

**Study programme** : Dentistry

**Course** : Biochemistry

**Abbreviation** : LCH/ZAB21

**Course type** : 15 h (lectures)  
30 h (practical training)

**Year** : 2.year, 4.semester

**Number of Credits** : 9

**Course Form** : Lectures, practical training

**Lectures :**

**Lecturers:** Doc. RNDr. Eva Anzenbacherová, CSc.  
Ing. Adéla Galandáková, Ph.D.

**Study:** Continuous

	Date	Theme	No. of Less.	Lecturer
1	17.2.2023	Key role of acetyl coenzyme A in metabolism. Tricarboxylic acid cycle (Citrate cycle), redox (respiratory) chain, aerobic phosphorylation.	2	Anzenbacherová
2	3.3.2023	Localization of biochemical processes in organism. Regulation of metabolic processes.	2	Anzenbacherová
3	17.3.2023	Metabolism of foreign compounds (xenobiotics). Function of the GIT, liver, kidney.	2	Anzenbacherová
4	31.3.2023	Oral biochemistry Part I. Function of saliva, salivary diagnostics.	2	Anzenbacherová
5	14.4.2023	Oral biochemistry Part II. Saliva biomarkers.	2	Anzenbacherová
6	28.4.2023	Oxidative stress, radicals, reactive oxygen species, nitric oxide, antioxidants.	2	Galandáková
7	12.5.2023	Biochemistry of solid tissues. Osteosynthesis, osteolysis, osteoporosis.	3	Galandáková

## Practical training :

**Leading Lecturer:** Doc. RNDr. Eva Anzenbacherová, CSc.

**Lecturer:** Ing. Adéla Galandáková, Ph.D.

**Study:** Continuos

	Date	Theme	Number hrs.
1	14.2.2023	<b>Chemical literature, databases.</b>	2
2	21.2.2023	<b>Vitamins</b> <i>Separation of vitamins B mixture by gel chromatography.</i>	2
3	28.2.2023	<b>TAC</b> <i>Determination of isocitrate dehydrogenase activity.</i>	2
4	7.3.2023	<b>Active compounds in oral hygiene I</b> <i>Determination of sanguinarine and chelerythrine in dental preparations.</i>	2
5	14.3.2023	<b>Active compounds in oral hygiene II</b> <i>Determination of fluorides in dental preparations.</i>	2
6	21.3.2023	<b>Xenobiotics</b> <i>Determination of paracetamol (acetaminophen).</i>	2
7	28.3. 2023	<b>Biochemistry of oral cavity I</b> <i>Qualitative determination of inorganic compounds in saliva.</i> <i>Deminerlization hard tissues in the oral cavity.</i> <i>Determination of magnesium in saliva.</i>	2
8	4.4.2023	<b>Biochemistry of oral cavity II</b> <i>Determination of calcium and phosphorus in saliva.</i>	2
9	11.4.2023	<b>Biochemistry of oral cavity III</b> <i>Determination of enzyme activities in saliva</i>	2
10	18.4.2023	<b>Presentation of essays I</b>	2
11	25.4.2023	<b>Presentation of essays II</b>	2
12	2.5.2023	<b>Biochemistry of oral cavity III</b> <i>Qualitative determination of organic substances in saliva.</i> <i>Determination of <math>\alpha</math>-amylase in saliva.</i>	2
13	9.5.2023	<b>Biochemistry of oral cavity IV</b> <i>Buffering capacity of saliva.</i>	2
14	16.5.2023	<b>Radical processes in the organism</b> <i>Antioxidant capacity of saliva.</i> <i>Determination of uric acid in saliva.</i>	2
15	23.5.2023	<b>Evaluation of knowledge on biochemical processes in oral cavity. Credits. Revision.</b>	2

**Completed by:** Course unit credit.

**Requirements:** 100% presence in practicals. If a student fails to attend such classes due to health or other serious reasons, he or she must attend substitute classes provided that he or she has provided a satisfactory excuse. A maximum of one third of obligatory class time may be made up for.

**Literature:** Champe P. C., Harvey R.A.: Biochemistry (4th ed.), Lipincott Williams & Wilkins 2008.  
Ferrier D.R. Lippincott Illustrated Reviews: Biochemistry (7th ed.), Woters Kluver 2017.  
Devlin T.M. Textbook of biochemistry with clinical correlations (6th ed.), John Wiley & Sons, Inc. 2006.  
Dvořáčková S., et al.: Biochemistry Laboratory classes. UP 2007.