

The Hebrew University of Jerusalem

Syllabus

INTRODUCTION TO CHEMISTRY - 69107

Last update 23-10-2023

HU Credits: 7

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Chemistry

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Prof. Mattan Hurevich

Coordinator Email: mattan.hurevich@mail.huji.ac.il

Coordinator Office Hours: By appointment

Teaching Staff:

Prof Mattan Hurevich,
Mr. Yinon Deree,
Mr. Tom Naor,
Mr. Dishy Or

Course/Module description:

The main topics are: atomic and electronic structure, elements of quantum mechanics. Periodic table of the elements. The chemical bond. Molecular structure and electronic structure of molecules. Equilibrium processes in the gas and in solutions. Thermochemistry. Fundamentals of energy, entropy, and free energy in chemical processes. Introduction to fundamental reactions and physical processes, kinetics of chemical reactions. Acids, bases, and buffers. Redox reactions. Salts and precipitation. Spectroscopic properties of matter and light-matter interactions. Balancing equations and quantitative treatment of chemical processes.

Course/Module aims:

The purpose of this course is to introduce the student to the field of chemistry and give them the tools to study in the advance courses.

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

1. To demonstrate an understanding of fundamental chemical concepts.
2. To recognize and classify main chemical reactions.
3. To balance chemical equations and quantitatively treat chemical processes.
4. To describe the atomic structure and the basics of chemical bonding according to prevalent models.
5. To describe basic concepts in thermodynamics of chemical processes.

Attendance requirements(%):

None

Teaching arrangement and method of instruction: Lectures and exercises

Course/Module Content:

Types of chemical processes, stoichiometry, gases, thermochemistry, orbitals, chemical bonding, chemical equilibrium and the basis of thermodynamics, Acids

and bases, salts and precipitation, electrochemistry.

Required Reading:

None

Additional Reading Material:

None

Grading Scheme:

Written / Oral / Practical Exam 70 %

Mid-terms exams 30 %

Additional information:

Midterm quizzes are not mandatory, and the average will account for up to 30% of the course grade. The final exam will account for not less than 70% of the course grade. active participation in the electronic quiz during lessons can account for up to 2 points of the final grade