| Module title | | | Abbreviation |
|---|---|---|---|
| **Physical Chemistry 2 for Biochemistry Majors: Thermodynamics, Kinetics, Electrochemistry** | | | 08-PC2-BC-092-m01 |
| **Module coordinator** | | **Module offered by** | |
| lecturer of lecture "Thermodynamik, Kinetik, Elektrochemie" | | Institute of Physical and Theoretical Chemistry | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 15 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | By way of exception, additional prerequisites are listed in the section on assessments. | |

**Contents**

This module introduces students to the principles of thermodynamics. It focuses on the laws of thermodynamics, chemical equilibria, ideal and real gasses/solutions/mixed phases and electrochemistry. In addition to thermodynamic processes, it discusses the fundamental principles of kinetics. The module gives students the opportunity to apply in practice the knowledge they have gained through the related lecture(s). After a safety briefing, the students autonomously conduct experiments in the laboratory. In addition to those experiments, students will be expected to take oral tests and write lab reports to demonstrate their knowledge.

**Intended learning outcomes**

Students are able to explain the laws of thermodynamics. They are able to describe thermodynamic aspects of solutions, gases, mixed phases and electrochemical reactions. Students are able to interpret the kinetic aspects of chemical reactions. They are able to connect the theoretical principles of thermodynamics, kinetics, electrochemistry and spectroscopy with practical laboratory experiments. They are able to analyse the resulting measurements.

**Courses** (type, number of weekly contact hours, language — if other than German)

This module comprises 2 module components. Information on courses will be listed separately for each module component.

- 08-PC2-BC-2-092: P (no information on SWS (weekly contact hours) and course language available)
- 08-PC2-1-092: V + Ü (no information on SWS (weekly contact hours) and course language available)

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments.

**Assessment in module component 08-PC2-BC-2-092:** Physical Chemistry 2 for Biochemistry Majors: Thermodynamics, Kinetics, Electrochemistry

- 6 ECTS, Method of grading: (not) successfully completed
- Vortestate (pre-experiment exams, approx. 15 minutes each), assessment of practical performance (log approx. 5 to 10 pages), Nachtestate (post-experiment exams, approx. 15 minutes each)
- Assessment offered: once a year, winter semester

**Assessment in module component 08-PC2-1-092:** Thermodynamics, Kinetics, Electrochemistry Thermodynamics, Kinetics, Electrochemistry

- 9 ECTS, Method of grading: numerical grade
- a) 1 to 3 written examinations (1 written examination: approx. 90 minutes; 2 written examinations: 60 or 90 minutes each; 3 written examinations: 60 minutes each) or b) oral examination of one candidate each (approx. 20 minutes) or c) oral examination in groups (groups of 2, approx. 30 minutes)
- Other prerequisites: Admission prerequisite to assessment: successful completion of exercises in the respective classes as specified at the beginning of the course (usually 70% of exercises to be successfully completed) as well as regular attendance of exercises (usually a maximum of 2 incidents of unexcused absence).

| **Allocation of places** |
| --- |
| -- |
| **Additional information** |
| -- |
| **Workload** |
| -- |
| **Teaching cycle** |
| -- |
| **Referred to in LPO I** (examination regulations for teaching-degree programmes) |
| § 62 (1) 1. Chemie "Allgemeine und Anorganische Chemie"; "Physikalische und Analytische Chemie" |
| **Module appears in** |
| Bachelor' degree (1 major) Biochemistry (2011)<br>Bachelor' degree (1 major) Biochemistry (2009) |