האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

Metabolic and Physiologic Biochemistry - 94673

Last update 24-12-2023

HU Credits: *5*

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

Responsible Department: *Bio-Medical Sciences*

Academic year: *0*

Semester: *2nd Semester*

Teaching Languages: *Hebrew*

Campus: *Ein Karem*

Course/Module Coordinator: *Prof.Ronit Sharon*

Coordinator Email: *ann.saadareisch@mail.huji.ac.il*

Coordinator Office Hours:

Teaching Staff:

Dr. Or Kakhlon,
Prof Ronit Sharon,
Prof Ann Saada Reisch,
Prof Abd Higazi,
Prof Yuval Dor,
Dr. Sarah Zangen,
Ms. Ariel Bashari,
Mr. Ophir Pick,
Mr. Wajeeh Salaymeh

Course/Module description:

The principles of metabolism and homeostasis of energy in the cell and the organism. Enzymes: activity, kinetics and regulation.
Metabolism of carbohydrates: Glycolysis, Gluconeugenesis, glycogenolysis, Oxidative phosphorylation and the citric acid cycle.
Urea cycle.
Beta oxidation of fatty acids,
Fatty acids synthesis,
Biosynthesis of cholesterol, phospholipids and triglycerides.
Integration of metabolism
And the relevance of these pathways to human metabolic disease

Course/Module aims:

To know and understand the regulation of basic metabolic pathways involving nutrient transport, energy production, carbohydrate, amino acid, nucleotide and lipid metabolism. To understand the interaction between these pathways in normal human physiological conditions (exersise,fasting) and various metabolic diseases (incl. diabetes atherosclerosis.

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

To to understand metabolism and regulation of metabolic pathways in human health and disease.

Attendance requirements(%):

80%

Teaching arrangement and method of instruction: Frontal and hybrid

Course/Module Content:

ATP
glycolysis
the Krebs(TCA) cycle
glycogen metabolism
gluconeogenesis
the pentophosphate pathway
nucleotide metabolism
amino acid metabolism
fatty acid metabolism
ketone bodies
arachidonic acid and phospholipides
cholesterol metabolism
prostaglandins
hormonal control of lipid metabolism
insulin-structure and function
glucocorticosteroids
hormonal regulation of glycolysis and gluconeogenesis
diabetes
integration of human metabolism

Required Reading:

Biochemistry 8th ed JM Berg, J Tymoczko,L Stryer

Additional Reading Material:

Principles of Biochemistry Lehninger

Harpers Illustrated Biochemistry

Grading Scheme:

Written / Oral / Practical Exam 100 %

Additional information:

active participation in at least 4 out of 5 tutorials +handing in 4 assignment in time assignments is obligatory
prior to exam
Up to 6 bonus points (only to students passing the final exam >60)