



List of required and recommended literature

1st year: Dental Medicine, WT

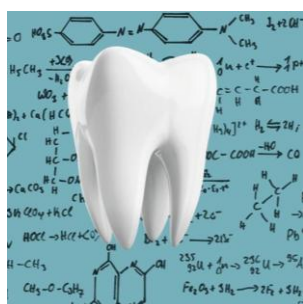
 Chemistry of Dental Materials	Hubková B., Mašlanková J., Smolko L. et al.	Chemistry of Dental Materials – Lectures https://portal.lf.upjs.sk/articles.php?aid=38	2025
	Stupák M et al.	Chemistry of Dental Materials – Textbook https://portal.lf.upjs.sk/articles.php?aid=419	2026
	Hubková B. et al.	Chemistry of Dental Materials – Instructions and protocols for practical exercises https://portal.lf.upjs.sk/articles.php?aid=161	2025
	Stupák M et al.	Medical Chemistry – “Hand book” for students of General and Dental Medicine https://portal.lf.upjs.sk/articles.php?aid=69	2024
	Stupák M et al.	Medical Chemistry – Calculation https://portal.lf.upjs.sk/articles.php?aid=232	2024
	Urban P. et al.	Chemistry – Repetitorium https://portal.lf.upjs.sk/articles.php?aid=236	2017
	Tomečková V.	Elementary organic molecules in biochemistry, Academic Textbook, Košice	2023
	Országová Z., Žitňanová I. et al.	Medical Chemistry	2008

Required study literature is written by **bold font**

Chemistry of Dental Materials – Lectures

doc. Ing. Beáta Hubková, PhD., doc. RNDr. Jana Mašlanková, PhD., doc. RNDr. Lukáš Smolko, PhD., doc. RNDr. Marek Stupák, PhD, doc. Ing. Katarína Dubayová, PhD.:

The subject Chemistry of Dental Materials includes selected chapters from general, inorganic, and physical chemistry. Teaching focuses mainly on introduction to the study of the chemical properties of materials routinely used in dentistry. The lectures are focused on selected parts of the study of metals, including noble metals and their alloys. Furthermore, attention is focused on ceramic materials, on dental cements, as well as on polymerization and substances resulting from polymerization and used in dentistry for both restorative and prosthetic purposes. Information about dental materials, auxiliary dental materials, as well as the importance of polymerization in dentistry is crucial for future dentists.



<https://portal.lf.upjs.sk/articles.php?aid=38>

Chemistry of Dental Materials – Textbook

doc. RNDr. Marek Stupák, PhD, doc. Ing. Beáta Hubková, PhD., doc. RNDr. Jana Mašlanková, PhD., doc. RNDr. Lukáš Smolko, PhD., prof. Ing. Mária Mareková, CSc.:

The presented textbook material „Chemistry of Dental Materials” is intended for students of dentistry and aims to provide them with a sufficient theoretical basis on which they can build during their further studies. The basic framework of the university textbook consists of information on the chemical composition and chemical interactions of specific dental materials, knowledge of which is important for a better understanding of their application in practice.



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Department of Medical and Clinical Biochemistry



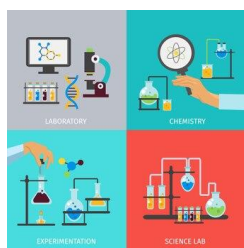
The introduction defines the basic materials are also given for reading graphs characterizing the mechanical properties of dental materials. The university textbook “Chemistry of Dental Materials“ provides a full-fledged chemical basis for understanding the essence of the dental materials used, despite the rapid development of this field, and that students will use the acquired knowledge in practice.

<https://portal.lf.upjs.sk/articles.php?aid=419>

Chemistry of Dental Materials – Instructions and protocols for practical exercises

doc. Ing. Beáta Hubková, PhD., doc. RNDr. Jana Mašlanková, PhD., doc. RNDr. Lukáš Smolko, PhD., doc. RNDr. Marek Stupák, PhD:

Practical exercises from Chemistry of Dental Materials is a set of experimental exercises designed for a better understanding of the subject. Practical experimental tasks enable students to become familiar with the basic chemical calculation and with chemical properties of materials commonly used in dentistry. They contribute to a better understanding of the properties of e.g., hydroxyapatite, metal corrosion and other properties of elements contained in dental materials. Separate attention is paid to dental plaster – its preparation and properties. Laboratory manuals for the practical exercises are arranged into weeks according to the syllabus and contain theoretical introduction as well as experimental procedures for each exercise.

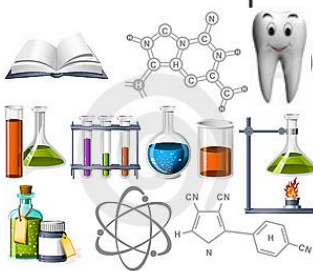


<https://portal.lf.upjs.sk/articles.php?aid=161>

Medical Chemistry – “Hand book” for students of General and Dental Medicine

doc. RNDr. Marek Stupák, PhD., doc. RNDr. Lukáš Smolko, PhD., doc. Mgr. Peter Urban, PhD., doc. RNDr. Jana Mašlanková, PhD., doc. Ing. Beáta Hubková, PhD., doc. RNDr. Beáta Čížmárová, PhD., doc. MUDr. Anna Birková, PhD., doc. RNDr. Vladimíra Tomečková, PhD. univ. prof., prof. RNDr. Miroslava Rabajdová, PhD. univ. prof., doc. Ing. Katarína Dubayová, PhD., prof. Ing. Mária Mareková, CSc.:

This publication is intended mainly for students of medicine studying at the Faculty of Medicine, Pavol Jozef Šafárik University in Košice. The textbook covers the basic knowledge of selected topics of general, physical, inorganic, organic and bioorganic chemistry required for successful completion of the course of Medical



Chemistry. Knowledge of the structures and functions of chemical substances and compounds, as well as their interactions and factors of surroundings influencing those interactions is very important for next study medical biochemistry incoming physicians. For better and easier understanding is the text appropriately supplemented with figures, tables, and numerous of chemical schemes. The separate part of this publication presents the chemistry of the most important dental materials used in clinical practise of future dentists, including the properties of metals, polymers and impression materials.

<https://portal.lf.upjs.sk/articles.php?aid=69>

Medical Chemistry – Calculations

doc. RNDr. Marek Stupák, PhD., doc. MUDr. Anna Birková, PhD., doc. Ing. Beáta Hubková, PhD., prof. RNDr. Miroslava Rabajdová, PhD., doc. RNDr. Jana Mašlanková, PhD. doc. Mgr. Peter Urban, PhD., doc. RNDr. Beáta Čížmárová, PhD., prof. Ing. Mária Mareková, CSc.:



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Proper administration of individual medications and reagents is of the utmost importance in the clinical practice of future doctors. It can be affected by age, body weight, kidney and liver health, and other health conditions. Subject Medical Chemistry is therefore an essential part of the theoretical education at medical faculties. The basics for the successful completion of the course are also basic chemistry calculations that are listed in the following study material.

<https://portal.lf.upjs.sk/articles.php?aid=232>

Chemistry – Repetitorium

doc. Mgr. Peter Urban, PhD., doc. RNDr. Lukáš Smolko, PhD., doc. RNDr. Jana Mašlanková, doc. MUDr. Anna Birková, PhD., doc. RNDr. Beáta Čižmárová, PhD., doc. Ing. Beáta Hubková, PhD., doc. RNDr. Marek Stupák, PhD., prof. Ing. Mária Mareková, CSc.:



Knowledge of the structure and function of chemical substances and compounds, as well as their interactions and factors which can influence these interactions are very important for study Medical Chemistry and Biochemistry. The supporting materials are repeating of high school chemistry and represent the summarization of knowledge's from high school. All listed information can help the student to better prepare for exam from Medical Chemistry.

<https://portal.lf.upjs.sk/articles.php?aid=236>

Elementary Organic Molecules in Biochemistry

Oxygen, Sulfur, and Nitrogen Derivatives

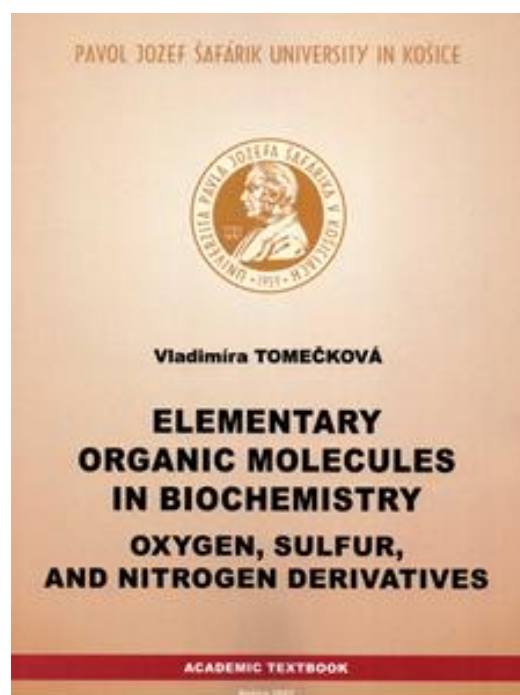
doc. RNDr. Vladimíra Tomečková, PhD. univ. prof.

This book is written for students of general and dental medicine who would like to learn medical organic chemistry in simplicity with application in bioorganic chemistry and biochemistry. This book is devoted to motivated students who would like to practice their knowledge. Improve yourself in this subject not only by reading but by practice the drawing of simplified basic organic reactions with your hand with their future application in biochemistry.

Content

- 1 Oxygen derivatives of hydrocarbons
- 2 Sulfur derivatives of hydrocarbons
- 3 Nitrogen derivatives of hydrocarbons
- 4 Important reactions of unsaturated compounds in medicine, and cooking
- 5 Selected pharmaceutically active compounds
- 6 Heterocyclic compounds
- 7 Isomerism of organic compounds

Nature, as well as the human body, contains an abundant quantity of organic molecules. This textbook describes selected oxygen, sulfur, nitrogen derivatives of hydrocarbons, heterocyclic compounds of their reactions, which are important in the human body or are found in pharmaceutical active substances, poisons, foodstuffs and heat-treated food. The last part of the textbook describes the isomerism of organic compounds, which enables dynamic changes in the structure of molecules that have different properties. Nature is filled with different plants and animals and is the first laboratory to produce bioactive organic natural compounds.





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These compounds are compatible with human cells and are applicable as therapeutic medicine. There is an effort to reproduce natural molecules in chemical laboratories, but they cannot be as perfect as the natural ones. Synthetic molecules can serve as a model for multiple studies, but there still does not exist a magic panacea pill or a perfect copy of nature, for the treatment of various diseases. Knowledge about the regenerative and toxic effect of medicinal substances in dependence on their structure (type and number of substituents) is very important for the understanding of their role in modulation of health and disease in dependence on their concentration. Compounds can be used daily only in recommended doses (higher doses can be toxic), but still will not replace a healthy diet. People need a varied diet to be healthy, in which are all necessary nutrients, what Hippocrates demonstrated long ago “Let food be the medicine, and let medicine be the food.” Learn the simple models mainly through creative simple instruction by using different colours, by repetition, practice by drawing of formulas by hand (at least three times) and memorization of common names of compounds and their reactions which have application in biochemistry. Thus, establishing simple educational methods how to distinguish organic molecules according to the colours of a functional group can promote universal learning for all students who thought that chemistry is a difficult subject, but hopefully they change their opinion after study of this book.

Keywords: organic molecules, oxygen, sulfur, nitrogen derivatives of hydrocarbons, heterocyclic compounds, chemical reactions, isomerism of organic compounds