



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)

Status: Compulsory

ECTS: 14

Code: 267608

Total Course Workload

Teaching Mode

Total Hours

Lecture

60

Exercise

23

Seminar

60

Practicum exercise

57

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	
Student obligations	
<i>Textbooks and Materials</i>	
Required	
Supplementary	
<i>Examination and Grading</i>	
Prerequisites to Obtain Signature and Take Final Exam	
Examination Manner	

Grading Manner	
Detailed Overview of Grading within ECTS	
Midterm exam dates:	
Exam period dates:	
IV. WEEKLY CLASS SCHEDULE	
[Predavanja]	
#	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	Prirođena 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)
<i>[Seminari]</i>	
#	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 arerijskog 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
<i>[Vježbe u praktikumu]</i>	
#	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	Krvni razmaz, koštana srž, srčani zalistak, arterija i vena
9	Laboratorijsko određivanje krvnih stanica
10	Laboratorijski testovi za hemostazu
11	Određivanje krvnih grupa i Rh faktora
12	Hipofiza, štitna žlijezda, nadbubrežna žlijezda i epitelna tjelešca
13	ELISA, nefelometrija
14	Protočna citometrija
15	Timus, limfni čvor, slezena, nepčana tonzila
16	Eksperimentalni modeli u imunologiji

[Vježbe]

#	Topic
1	Biokemijska osnova bolesti – prikaz slučajeva
2	Srce i krvne žile malog i velikog krvotoka
3	Auskultacija srca, srčani tonovi, valvularne i prirođene srčane mane
4	EKG
5	Krvni tlak i puls u mirovanju i pod opterećenjem
6	Antigeni, imunoglobulini te interakcija antigen-antitijelo
7	Metode istraživanja u imunologiji
8	Prikaz kliničkih slučajeva autoimunih bolesti