



The Hebrew University of Jerusalem

Syllabus

Physical Chemistry for Bio-Medical-Sciences Students - 69101

Last update 23-10-2023

HU Credits: 3

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Chemistry

Academic year: 0

Semester: 2nd Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Dr. Raam Uzdin

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

Coordinator Office Hours: by appointment

Teaching Staff:

Dr. Raam Uzdin,
Mr. Ilan shumilin

Course/Module description:

The course introduces the basic laws of physical chemistry for medical sciences students. It specifically deals with thermodynamics, chemical kinetics and spectroscopy.

Course/Module aims:

The goal of the course is to introduce physical chemistry and its applications to the medical and biological sciences.

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

1. Understand the energetics and kinetics that drive chemical reactions and physical changes.
2. Understand the relationship between macroscopic properties and the molecular make up of matter.

Attendance requirements(%):

None

Teaching arrangement and method of instruction: Lecture and Exercise

Course/Module Content:

Thermodynamics:

1. Introduction
2. State functions

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3. *The first law of thermodynamics,*
 4. *Enthalpy and thermochemistry,*
 5. *Entropy and the second law of thermodynamics*
 6. *Gibbs free energy; Equilibrium constant*

Kinetics

1. *Rate equations*
2. *Reaction mechanisms*

Basic terms in spectroscopy: absorbance, fluorescence, FRET

Required Reading:

None

Additional Reading Material:

Physical Chemistry for the Biological Sciences

Author(s): Gordon G. Hammes and Sharon Hammes Schiffer

Grading Scheme:

Written / Oral / Practical Exam 100 %

Additional information:

Course website - Moodle.