The Hebrew University of Jerusalem

Syllabus

PHYSICAL PROPERTIES OF FOODS - 71453

Last update 16-09-2024

HU Credits: 4

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Biochemistry & Food Sciences

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: Rehovot

Course/Module Coordinator: Dr. Avihu Yona

Coordinator Email: avihu.yona@mail.huji.ac.il

Coordinator Office Hours: by appointment

Teaching Staff:

Dr. Avihu Yona,
Dr. Sivan Pearl,
Ms. Naama Halevi,
Mr. ziv ben-moshe,
Mr. shachar shalev

Course/Module description:

Physical properties and their relationship to other food properties. size and shape. volume, density and surface area. Properties: mechanics of solids and liquids; power; deformation; stress; strain. Young's modulus. Poisson's ratio. Simple rheological models. stretching. shearing. Damping stress, bending. Properties of sponges. emulsions and dispersions. Large deformations in food tests. Structural failure in solid foods. Fractals in food.

Course/Module aims:

To be able to work in the food industry;
To develop and examine new food products; to control texture and structure of foods

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

The knowledge to measure physical properties of foods such as color, gloss, roughness, mechanical properties, porosity, diffusion, structure and texture.

Attendance requirements(%):

85 in class and 100 on labs

Teaching arrangement and method of instruction: lectures, exercises and lab

Course/Module Content:

1.gels diffusion into gels, decorated fruit
2.Determining color and vision
3.Viscosity- theory and practice, the flow equation
4.Mechanical properties of food: strength, deformation, penetration, press, stretch,efforts relief, crawling
5.Fractals and food, mechanical models of properties, chaos in food
6.Perception and psychophysics in food

Required Reading:

Manuscripts included within the laboratory guide and additional material according to the guidelines during the semester

Additional Reading Material:

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Grading Scheme:

Written Exam % 65

Submission assignments during the semester: Exercises / Essays / Audits / Reports / Forum / Simulation / others 5 %

Clinical Work / Lab Work / Practical Work / Workshops 30 %

Additional information:

none