



LUX VERA  
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

*Course Holder*

**Name and Surname:** Ćurlin Marija

**Academic Degree:**

**Professional Title:** izvanredni profesor

**Contact E-mail:**

[marija.curlin@unicath.hr](mailto: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](mailto:dmarijan@kbcsm.hr)

**Telephone:**

**Office Hours:** According to the published schedule

**Name and Surname:** Lukić Ivan Krešimir

**Academic Degree:**

**Professional Title:** docent

<b>Contact E-mail:</b> <a href="mailto:iklukic@vub.hr">iklukic@vub.hr</a>	<b>Telephone:</b>
<b>Office Hours:</b> According to the published schedule	
<b>Name and Surname:</b> Vukasović Ines	
<b>Academic Degree:</b>	<b>Professional Title:</b> naslovni docent
<b>Contact E-mail:</b> <a href="mailto:ivukasov@kbcsm.hr">ivukasov@kbcsm.hr</a>	<b>Telephone:</b>
<b>Office Hours:</b> According to the published schedule	
<b>Name and Surname:</b> Đurić Koraljka	
<b>Academic Degree:</b>	<b>Professional Title:</b> naslovni docent
<b>Contact E-mail:</b> <a href="mailto:kduric@eduid.hr">kduric@eduid.hr</a>	<b>Telephone:</b>
<b>Office Hours:</b> According to the published schedule	
<b>Name and Surname:</b> Mayer Ljiljana	
<b>Academic Degree:</b>	<b>Professional Title:</b> naslovni docent
<b>Contact E-mail:</b> <a href="mailto:ljmayer@pharma.hr">ljmayer@pharma.hr</a>	<b>Telephone:</b>
<b>Office Hours:</b> According to the published schedule	
<b>Name and Surname:</b> Puljak Livia	
<b>Academic Degree:</b>	<b>Professional Title:</b> redoviti profesor u trajnom izboru
<b>Contact E-mail:</b> <a href="mailto:livia.puljak@unicath.hr">livia.puljak@unicath.hr</a>	<b>Telephone:</b>
<b>Office Hours:</b> According to the published schedule	
<b>Name and Surname:</b> Antolović Roberto	
<b>Academic Degree:</b>	<b>Professional Title:</b> redoviti profesor u trajnom izboru
<b>Contact E-mail:</b> <a href="mailto:roberto.antolovic@unicath.hr">roberto.antolovic@unicath.hr</a>	<b>Telephone:</b>
<b>Office Hours:</b> According to the published schedule	
<b>Name and Surname:</b> Margetić Sandra	
<b>Academic Degree:</b>	<b>Professional Title:</b> naslovni docent
<b>Contact E-mail:</b> <a href="mailto:sandra.margetic@unicath.hr">sandra.margetic@unicath.hr</a>	<b>Telephone:</b>
<b>Office Hours:</b> According to the published schedule	
<b>Name and Surname:</b> Vučemilo Tiha	
<b>Academic Degree:</b>	<b>Professional Title:</b> naslovni docent
<b>Contact E-mail:</b> <a href="mailto:tvucemil@kbcsm.hr">tvucemil@kbcsm.hr</a>	<b>Telephone:</b>
<b>Office Hours:</b> According to the published schedule	
<b>Name and Surname:</b> Koporc Zvonimir	
<b>Academic Degree:</b>	<b>Professional Title:</b> izvanredni profesor

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

<b>Contact E-mail:</b> <a href="mailto:ljljana.fodor@unicath.hr">ljljana.fodor@unicath.hr</a>	<b>Telephone:</b>
<b>Office Hours:</b> According to the published schedule	
<b>Name and Surname:</b> Drenjančević Ines	
<b>Academic Degree:</b>	<b>Professional Title:</b> redoviti profesor u trajnom izboru
<b>Contact E-mail:</b> <a href="mailto:idrenjancevic@mefos.hr">idrenjancevic@mefos.hr</a>	<b>Telephone:</b>
<b>Office Hours:</b> According to the published schedule	
<b>Name and Surname:</b> Mihaljević Zrinka	
<b>Academic Degree:</b>	<b>Professional Title:</b> docent
<b>Contact E-mail:</b> <a href="mailto:zivanovic@mefos.hr">zivanovic@mefos.hr</a>	<b>Telephone:</b>
<b>Office Hours:</b> According to the published schedule	
<b>Name and Surname:</b> Milevoj Kopčinović Lara	
<b>Academic Degree:</b>	<b>Professional Title:</b> naslovni docent
<b>Contact E-mail:</b> <a href="mailto:lmilevoj@kbcsm.hr">lmilevoj@kbcsm.hr</a>	<b>Telephone:</b>
<b>Office Hours:</b> According to the published schedule	
<b>Name and Surname:</b> Lazić Mosler Elvira	
<b>Academic Degree:</b>	<b>Professional Title:</b> docent
<b>Contact E-mail:</b> <a href="mailto:elvira.lazic@unicath.hr">elvira.lazic@unicath.hr</a>	<b>Telephone:</b>
<b>Office Hours:</b> According to the published schedule	
<b>Name and Surname:</b> Đerek Lovorka	
<b>Academic Degree:</b>	<b>Professional Title:</b> naslovni docent
<b>Contact E-mail:</b> <a href="mailto:lderek@kbd.hr">lderek@kbd.hr</a>	<b>Telephone:</b>
<b>Office Hours:</b> According to the published schedule	
<b>Name and Surname:</b> Rinčić Martina	
<b>Academic Degree:</b>	<b>Professional Title:</b>
<b>Contact E-mail:</b> <a href="mailto:martina.rincic@unicath.hr">martina.rincic@unicath.hr</a>	<b>Telephone:</b>
<b>Office Hours:</b> According to the published schedule	
<b>Name and Surname:</b> Kožaj Sanja	
<b>Academic Degree:</b>	<b>Professional Title:</b>
<b>Contact E-mail:</b> <a href="mailto:sanja.kozaj@unicath.hr">sanja.kozaj@unicath.hr</a>	<b>Telephone:</b>
<b>Office Hours:</b> According to the published schedule	
<b>Name and Surname:</b> Blagec Viktorija	
<b>Academic Degree:</b>	<b>Professional Title:</b>

Contact E-mail: <a href="mailto:viktorija.blagec@unicath.hr">viktorija.blagec@unicath.hr</a>	Telephone:	
Office Hours: According to the published schedule		
<b>III. DETAILED COURSE INFORMATION</b>		
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		
<b>IV. WEEKLY CLASS SCHEDULE</b>		
<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 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	Ponavljanje 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