

Institut für Chemie und Biochemie
Module descriptions for the bachelor program Chemistry
for teacher candidates

Module: Basics of Physical Chemistry			
University/Department/Institute: Freie Universität Berlin/Department of Biology, Chemistry, Pharmacy/Institute of Chemistry and Biochemistry			
Module supervisors: Lecturers of the module			
Entrance Requirements: none			
Goals of Qualification: Students have obtained a general overview of the different areas in the field of physical chemistry. They are able to describe basic thermodynamic processes, to give an interpretation of the time related development of chemical reactions quantitatively and are acquainted with the quantum mechanical approach to atoms and molecules. They are able to work independently and in groups to solve simple chemical problems with an approach regarding the principles of physics.			
Content: Introduction to thermodynamics via the three laws of thermodynamics and equations of state, introduction to phenomenological reaction kinetics and experimental methods for the determination of rate constants of chemical reactions, introduction to electrochemistry and the functioning of electrochemical cells, introduction to quantum theory of atoms and molecules, atomic models and theory of chemical bonds			
Teaching methods	Hours of attendance (semester periods per week)	Forms of active participation	Work effort (hours)
Lectures	3	-	Presence (L) 45 Pre- and post-preparation (L) 45
Tutorials	2	Solving assignments, Contributing to topic related discussions	Presence (T) 30 Pre- and post-preparation (T) 30 Exam preparation and examination 60
Language spoken in lecture		German	
Compulsory regular attendance		Lecture: attendance is recommended, tutorial: yes	
Work effort (total)		210 hours	7 CP
Length of module		One semester	
Examination		Exam (180 minutes); The exam can also be conducted electronically	
Lecture is offered		Every semester	
Applicability		Bachelor study program Chemistry for Teaching Training Students, 60-CP-Module offer Chemistry, Bachelor study program biochemistry	