Detailed Course Syllabus

Academic year: 2026/2027	**Semester:** Winter semester
Year of study: 1	**Study programme:** Medicina (R) (Integrirani prijediplomski i diplomski)

I. BASIC COURSE INFORMATION

Name: Kontrolni i opskrbni 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
Seminar	60
Practicum exercise	80
Class Time and Place: HKS - according to the published schedule	

II. TEACHING STAFF

Course Holder	
Name and Surname: Ćurlin Marija	
Academic Degree:	**Professional Title:** izvanredni profesor
Contact E-mail: marija.curlin@unicath.hr	**Telephone:**
Office Hours: According to the published schedule	
Course Assistant	
Name and Surname: Marijančević Domagoj	
Academic Degree:	**Professional Title:** docent
Contact E-mail: dmarijan@kbcsm.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Lukić Ivan Krešimir	
Academic Degree:	**Professional Title:** docent
Contact E-mail: iklukic@vub.hr	**Telephone:**

Office Hours: According to the published schedule	
Name and Surname: Vukasović Ines	
Academic Degree:	**Professional Title:** naslovni docent
Contact E-mail: ivukasov@kbcsm.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Đurić Koraljka	
Academic Degree:	**Professional Title:** naslovni docent
Contact E-mail: kduric@eduid.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Mayer Ljiljana	
Academic Degree:	**Professional Title:** naslovni docent
Contact E-mail: ljiljana.mayer@unicath.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Puljak Livia	
Academic Degree:	**Professional Title:** redoviti profesor u trajnom izboru
Contact E-mail: livia.puljak@unicath.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Antolović Roberto	
Academic Degree:	**Professional Title:** redoviti profesor u trajnom izboru
Contact E-mail: roberto.antolovic@unicath.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Margetić Sandra	
Academic Degree:	**Professional Title:** naslovni docent
Contact E-mail: sandra.margetic@unicath.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Vučemilo Tiha	
Academic Degree:	**Professional Title:** naslovni docent
Contact E-mail: tvucemil@kbcsm.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Koporc Zvonimir	
Academic Degree:	**Professional Title:** izvanredni profesor
Contact E-mail: zkoporc@unicath.hr	**Telephone:**
Office Hours: According to the published schedule	

Name and Surname: Tešija Kuna Andrea	
Academic Degree:	**Professional Title:** naslovni docent
Contact E-mail: andrea.kuna@unicath.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Vasilj Ankica	
Academic Degree:	**Professional Title:** naslovni docent
Contact E-mail: ankica.vasilj@unicath.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Jelić Puškarić Biljana	
Academic Degree:	**Professional Title:** docent
Contact E-mail: biljana.puskaric@unicath.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Tomić Franciska	
Academic Degree:	**Professional Title:** naslovni asistent
Contact E-mail: ftomic@pharma.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Antica Mariastefania	
Academic Degree:	**Professional Title:** naslovni redoviti profesor
Contact E-mail: antica@irb.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Skoko Marija	
Academic Degree:	**Professional Title:** naslovni viši asistent
Contact E-mail: marija.skoko@unicath.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Moslavac Sandra	
Academic Degree:	**Professional Title:** docent
Contact E-mail: smoslavac@unicath.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Fodor Ljiljana	
Academic Degree:	**Professional Title:** naslovni docent
Contact E-mail: ljiljana.fodor@unicath.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Drenjančević Ines	

Academic Degree:	**Professional Title:** redoviti profesor u trajnom izboru
Contact E-mail: idrenjancevic@mefos.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Mihaljević Zrinka	
Academic Degree:	**Professional Title:** docent
Contact E-mail: zivanovic@mefos.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Milevoj Kopčinović Lara	
Academic Degree:	**Professional Title:** naslovni docent
Contact E-mail: lmilevoj@kbcsm.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Lazić Mosler Elvira	
Academic Degree:	**Professional Title:** docent
Contact E-mail: elvira.lazic@unicath.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Đerek Lovorka	
Academic Degree:	**Professional Title:** naslovni docent
Contact E-mail: lderek@kbd.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Rinčić Martina	
Academic Degree:	**Professional Title:** docent
Contact E-mail: martina.rincic@unicath.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Kožaj Sanja	
Academic Degree:	**Professional Title:**
Contact E-mail: sanja.kozaj@unicath.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Blagec Viktorija	
Academic Degree:	**Professional Title:**
Contact E-mail: viktorija.blagec@unicath.hr	**Telephone:**
Office Hours: According to the published schedule	
Name and Surname: Sermek Antonio	
Academic Degree:	**Professional Title:** docent

Contact E-mail: antonio.sermek@unicath.hr	**Telephone:**	
Office Hours: According to the published schedule		

III. DETAILED COURSE INFORMATION

Teaching Language: Hrvatski		
Course Description		
Textbooks and Materials		
Required		
Supplementary		
Examination and Grading		
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

[Predavanja]

#	Topic
1	Epitelno i vezivno tkivo
2	Hrskavično i koštano tkivo
3	Razvoj i građa mišićnog tkiva
4	Metabolizam ugljikohidrata (glikoliza, piruvat, nedostatak piruvat dehidrogenaze)
5	Ciklus limunske kiseline
6	Metabolizam heksoza u stanici i poremećaji u metabolizmu glukoze i glikogena
7	ß- oksidacija, sinteza masnih kiselina
8	Porfirini i žučne boje
9	Nukleotidi, metabolizam purinskih i pirimidinskih nukleotida, poremećaji purina i pirimidina
10	Metabolizam proteina i aminokiselina, biosinteza neesencijalnih aminokiselina, poremećaji
11	Katabolizam proteina i dušika te ugljikovog lanca iz aminokiselina
12	Prijenos i pohrana lipida, sinteza, transport i izlučivanje kolesterola
13	Vitamini i minerali važni za biokemijske procese
14	Metabolizam i metabolički putevi
15	Opća načela funkcioniranja endokrinog sustava
16	Sinteza i biokemija hormona

17	Histološka građa i razvoj endokrinih žlijezda
18	Inzulin, glukagon i šećerna bolest
19	Krvne stanice, eritrociti, leukociti, trombociti
20	Hemostaza i zgrušavanje krvi
21	Krvne grupe i transfuzija
22	Temelji cirkulacijskog sustava, srce i optok krvi
23	Krv, građa srca i krvnih žila
24	Srčani mišić, srce kao crpka i funkcija zalistaka
25	Normalni EKG
26	Opći pregled cirkulacije, biofizika tlaka, rastegljivost krvnih žila i funkcije arterijskog i venskog sustava
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 prirođene 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	Koža
2	Morfološki temelji kontraktilnosti
3	Podraživanje skeletnog i glatkog mišića
4	Metabolizam glikogena, glikogeneza, glikogenoliza
5	Glukoneogeneza i regulacija koncentracije glukoze u krvi
6	Ketogeneza, metabolička ketoacidoza
7	Sinteza prostaglandina i eikozanoida, sfingolipidi
8	Pretvorba aminokiselina u specifične produkte
9	Klinički značaj poremećenog metabolizma lipida i pretilost
10	Posljedice nedostatka vitamina i minerala u organizmu
11	CLK-okretište metabolizma masti, bjelančevina i ugljikohidrata
12	Hormoni hipofize i hipotalamusa
13	Hormoni štitnjače i kore nadbubrežnih žlijezda
14	Paratireoidni hormon, kalcitonin, metabolizam kalcija i fosfata
15	Hormonska regulacija metabolizma
16	Uvod u anatomske strukture odgovorne za živčanu regulaciju krvnog optoka i rada srca; autonomni živčani sustav
17	Razvoj i anomalije srca i krvožilnog sustava
18	Ritmična ekscitacija srca
19	EKG interpretacija poremećaja srčanog mišića, srčane aritmije i EKG

20	Mikrocirkulacija i limfni sustav, lokalni humoralni nadzor krvnog protoka kroz tkiva
21	Minutni volumen srca i venski priljev, protok krvi kroz mišiće i koronarna cirkulacija
22	Živčana regulacija cirkulacije i brza kontrola arterijskog tlaka. Uloga bubrega u dugoročnoj kontroli arerijskog tlaka i hipertenzije
23	Organ-specifične i sistemske autoimune bolesti
24	Građa i razvoj limfnih organa
25	Transplantacijska imunologija, protočna citometrija, autoimunost
26	Ponavljanje imunologije i tehnologija CAR-T stanica
[Vježbe u praktikumu]	
#	**Topic**
1	Neformirano vezivno tkivo, tetiva, koža
2	Skeletni, glatki i srčani mišić
3	Koncentracija glukoze u krvi i OGTT
4	Određivanje mokraćne kiseline i ureje
5	Određivanje koncentracije kolesterola, HDL kolesterola, LDL kolesterola
6	Određivanje bilirubina (direktni i konjugirani) i željeza
7	Biokemijska osnova bolesti – prikaz slučajeva
8	Hijalina, elastična i vezivna hrskavica, dekalcinirana kost, dezmalno i enhondralno okoštavanje
9	Hormonska regulacija metabolizma
10	Laboratorijsko određivanje krvnih stanica
11	Laboratorijski testovi za hemostazu
12	Određivanje krvnih grupa i Rh faktora
13	Srce i krvne žile malog i velikog krvotoka
14	Krvni razmaz, koštana srž, srčani zalistak, arterija i vena
15	Auskultacija srca, srčani tonovi, valvularne i prirođene srčane mane
16	Hipofiza, štitna žlijezda, nadbubrežna žlijezda i epitelna tjelešca
17	EKG
18	Krvni tlak i puls u mirovanju i pod opterećenjem
19	Antigeni, imunoglobulini te interakcija antigen-antitijelo
20	Metode istraživanja u imunologiji
21	Prikaz kliničkih slučajeva autoimunih bolesti
22	Timus, limfni čvor, slezena, nepčana tonzila
23	ELISA
24	Protočna citometrija
25	Eksperimentalni modeli u imunologiji