

CHEMISTRY AND BIOCHEMISTRY

1st year - DENTISTRY - winter semester 2024/2025

Practical exercises

Week	Date	Topic
1	1.10.	Introduction to laboratory exercises Safety rules
2	8.10.	Lab 1: Essential laboratory skills a) Laboratory glassware and equipment b) Training of volume measurement (pipetting) and weighing
3	15.10.	Lab 2: Preparation of solutions, reactions of inorganic compounds a) Preparation of a solution of known concentration b) Selected reactions of inorganic compounds c) Filtration, centrifugation
4	22.10.	Lab 3: Osmosis, osmotic pressure, osmolality a) Demonstration of osmosis b) Preparation of isotonic infusion solutions c) Determination of osmolality using cryoscopy
5	29.10.	Lab 4: Chromatography a) Paper chromatography of amino acids b) Separation of plant pigments by thin-layer chromatography c) Separation of dye mixture by gel chromatography
6	5.11.	Lab 5: pH, buffers a) Measurement of pH b) Demonstration of buffer functioning
7	12.11.	Lab 6: Volumetric analysis a) Alkalimetry b) Chelatometry
8	19.11.	Lab 7: Optical methods a) Identification of acid-base indicator by absorption spectra b) Spectrophotometric estimation of Cu ²⁺ concentration (calibration curve) c) Spectrophotometric estimation of Cl ⁻ concentration (single standard)
9	26.11.	Lab 8: Enzymology I a) Specificity of enzymes (sucrase, α -amylase) b) Dependence of enzyme activity on pH (α -amylase)
10	3.12.	Lab 9: Enzymology II a) Competitive inhibition of succinate dehydrogenase with malonate b) Monitoring of milk xanthine oxidoreductase activity
11	10.12.	Consultations
12	17.12.	Credit test
13	7.1.	CREDIT

Conditions for the awarding of course credit:

1. Full attendance at the laboratories.

Absences from laboratory exercises can be substituted during January after reservation in the Moodle course.

The reservation system will be available from 16.12.2024.

2. Completed lab reports from all laboratory exercises (completed worksheets).
3. Completion of all evaluated winter semester activities in the Moodle course [Chemistry and Biochemistry](#).
4. Credit test successfully passed. The number of attempts is limited to three. If the student does not use these three options within the announced dates, there is no right to ask for an extra date.

Credit test:

Test contents: topics of practical exercises and content of lectures up to and including organic chemistry

Regular date:	Tuesday	17.12.2024	8:00 – 9:30
Other dates:	Monday	13.1.2025	10:00 – 11:30
	Monday	20.1.2025	10:00 – 11:30
	Monday	27.1.2025	10:00 – 11:30
	Monday	3.2.2025	10:00 – 11:30

Web pages of the Department of Medical Chemistry and Biochemistry: www.lfp.cuni.cz/biochemie

E-learning support on the Moodle platform: <https://moodle.lfp.cuni.cz/course/view.php?id=382>