האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

BIOCHEMISTRY - 73955

Last update 06-10-2021

HU Credits: 0

Degree/Cycle: 2nd degree (Master)

Responsible Department: Nutritional Sciences - International Prog.

Academic year: 0

Semester: 1st Semester

Teaching Languages: English

Campus: Rehovot

Course/Module Coordinator: Prof Oren Froy

Coordinator Email: oren.froy@mail.huji.ac.il

Coordinator Office Hours: by appointment

Teaching Staff:

Prof Oren Froy

Course/Module description:
Protein structure and function, Enzymes - basic concepts and kinetics, Regulatory Strategies, Carbohydrates, Lipids and Cell Membranes, Vitamins and Metabolism

Course/Module aims:
Understanding biochemical principles of proteins, enzymes and metabolic pathways.

Learning outcomes - On successful completion of this module, students should be able to:
Describe protein structure
Describe carbohydrate groups
Compare between various metabolic pathways

Attendance requirements(%):
None

Teaching arrangement and method of instruction: Lectures

Course/Module Content:
Protein Structure and Function: amino acids; primary, secondary, tertiary, and quaternary structure of proteins; purification and analytical methods of proteins.

Enzymes - basic concepts and kinetics - enzymes as powerful and highly specific catalysts; Michaelis-Menten model; enzyme inhibition.

Regulatory Strategies: myoglobin; hemoglobin cooperativity in binding oxygen.

Carbohydrates: monosaccharides; disaccharides; polysaccharides.

Lipids and Cell Membranes: fatty acids; membrane lipids; phospholipids; glycolipids; integral and peripheral proteins; membrane transport; membrane channels and Pumps; active and passive transport.

Metabolism: glycolysis and gluconeogenesis; the citric acid cycle; oxidative phosphorylation; the calvin cycle and the pentose phosphate pathway; glycogen metabolism; fatty acid metabolism; protein turnover and amino acid catabolism;

urea cycle; biosynthesis of amino acids; integration of metabolism.

Required Reading:
In course presentations

Additional Reading Material:
In course presentations

Course/Module evaluation:
End of year written/oral examination 75 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 0 %
Assignments 0 %
Reports 0 %
Research project 0 %
Quizzes 25 %
Other 0 %

Additional information:
The course is given to international non-thesis MSc students