The Hebrew University of Jerusalem

Syllabus

PLANT BIOCHEMISTRY - 73901

Last update 27-08-2024

HU Credits: 1

Degree/Cycle: 2nd degree (Master)

Responsible Department: Field and Vegetable Crops-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 mail

Teaching Staff:

Prof. Oren Froy

Course/Module description:
Biochemistry of protein structure and metabolic pathways.

Course/Module aims:
To discuss selected topics in biochemistry focusing on protein structure and metabolic pathways.

Learning outcomes - On successful completion of this module, students should be able to:
To be able to understand biochemistry of protein structure and metabolic pathways.

Attendance requirements(%):
90

Teaching arrangement and method of instruction: Lectures and exercise

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.

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; photosynthesis, the calvin cycle and the pentose phosphate pathway; glycogen metabolism; fatty acid metabolism; protein turnover and amino acid catabolism; biosynthesis of amino acids; integration of metabolism.

Required Reading:

1. Stryer, Biochemistry, 3rd ed.
2. Stryer, Biochemistry, 4th ed.
3. Stryer, Biochemistry, 5th ed.
4. Lehninger, Principles of Biochemistry, 2nd ed.
5. Lehninger, Principles of Biochemistry, 3rd ed.

Additional Reading Material:

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Grading Scheme:

Written Exam % 100

Additional information:

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