

Medicinski fakultet u Rijeci

**IZVEDBENI NASTAVNI PLAN
2024/2025**

Za kolegij

Chemistry Essentials for Medical Practice

Studij:	Medical Studies in English (R) (izborni) Sveučilišni integrirani prijediplomski i diplomski studij
Katedra:	Katedra za medicinsku kemiju, biokemiju i kliničku kemiju
Nositelj kolegija:	izv. prof. dr. sc. Petković Didović Mirna, dipl. ing. kemije
Godina studija:	1
ECTS:	1.5
Stimulativni ECTS:	0 (0.00%)
Strani jezik:	Mogućnost izvođenja na stranom jeziku

Podaci o kolegiju:

The aim of this course is to apply the basic chemical concepts to problems pertaining to medical chemistry. Through topics relevant in modern medicine, the understanding and the interconnections of the concepts met in mandatory chemistry courses will be deepened and further integrated into medical studies.

Popis obvezne ispitne literature:

1. R.H. Petrucci, F.G. Herring, J.D. Madura, C. Bissonnette: General Chemistry - Principles and Modern Applications, 10th edition, Pearson Canada Inc., Toronto, Ontario, 2011; McMurry, J.: Fundamentals of Organic Chemistry, 8th Edition, Cengage Learning, 2017;
2. McMurry, J.: Fundamentals of Organic Chemistry, 8th Edition, Cengage Learning, 2017;

Popis dopunske literature:

1. Berg, Tymoczko, Stryer: Biochemistry, 5th edition, NY
2. Any general or medical chemistry textbook.
3. Any biochemistry textbook.

Nastavni plan:

Seminari popis (s naslovima i pojašnjenjem):

S1 Introduction.

Describe the purpose and organization of the course. Explain the meaning of conceptual thinking through concrete examples. Define basic concepts in chemistry. Analyze links to medically relevant topics. Justify your choice of the topic for the seminar assignment.

S2 Acid-base equilibrium in the human body. - 1

Explain the relevance of pH in the body. Provide pH values for specific organs, tissues and bodily fluids. Analyze the differences and their purpose.

Describe mechanisms for maintaining acid-base balance. Explain various mechanisms that help regulate acid-base balance in the body.

S3 Acid-base equilibrium in the human body. - 2

Discuss pathological conditions related to acid-base imbalance. Explore health issues resulting from disruptions in acid-base balance.

S5 Complex compounds in the human body.

List the most important complex compounds in the human body. Analyze the types of chemical bonds in them. Relate the structure to the function. Relate the oxidation state of the central metal ion to electronic configuration.

S4 Salts in the human body.

List the most important cations/anions/salts in the human body and diagnostics. Relate the structure of the salts with their biological role. Discuss the influence of the salt hydrolysis on pH balance in a human body.

S6 The relevance of stoichiometry in medicine. - 1

Apply stoichiometry to medically relevant problems.

S7 The relevance of stoichiometry in medicine. - 2

Apply stoichiometry to medically relevant problems.

S8 Simple organic compounds in the body and therapy.

Discuss the structure - property relationship for medically relevant simple organic compounds (hydrocarbons, alcohols, amines, aromatic compounds, carboxylic acids and derivatives).

S9 Non-simple organic compounds in the body and therapy.

Discuss the structure - property relationship for medically relevant non-simple organic compounds (carbohydrates, protein, lipids).

Obveze studenata:

Regular class attendance and active participation in discussions. Preparing and holding the seminar on the chosen topic.

Ispit (način polaganja ispita, opis pisanog/usmenog/praktičnog dijela ispita, način bodovanja, kriterij ocjenjivanja):

Active attendance at a minimum of 70 % of classes. Successfully held seminar on the chosen topic.

Ostale napomene (vezane uz kolegij) važne za studente:

SATNICA IZVOĐENJA NASTAVE 2024/2025
Chemistry Essentials for Medical Practice

Seminari (mjesto i vrijeme / grupa)

Popis predavanja, seminara i vježbi:

SEMINARI (TEMA)	Broj sati	Mjesto održavanja
S1 Introduction.	2	
S2 Acid-base equilibrium in the human body. - 1	3	
S3 Acid-base equilibrium in the human body. - 2	2	
S5 Complex compounds in the human body.	3	
S4 Salts in the human body.	3	
S6 The relevance of stoichiometry in medicine. - 1	3	
S7 The relevance of stoichiometry in medicine. - 2	3	
S8 Simple organic compounds in the body and therapy.	3	
S9 Non-simple organic compounds in the body and therapy.	3	

ISPITNI TERMINI (završni ispit):
