Elements of Physical Chemistry. *Prof. Arūnas Ramanavičius*

Academic cycle:	Bachelor
Year of study:	2nd year of studies
Prerequisites:	General chemistry, Inorganic chemistry
Language:	English
ECTS credits:	5
Weekly lectures/seminars:	2/1
Duration:	1 semester
Semester:	Spring
Examination:	Mid-term exam and end-of-term exam, written test form.
Assessment:	10-point scale. Mid-term exam - 30% of final grade, end-of-te exam – 60%, class work - 10%.

Description:

Thermodynamics: the first low. The enthalpy. Termochemistry, Hess low. Chemical equilibrium in gas phase. Chemical equilibrium in solutions. Acid-base equilibrium. Thermodynamics: the second law. Gibbs energy and equilibrium. Chemical kinetics. Rate laws. Integrated rate laws for the zero, first and second order reactions with one reactant. Reaction mechanisms. The temperature dependence of reaction rates. Solubility equilibrium. The chemical bond. Crystal structure. Electrochemical processes. Electrochemical cells.

Aims and objectives:

This course aims to acquaint students with physical principles that underlie chemistry.

Reading list:

1. P. Atkins, J. de Paula, Elements of Physical Chemistry.
2. P. Atkins, J. de Paula, Physical Chemistry for the Life Science.