



Short Syllabus



Course Title	Credits
General and Analytical Chemistry	5
Lecturer	
Nataly Kucherenko	
Contact details	
Email: Natalyk1@tauex.tau.ac.il , Office Hours: By appointment	
Semester	
Spring Semester	
Short Description	
<p>In this course students will learn the fundamental ideas in general chemistry, such as basic composition of atoms and their electronic structure (and the ideas leading to those theories, including a brief introduction of quantum mechanics), different types of chemical bonds and their properties, and how those affect the macroscopic properties of various substances and the way they interact with each other. Biologically relevant examples will be discussed.</p> <p>Students will get familiar with the general concepts of chemical reactions, through in-depth examination of behavior of gaseous compounds as well as aqueous solutions. The behavior of ideal gases will be introduced and the ideal gas equation will be derived. Further discussion will include real gases.</p> <p>The concept of chemical equilibrium will be studied both qualitatively and quantitatively, and disturbances to the equilibrium will be examined.</p> <p>Three specific types of chemical reactions will be studied in detail:</p> <ul style="list-style-type: none">- Acid and base reactions, in which protons are exchanged – their phenomenology and development of scientific models providing molecular explanation, definition of the pH and pOH scales, the role of water in the processes. Students will get acquainted with analytical aspects of the titration process through investigation of titration curves and relevant calculations.- Oxidation/Reduction (redox) reactions, in which electrons are exchanged. By the end of this subject students will be able to identify redox reactions by determining oxidation states and formalize balanced redox equations.- Insoluble salts will be analyzed through the identification of the common ion effect, and the technique of fractional precipitation will be studied.	
Final grade components	
Minor assignments: None	
Midterm: Bi-weekly home quiz on Moodle, 15% of the final grade	



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**Final requirement:**

In-class exam, 85% of the final grade

Participation:

No grade on participation

Attendance

Attendance is mandatory. Students are permitted a maximum of three absences without penalty. Any additional absences will affect the final grade and may result in failure of the course.

Academic Conduct

Plagiarism is taken extremely seriously. Any instance of academic misconduct which includes: submitting someone else's work as your own; failure to accurately cite sources; taking words from another source without using quotation marks; submission of work for which you have previously received credit; working in a group for individual assignments; using unauthorized materials in an exam and sharing your work with other students, will result in failure of the assignment and will likely lead to further disciplinary measures.

Additional requirements

None