Course: Chemical Equilibria — credits: 5

Course code	CCVP25EVENWICHT
Name	Chemical Equilibria
Study year	2025-2026
ECTS credits	5
Language	Dutch, with parts in English
Coordinator	J. Geertsema

Modes of delivery	Assignment Practical / Training Tutorial
Assessments	Chemische Evenwichten Theorie - Written, organised by STAD examinations Practicum - Other assessment

Learning outcomes

You predict the location of chemical equilibria of acids and bases in water based on strength of the acids and bases involved (Ka, Kb, Kw).

You apply acid-base theory according to Brønsted-Lowry to acid-base calculations for single and polyvalent acids, bases and salts (pH, pKa, Ka, Kb, pKb, BOE table, common ion, dissociation percentage)

You calculate the pH of buffer systems under specified conditions (using Henderson-Hasselbach formula).

You perform acid-base titrations and determine the location of equilibrium (Kn, acid-base titration).

You predict the occurrence of precipitation reactions using the solubility and ion product (Ksp and IP) and the influence of additional ions, pH and of complex ions on the solubility of ions, and you quantify them (Kf) (common ion).

You apply theoretical knowledge about chemical equilibria in an independent, safe and responsible way while performing a simple experiment and communicate about this via a logbook and/or result form according to the applicable guidelines.

DAS competencies

Competency	Level (I-IV)
Research	I
Experimentation	I
Development	
Management	
Advise	
Instruction	
Leadership	
Self-management	I

Content

This module focuses on chemical equilibria. Using various equilibrium reactions, titrations and pH measurements, students apply the theory during a practical session. Practical work is assessed through logbooks, result form and practical competences. Theory is taught through instructional lectures and tested with a written examination.

It is highly desirable that the "Chemical Calculus" module has been taken.

Included in programme(s)

Chemistry
Chemical Engineering

School(s)

Institute for Life Science & Technology

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