



## *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](mailto:oren.froy@mail.huji.ac.il)

*Coordinator Office Hours:* by mail

*Teaching Staff:*

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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:

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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 / Oral / Practical Exam 100 %

Additional information:

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