

## The Hebrew University of Jerusalem

Syllabus

### CHEMISTRY OF MATERIALS - LAB - 69611

*Last update 22-10-2023* 

<u>HU Credits:</u> 3

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Chemistry

<u>Academic year:</u> 0

Semester: 2nd Semester

<u>Teaching Languages:</u> Hebrew

<u>Campus:</u> E. Safra

Course/Module Coordinator: Shlomo Magdassi

Coordinator Email: magdassi@mail.huji.ac.il

<u>Coordinator Office Hours:</u> Sunday, 11:00-12:00 by apointment

Teaching Staff:

#### Prof Shlomo Magdassi

#### Course/Module description:

learning and performing experiments in the field of advanced materialsy Attendance in all lab is compulsory

#### Course/Module aims:

The main goal of the lab is to learn new processes, acquire skills in preparing , characterization and application of materials

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

Conduct new processes and preparing techniques of materials.

Know characterization methods of materials and their utilization.

Independently learn from existing scientific literature about new methods in chemistry of materials.

<u>Attendance requirements(%):</u> 100%

Teaching arrangement and method of instruction: self studying each experiment , followed by a colloquium, performing the experiment, submitting a report a week later

#### Course/Module Content:

The experiments will include preparing organic and inorganic nanomaterials (latex, magnetic nanoparticles particles,gold nanoparticles), biosensor as enzyme embedded in silica (by sol-gel process), Solar cells,emulsions and micelles. evaluation and characterization will be performed by various methods such as light scattering, zeta potential and surface area (BET) measurements, adsorption and fluorimetry.Also several processes will be studied : photolithography, Sol-gel processes, colloids coagulation, , emulsion polymerization, 3D printing.

<u>Required Reading:</u>

Relevant literature is presented for each experiment in the course web page

Additional Reading Material:

Relevant literature is presented for each experiment in the course web page

<u>Grading Scheme:</u> Written / Oral / Practical Exam 30 % Essay / Project / Final Assignment / Home Exam / Referat 70 %

#### Additional information:

8 meetings .

Due to the limited number of participants and preparation of the lab, registration to the lab can not be cancelled after the first week of the semester.Some experiments may take longer than 4 hours, and may require additional scheduling for special measurements out of the lab.

Additional SEM session will be scheduled for students not familiar with this imaging method.

*Grade is composed of: 30% participation in colloquia 30% work in lab 40% lab reports*