



HRVATSKO
KATOLICKO
SVEUCILISTE
ZAGREB
UNIVERSITAS
STUDIORUM
CATHOLICA
CROATICA
ZAGREBIA

Detailed Course Syllabus

Academic year:

2025/2026

Semester:

Winter semester

Study programme:

Medicina (R)

Year of study:

1

I. BASIC COURSE INFORMATION

Name: Kontrolni i opskrbeni sustavi (Medicinska biokemija II, Fiziologija I, Histologija i embriologija I, Imunologija)

Abbreviation: MEF1-3

ECTS: 14

Code: 279549

Prerequisites: No

Total Course Workload

Teaching Mode

Total Hours

Lecture

60

Exercise

13

Seminar

60

Practicum exercise

67

Class Time and Place: HKS - according to the published schedule

II. TEACHING STAFF

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III. DETAILED COURSE INFORMATION		
Teaching Language: Hrvatski		
Course Description		
<i>Textbooks and Materials</i>		
Required		
Supplementary		
<i>Examination and Grading</i>		
To Be Passed DA	Exclusively Continuous Assessment NE	Included in Average Grade DA
Prerequisites to Obtain Signature and Take Final Exam		
Examination Manner		
Grading Manner		
Detailed Overview of Grading within ECTS		
IV. WEEKLY CLASS SCHEDULE		
<i>[Predavanja]</i>		
#	Topic	
1	Metabolizam ugljikohidrata, metabolička spremišta energije	
2	Glikoliza, piruvat, nedostatak piruvat dehidrogenaze	
3	Metabolizam heksoza u stanici i poremećaji u metabolizmu glukoze i glikogena	
4	β- oksidacija, sinteza masnih kiselina	
5	Prijenos i pohrana lipida, sinteza, transport i izlučivanje kolesterola	
6	Metabolizam proteina i aminokiselina, biosinteza neesencijalnih aminokiselina, poremećaji	
7	Katabolizam proteina i dušika te ugljikovog lanca iz aminokiselina	
8	Porfirini i žučne boje	
9	Nukleotidi, metabolizam purinskih i pirimidinskih nukleotida, poremećaji purina i pirimidina	
10	Vitamini i minerali važni za biokemijske procese	
11	Metabolizam i metabolički putevi	
12	Epitelno i vezivno tkivo	
13	Hrskavično i koštano tkivo	
14	Razvoj i građa mišićnog tkiva	
15	Temelji cirkulacijskog sustava, srce i optok krvi	
16	Krv, građa srca i krvnih žila	

17	Srčani mišić, srce kao crpka i funkcija zalistaka
18	Normalni EKG
19	Opći pregled cirkulacije, biofizika tlaka, rastegljivost krvnih žila i funkcije arterijskog i venskog sustava
20	Krvne stanice, eritrociti, leukociti, trombociti
21	Hemostaza i zgrušavanje krvi
22	Krvne grupe i transfuzija
23	Funkcionalna organizacija, histološka građa i razvoj endokrinih žlijezda
24	Opća načela funkcioniranja endokrinog sustava
25	Sinteza i biokemija hormona
26	Inzulin, glukagon i šećerna bolest
27	Osnove imunologije (stanice i organi imunološkog sustava)
28	Prirodna i stečena imunost (uloga B i T limfocita)
29	Citokini, uloga PAMPs (pathogen-associated molecular patterns), PRRs (pattern recognition receptors) i Toll-like receptori u aktivaciji prirodne imunosti
30	MHC, procesiranje i prezentacija antigena, T- stanični receptor
31	T limfociti (maturacija, aktivacija i diferencijacija), B limfociti (generiranje, aktivacija i diferencijacija)

[Seminari]

#	Topic
1	Metabolizam glikogena, glikogeneza, glikogenoliza
2	Glukoneogeneza i regulacija koncentracije glukoze u krvi
3	Ketogeneza, metabolička ketoacidoza
4	Sinteza prostaglandina i eikozanoida, sfingolipidi
5	Klinički značaj poremećenog metabolizma lipida i pretilost
6	Pretvorba aminokiselina u specifične produkte
7	Posljedice nedostatka vitamina i minerala u organizmu
8	CLK-okretište metabolizma masti, bjelančevina i ugljikohidrata
9	Koža
10	Morfološki temelji kontraktilnosti
11	Podraživanje skeletnog i glatkog mišića
12	Uvod u anatomske strukture odgovorne za živčanu regulaciju krvnog optoka i rada srca; autonomni živčani sustav
13	Razvoj i anomalije srca i krvožilnog sustava
14	Ritmična ekscitacija srca
15	EKG interpretacija poremećaja srčanog mišića, srčane aritmije i EKG
16	Mikrocirkulacija i limfni sustav, lokalni humoralni nadzor krvnog protoka kroz tkiva
17	Minutni volumen srca i venski priljev, protok krvi kroz mišiće i koronarna cirkulacija
18	Živčana regulacija cirkulacije i brza kontrola arterijskog tlaka. Uloga bubrega u dugoročnoj kontroli arterijskog tlaka i hipertenzije
19	Hormoni hipofize i hipotalamusa

20	Hormoni štitnjače i kore nadbubrežnih žlijezda
21	Paratireoidni hormon, kalcitonin, metabolizam kalcija i fosfata
22	Organ-specifične i sistemske autoimune bolesti
23	Transplantacijska imunologija, protočna citometrija, autoimunost
24	Građa i razvoj limfnih organa
25	Ponavljjanje imunologije i tehnologija CAR-T stanica

[Vježbe u praktikumu]

#	Topic
1	Koncentracija glukoze u krvi i OGTT
2	Određivanje koncentracije kolesterola, HDL kolesterola, LDL kolesterola
3	Određivanje mokraćne kiseline i ureje
4	Određivanje bilirubina (direktni i konjugirani) i željeza
5	Neformirano vezivno tkivo, tetiva, koža
6	Hijalina, elastična i vezivna hrskavica, dekalcinirana kost, dezmalno i enhondralno okoštavanje
7	Skeletni, glatki i srčani mišić
8	Srce i krvne žile malog i velikog krvotoka
9	Krvni razmaz, koštana srž, srčani zalistak, arterija i vena
10	Auskultacija srca, srčani tonovi, valvularne i prirodne srčane mane
11	EKG
12	Krvni tlak i puls u mirovanju i pod opterećenjem
13	Laboratorijsko određivanje krvnih stanica
14	Laboratorijski testovi za hemostazu
15	Određivanje krvnih grupa i Rh faktora
16	Hipofiza, štitna žlijezda, nadbubrežna žlijezda i epitelna tjelešca
17	ELISA, nefelometrija
18	Protočna citometrija
19	Timus, limfni čvor, slezena, nepčana tonzila
20	Eksperimentalni modeli u imunologiji

[Vježbe]

#	Topic
1	Biokemijska osnova bolesti – prikaz slučajeva
2	Antigeni, imunoglobulini te interakcija antigen-antitijelo
3	Metode istraživanja u imunologiji
4	Prikaz kliničkih slučajeva autoimunih bolesti