Medical Chemistry and Dental Materials
First Year, Winter Term 2023/24

18.09.2023

Week	Week from	Lecture date	Lectures	Teacher	Seminars	Teacher	Practical lessons	Teacher
			Tue 9.00-9.45 *Seminary Room No. 3.074*		***Tue 14.15-15.45*** *Seminary Room No. 3.074*		***Fri 14.15-16.30*** *Student laboratory*	
1.	2.10.23	3.10.23	Introduction to the course	Dr. Pláteník				
2.	9.10.23	10.10.23	Elements and inorganic compounds important in biochemistry, toxicology and dentistry I.	Doc. Malbohan	Inorganic materials in dentistry: Metals and alloys.	Prof. Navrátil		
3.	16.10.23	17.10.23	Elements and inorganic compounds important in biochemistry, toxicology and dentistry II.	Doc. Malbohan	Inorganic materials in dentistry: Amalgams. Toxicology of mercury.	Prof. Navrátil		
4.	23.10.23	24.10.23	Elements and inorganic compounds important in biochemistry, toxicology and dentistry III.	Doc. Malbohan	Dental material science I: Polymer materials	Dr. Tichý		
5.	30.10.23	31.10.23	Organic chemistry: stereochemistry, structures and classification of organic compounds	Dr. Rybnikářová (Doc. Malbohan)	Dental material science II: Composite materials	Dr. Tichý		
6.	6.11.23	7.11.23	Hydrocarbons and their derivatives - biological and toxicological importance	Dr. Rybnikářová (Doc. Malbohan)	Dental material science III: Cements	Dr. Bradna	Work with stomatologic plaster - dental cast	Dr. Pláteník
7.	13.11.23	14.11.23	Carboxylic acids and their derivatives	Dr. Rybnikářová (Doc. Malbohan)	Dental material science IV: Dental ceramic materials	Dr. Bradna	17.11.2023 National Holiday	
8.	20.11.23	21.11.23	Heterocyclic compounds and derived substances. Alkaloids.	Doc. Malbohan	Dental material science V: Gypsum products and investment materials.	Dr. Bradna	Analysis of amalgam and dental cement.	Dr. Pláteník
9.	27.11.23	28.11.23	Chemical bond. Water, solutions, dissolution. Chemical activity. Dissociation. Ionic strength. Colloids. Diffusion. Osmolarity.	Prof. Navrátil	Nomenclature of inorganic compounds. Ionic equations	Dr. Pláteník	Demonstration of monomer in Duracryl resin. Reactivity of basic functional groups in organic compounds.	Dr. Pláteník
10.	4.12.23	5.12.23	Acids and bases, pH. Neutralisation. Buffers.	Prof. Navrátil	Calculations involving concentrations. pH calculations I.	Dr. Pláteník	Galvanic cell in the mouth. Acid-base titration. Titration curves.	Dr. Pláteník
11.	11.12.23	12.12.23	Thermodynamics, thermochemistry. Chemical equilibrium and chemical kinetics. Catalysis.	Prof. Navrátil	pH calculations II, buffers.	Dr. Pláteník	Buffers and buffer capacity. Estimation of pH and titratable acidity of selected beverages	Dr. Pláteník
12.	18.12.23	19.12.23	Redox reactions. Basics of electrochemistry. Galvanic and electrochemical cell. Energetics of chemical reaction	Prof. Navrátil	Stoichiometric calculations. Calculations of osmolarity and osmotic pressure.	Dr. Pláteník		
Christmas vacation 23.12.2023 – 1.1.2024								
13.	1.1.24	2.1.24			Amino acids, proteins and enzymes	Dr. Pláteník	Protein precipitation. Dialysis. Gel filtration.	Dr. Pláteník
14.	8.1.24	9.1.24	Lipids - structure and properties. Fatty acids. Steroids.	Doc. Malbohan	Saccharides and polysaccharides: significance in biochemistry and dentistry (45 min.) Consultations (45 min.)	Doc. Muchová (Prof. Štípek) Dr. Pláteník	Consultations	
15.	15.1.24	16.1.24					**CREDIT TEST**	Dr. Pláteník