (100 points ) is 60 points, which includes three kinds of grades:**Student’s activity during a semester****One-midterm exam** **final exam**Theminimum competence requirement for mid termevaluation components is at least 18 points in total.**The minimum competence requirement of the final evaluation is 50% of the total mark from final evaluation that means 20 points out of 40.**Evaluation System includes: I. Five Forms of Positive Assessment:  (A) Excellent – 91% and more from maximum evaluation  (B) Very good – 81-90% from maximum evaluation (C) Good – 71-80% from maximum evaluation (D) Satisfactory – 61-70% from maximum evaluation (E) Sufficient – 51-60% from maximum evaluation II. Two Forms of Negative Assessment: (A)(FX) Fail (Not passed ) - 41-50 from maximum evaluation score, which means that the student will need to work more and to retake the test after additional independent work;(B) (F) Fail – A student gets 40 points, or less from maximum evaluation, which means that the work done by him/her is not sufficient and s/he has to retake the course from the beginning. 1. One of the negative assessments: In case of not passing, the University fixes additional exam at least in 5 days, after the announcement of final examination results, which must be published in the examination table.2. The grades, which student gets after additional test is a student's final grades, in which is not considered the negative points of the major examination.If a student receives from 0 to 50 points after additional test, in the final exam sheet is formed (F) -0 for the student. |
| **Course description** | appendix 1 |
| **Assessment system/activities, methods****and criteria** | A student’s final grade is obtained as a result of summing the midterm evaluation earned per semester and final exam evaluation results.The sum of the course assessment (100 points) breaks down as follows:* **Activities – 30 points***(participation, presentation, quiz)*
* **Midterm exam - 30 points**
* **Final Exam - 40 points**

**Activities/Participation – 15 points,** is calculated in accordance with the level of being active during each practices(once a week, total number 15) type of activities can be answering questions, participation in discussion, participation in everyday testes - is equal **1 points**.1 points - s/she is active during classes, obtains perfect knowledge of the ongoing topic, answers all questions completely.0,5 points - s/he is less active during classes, does not present perfect knowledge of the ongoing topic, answers questions partly. 0 - s/he is less active during classes/group works, does not present perfect knowledge of the ongoing topic, does not answer any questions.**Presentation** -**5 points,** The presentation is assessed using next criteria: **the contentof the presentation, the use of modern scientific literature- 2 points** 2 points - the presentation has complete data, marked by different sources of use, subject fully covered. 1 point - the data is limited, findings are not currently, less than source used;0 points - generally there is a single source used, the content is not properly conveyed **design of the presentation -1 points**1 point - External Wallpaper well-perceived, the slides are relevant to the topic, the slides used in the various types of credit facilities: animations, images and so forth. 0 point - the title is not signed,slides and other facilities are not used.**presentation skills - 2 points**2,0 points - freely attracts attention of the audience, answers all questions well. Contact with the audience is based on effective, correct speech, good and interesting,the audience reaction is adequate.1,0 point - has difficulties in communication with the audience, contact with the audience is weak, sometimes boring, the problems are not being raised, the audience is experiencing difficulty.0 points – s/he is not ready to communicate with the audience, the audience did not heed the presentation.**Quiz – 10 points,** are carried *out twice during semester*, student can get for one quiz maximal 5 points (5X2=10). Evaluation is performed by using questionnaires in written form, in each questionnaire there are 10 questions, each is appraised by 0,5 points.**Midterm exam - 30 points,** administered in writtenform. The questions from covered material and each of the 60 points. Each correct answer is evaluated with 0,5 point, wrong answer -0 points.**Final Exam - 40 points,**administered in writtenform. The questions from covered material and each of the 80 points. Each correct answer is evaluated with 0,5 point, wrong answer -0 points. |
| **Core literature:** | A 1. Abul K. Abbas. [Basic Immunology. 2012](http://www.amazon.com/Basic-Immunology-Updated-Functions-Disorders/dp/141605569X%3FSubscriptionId%3D0CTNNE6VGVCK904KF6G2%26tag%3Dbiowww-20%26linkCode%3Dxm2%26camp%3D2025%26creative%3D165953%26creativeASIN%3D141605569X) 1. 2. Abbas A et al. Cellular and molecular Immunology, Saunders, 2005 or later (alsoshort version)

3. Janeway,s Immunobiology-Immunology- K.Murpy, P.Travers,M.Walport1. 4.Immunology-Serology in Laboratory Medicine-M.L.Turgeon
 |
| **Additional literature** | 1. Cellular and Molecular Immunology – 6-th edit. AK. Abbas, A.H.Lichtman, S.Pillai 20102. Basic Immunology - AK. Abbas, A.H.Lichtman 20093.Immunology and Serology – M.L.Turgeon 2009[Clinical Immunology: Principles and Practice: Expert Consult: Online and Print (Rich, Clinical Immunology)](http://www.amazon.com/Clinical-Immunology-Principles-Practice-Consult/dp/0323044042/ref%3Dsr_1_1?s=books&ie=UTF8&qid=1303643009&sr=1-1) by Robert R. Rich MD, Thomas A. Fleisher MD, William T. Shearer MD PhD and Harry W. Schroeder II MD PhD(Apr 15, 2008) |
| **Learning outcomes, competences****(general and field specific)** | **Knowledge**1. Student describes protective mechanisms of the human body
2. Student determinse mechanisms of using the body's immune factors and molecules for various aspects of assessment immune status of the human body, diagnosis and treatment
3. Student selects the methods of evaluating the immune system

**Skills**1. Student identifies problems based on a relevant lab results and research
2. Student analyses the results and presents them

**Responsibilities**1. Student identifies appropriate learning resources for future learning.
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| **Learning/Teaching methods** | Lecture/ practicalIndividual/Group workVerbal teaching methodDemonstration of study materialsPresentation Explanation methodsDiscussion/debate |

**Appendix 1**

**Course description:**

**Topics of the lecture, practical classes/laboratory work/working group, literature**

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| **Week №** | **Type of****the class** | **Topics** | **Contact hours** | **literature** |
| **Iweek** | Lect. | The History of immunology , Introduction to the Immune System | **1** |  |
| Pract. | The anatomy of the immune system | **2** |  |
| **IIweek**  | Lect. | The basic concepts of immunology. Systems and lines of Protection- their development, features and functions. | **1** |  |
| Pract. | Cells, Tissues, and Organs of the Immune System  | **2** |  |
| **IIIweek** | Lect. | Non-specific immunity, Types of Protection, Phagocytosis. The complementsystem. | **1** |  |
| Pract. | Non-specific defence lines and systems, types of phagocytosis, mechanisms and results. Classification of the complement and ways of activation. | **2** |  |
| **IV week** | Lect. | Immunocompetent cells | **1** |  |
| Pract. | Immunocompetent cells- Classification, properties, function | **2** |  |
| **V week** | Lect. | Antigens, antibodies, receptors | **1** |  |
| Pract. | A review of antigen. Antigen history, classification. Complete and incomplete antigen, hapten, superantigeni, specificity of antigens. Antibodies, structure, classification, function, specificity, variability, proliferation control.**1st Quiz** | **2** |  |
| **VIweek** | Lect. | The histo-compatibility system | **1** |  |
| Pract. | B-cells and T-cells of the immune receptors surface receptors (BCR, TCR) example. Place and role of the immune system. Adhesion molecules. | **2** |  |
| **VII week** | Lect. | Cytokines | **1** |  |
| Pract. | Cytokines nomenclature, classification, cytokine receptors, the role of the development and treatment of the disease. | **2** |  |
| **VIII week** | **Midterm** | **2** |  |
| **IX week** | Lect. | The immune response. The mechanisms of the immune response. | **1** |  |
| Pract. | The major histo-compatibility complex classification. HLA genes. MHC-proteins of molecular biology. MHC functions. MHC and refresh. | **2** |  |
| **X week** | Lect. | Transplantation and Rejection. Transplantation and Transplantation Immunity | **1** |  |
| Pract. | Immune response,types, classification and participants. Immune tolerance. Its essence and mechanisms.**Presentation** | **2** |  |
| **XI week** | Lect. | Transplantation | **1** |  |
| Pract. | Transplantation – history, types, genetic and immune foundations; removal reaction, mechanisms and ways of overcoming. Quiz | **2** |  |
| **XII week** | Lect. | Hypersensitivity. Defence Against Infectious Agents | **1** |  |
| Pract. | Infection and Immunity. Anti-bacterial, anti-viral, anti-parasit, anti-fungicid, anti-protozoa of the molecular mechanisms of viral factors, cellular microbiology, host resistance and sensitivity, natural and acquired immune responses. | **2** |  |
| **XIII week** | Lect. | Autoimmune processes | **1** |  |
| Pract. | A review of hypersensitivity, its types, classification of Coombs and Gell.Allergens - antigens that give rise to immediate hypersensitivity and contribute to asthma.IgE antibodies play a critical role in defense against helminths. The biological role of immediate hypersensitivity that control helminth infections such as schistosomiasis, hookworm, or ascariasis. **2nd Quiz** | **2** |  |
| **XIV week**  | Lect. | Immunity to Cancers | **1** |  |
| Pract. | Autoimmunity and Autoimmune Disease. The pathogenesis of autoimmune disorders, diagnosis and classification. Genetic factors play a role in the development of autoimmune diseases. Microbial cross-reacting antigens and cytokine dysregulation.Treatment of autoimmune disease. | **2** |  |
| **XV week** | Lect. | Age Immunology | **1** |  |
| Pract. | Immunity to Cancers**,** the immune surveillance and correction, natural and acquired anti-tumor defense components, mechanisms of action. Tumor antigens. | **2** |  |
| **XVI week** | Lect. | Immune prophylactics, immuno diagnostic. | **1** |  |
| Pract. | Age Immunology. Evolution of Immunology. Immune prophylactics. History, classification, ways and means. Immunodiagnostics, history, types | **2** |  |
|  **XVII - XVIII week** | **Final exam** | **2** |  |
| **XIX-XXweek** | **Additional exam** |  |  |