



# *The Hebrew University of Jerusalem*

## *Syllabus*

### *Mitochondria: Molecular Metabolic and Medical Perspectives - 94864*

*Last update 31-08-2023*

*HU Credits: 3*

*Degree/Cycle: 2nd degree (Master)*

*Responsible Department: Bio-Medical Sciences*

*Academic year: 0*

*Semester: 2nd Semester*

*Teaching Languages: Hebrew*

*Campus: Ein Karem*

*Course/Module Coordinator: Prof. Haya Lorberboum-Galski  
Prof. Ophry Pines*

*Coordinator Email: [hayag@ekmd.huji.ac.il](mailto:hayag@ekmd.huji.ac.il)*

*Coordinator Office Hours:*

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Teaching Staff:

Prof Haya Loberboum-Galski,  
Prof Ann Saada Reisch,  
Prof Ehud Cohen,  
Prof Ophry Pines,  
Prof Michael Berger

Course/Module description:

Mitochondria play a major and critical role in cellular homeostasis – they participate in intracellular signaling, apoptosis and perform numerous biochemical tasks, such as pyruvate oxidation, the Krebs cycle, and metabolism of amino acids, fatty acids, nucleotides, steroids and more. Dys-regulated mitochondria are involved in numerous diseases/disorders. This course is dealing with the molecular, biochemical and medical aspects of the mitochondria

Course/Module aims:

To deal with an multidisciplinary  
research field with the mitochondria as its main focus.

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

Having the ability to read and understand, via a criticism approach, scientific papers in the best international journals.  
Having the ability to design experiments to approach complex scientific questions.

Attendance requirements(%):

100

Teaching arrangement and method of instruction: Lectures of Teachers and students presentations on the last weeks of the course.

Course/Module Content:

Structure, biogenesis and dynamics of the mitochondria  
Apoptosis and mitochondria  
Mitochondria and aging  
Mitochondria and neuro-degeneration  
Mitochondrial diseases  
Mitochondria and cancer

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Required Reading:

*Papers on selected course topics from the top international scientific journals*

Additional Reading Material:

Grading Scheme:

*Essay / Project / Final Assignment / Home Exam / Referat 76 %*

*Mid-terms exams 24 %*

Additional information: