

## *The Hebrew University of Jerusalem*

### *Syllabus*

### *The immune system - The good the bad and how it can be modified and improved - 96354*

*Last update 16-10-2020*

*HU Credits:* 2

*Degree/Cycle:* 1st degree (Bachelor)

*Responsible Department:* Medicine

*Academic year:* 0

*Semester:* 1st Semester

*Teaching Languages:* Hebrew

*Campus:* Mt. Scopus

*Course/Module Coordinator:* Shlomo Ben-Sasson

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*Coordinator Office Hours:*

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Teaching Staff:

Prof Zami Ben Sasson

Course/Module description:

The immune system controls and regulates key processes in the body. In addition, this system enables us to overcome invasive and harmful organisms (pathogens), which intend to benefit from our bodies. Without this system we would be unable to survive, as evidenced by individuals who suffer from immune-deficiency disorders. The immune system, as is the case with all biological systems, is not without defect. On occasion it may not function properly and even lose its control which may result in damage, illness and even death. The knowledge amassed on this system, its components and their mode of action enable us to strengthen the system and deal better with its failings.

Course/Module aims:

Understanding the natural (Innate) and adaptive-immune system and its significance to our lives.

Familiarity with its known components and their mode of action including the limitations of the system.

Potential damage from the immune system (allergy, autoimmune diseases, cytokine-inflammatory storm).

Manipulation of the immune system (immunizations, tissue transplants, cancer, allergy and autoimmune - Immune suppression).

Learning outcomes - On successful completion of this module, students should be able to:

Familiarity with a central biological system which navigates us as individuals and as a society, generally to our benefit, occasionally to our detriment.

Knowledge of the immune-system components and their mode of action in a manner which will allow knowledge-based conduct facing unexpected surprises which we encounter throughout life.

Attendance requirements(%):

Teaching arrangement and method of instruction:

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Course/Module Content:

*The development of Immunology - Historical perspective*  
*Basic concepts in Immunology*  
*The Innate Immune System*  
*The induction of Adaptive Immune response by Antigens and Pathogens*  
*Hematopoiesis and the development of the cellular components of the immune response.*  
*Cellular immune response*  
*Humoral immune response*  
*Collaborative functions of the Innate and the Adaptive Immune Responses.*  
*Mucosal Immunity.*  
*Deficiencies and failures of the defense mechanisms.*  
*Allergy.*  
*Autoimmune diseases*  
*Transplantation*  
*Immunization*  
*Manipulation of the immune response.*

Required Reading:

*Janeway's Immunobiology (9th ed.)*  
*or Kuby Immunology (7th ed.)*

Additional Reading Material:

Course/Module evaluation:

*End of year written/oral examination 100 %*  
*Presentation 0 %*  
*Participation in Tutorials 0 %*  
*Project work 0 %*  
*Assignments 0 %*  
*Reports 0 %*  
*Research project 0 %*  
*Quizzes 0 %*  
*Other 0 %*

Additional information: