

I. Subject Specification

1. Basic Data

1.1 Title

Aquatic chemistry

1.2 Code

BMEEOVKDT72

1.3 Type

Module with associated contact hours

1.4 Contact hours

Type	Hours/week / (days)
Lecture	28

1.5 Evaluation

Exam

1.6 Credits

3

1.7 Coordinator

name	István Licskó
academic rank	Honorary professor
email	licsko.istvan@emk.bme.hu

1.8 Department

Department of Sanitary and Environmental Engineering

1.9 Website

<https://epito.bme.hu/BMEEOVKDT72>

<https://fiek2.mywire.org/course/view.php?id=2582>

1.10 Language of instruction

english

1.11 Curriculum requirements

Ph.D.

1.12 Prerequisites

1.13 Effective date

1 September 2022

2. Objectives and learning outcomes

2.1 Objectives

Extend knowledge in aquatic chemistry of PhD students connecting their specific study area

2.2 Learning outcomes

Upon successful completion of this subject, the student:

A. Knowledge

1. PhD students will be able to apply the most important basic knowledge of aquatic chemistry, connecting to their specific field

B. Skills

1. Development the skills necessary for successful treatment of aquatic chemistry's problems appearing on the specific area of PhD students

C. Attitudes

1. Arouse the interest of PhD students, furthermore, and develop their willingness for cooperation

D. Autonomy and Responsibility

1. Development the skills that provide for PhD students to solve problems independently

2.3 Methods

On-site lectures and consultations

2.4 Course outline

Week	Topics of lectures and/or exercise classes
1.	Bases of atomic systems - The nucleus
2.	Characteristics of electrons - Electronegativity
3.	Types of chemical bonds

Aquatic chemistry - BMEEOVKDT72

4.	Extraordinarily characters of water
5.	Water as a solvent - Aquatic solutions
6.	Basic processes in chemistry and aquatic chemistry
7.	Oxidation and reduction
8.	Acids, bases and salt formation processes
9.	Equilibrium processes in chemistry and aquatic chemistry
10.	Idea of pH, importance of pH, buffering systems
11.	Equilibrium systems of carbon-dioxide - the acidity of precipitation
12.	Factors, are affected reaction rate of chemical, aquatic chemical processes
13.	Energy relations of chemical, aquatic chemical processes - catalysis, catalysts
14.	Aerob and anaerob processes in chemistry and aquatic chemistry

The above programme is tentative and subject to changes due to calendar variations and other reasons specific to the actual semester. Consult the effective detailed course schedule of the course on the subject website.

2.5 Study materials

2.6 Other information

2.7 Consultation

This Subject Datasheet is valid for:

Inactive courses

II. Subject requirements

Assessment and evaluation of the learning outcomes

3.1 General rules

3.2 Assessment methods

Evaluation form	Abbreviation	Assessed learning outcomes
Examination	E	A.1; B.1; C.1; D.1

The dates of deadlines of assignments/homework can be found in the detailed course schedule on the subject's website.

3.3 Evaluation system

Abbreviation	Score
E	100%
Sum	100%

3.4 Requirements and validity of signature

70% attendancy

3.5 Grading system

Grade	Points (P)
excellent (5)	90%
good (4)	80%
satisfactory (3)	70%
passed (2)	60%
failed (1)	<60%

3.6 Retake and repeat

3.7 Estimated workload

Activity	Hours/semester
Active participation on lectures	28
Sum	28

3.8 Effective date

1 September 2022

This Subject Datasheet is valid for:

Inactive courses