Course Description Form

1. Course Name:

Metabolic pathways

2. Course Code:

MEPA373

3. Semester / Year:

Second semester (spring) / 2023-2024

4. Description Preparation Date:

1/2/2024

5. Available Attendance Forms:

Presence

- 6. Number of Credit Hours (Total) / Number of Units (Total)
 - 2 theoretical hours + 3 practical hours (75 hours) / 3.5 units
- 7. Course administrator's name (mention all, if more than one name)
 Name: Dr.Hala Abdalhadi Salih

8. Course Objectives

- Understand why energy is necessary for sustaining life.
- Understand how organisms transform matter and energy in accordance with the laws of thermodynamics.
- Recognize that energy conversions are dependent on metabolic pathways.
- Understand the role of enzyme inhibition in metabolic pathways and predict the effects of enzyme deficiency due to genetic disease.

Apply knowledge of converging metabolic pathways and enzyme inhibit to understand the treatment options for a metabolic

9. Teaching and Learning Strategies

Theoretical
- Interactive lecture
- Brainstorming
- Dialogue and discussion

Practical
Interactive lecture
- Discussion, dialogue, brainstormi
- Conducting laboratory experimen

Assigning reports
 Conducting monthly and
 Assigning reports
 Conducting daily and

-Conducting monthly and daily examinations -Conducting daily and monthly examinations

10.	10. Course Structure									
We ek	Hours	Required Learning Outcomes	Unit or subject	ct name	Learning method	Evaluation method				
1	2Theoret		Theoretical:	Introduction to	THEORETICAL	Shortexams,				

	ical 3Practic al	TheoreticalA 1 A1: Introducing the student to the meaning of the catabolic and anabolic pathways. Practical: A9 Introducing the student to the practical concept of metabolic pathway	metabolic processes. Practical: Introduction to metabolic pathways. Practical	audio methods, Writing on the box Direct dialogue style PRACTICAL Assigning tasks and reports	assignments, discussions	
2	2Theoret ical 3Practic al	Theoretical: A2 Introducing the student to the path of glycolysis. Practical: A7 The student understands what diabetes is and measures the sugar level	Theoretical: Carbohydrate metabolism Practical glycolysis pathway: Diabetes	THEORETICAL audio methods, Writing on the box Direct dialogue style PRACTICAL Assigning tasks and reports		
3	2Theoret ical 3Practic al	Theoretical: A3 Completing the topic of glycolysis. Practical: B8 The student understands what glycogen is and how it is estimated	Theoretical: Carbohydrate metabolism Practical glycolysis pathway: Determination of glycogen in tissue	Writing on the boat Direct dialogue style PRACTICAL Assigning tasks and reports		
4	2Theoret ical 3Practic al	Theoretical: B1 The student understands what the Krebs cycle is. Practical: B9 The student understands what the Corie cycle is	Theoretical: Carbohydrate metabolism, Krebs cycle. Practical: Corie cycl	THEORETICAL audio methods, Writing on the box Direct dialogue style PRACTICAL Assigning tasks and reports	assignments,	
5	2Theoret ical 3Practic al	Theoretical: A4 The student explains the	Theoretical: Carbohydrate metabolism Phosphogluconate pathway Practical: Fermentation	THEORETICAL audio methods, Writing on the box Direct dialogue	Shortexams, assignments, discussions	

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		phosphogluc		style		
		onate		PRACTICAL		
		process.		Assigning tasks		
		Practical:		and reports	2005	
		A10			100 cm	
		The student			Not book!	الم الم
		tests			انے والعداد	1112
		fermentation			1	7115
		methods				
6	2Theoret	A5	Scientific visit	THEORETICAL	Shortexams,	į.
	ical	The student		audio methods,	assignments,	
	3Practic	was able to		Writing on the boa	discussions	Popular
	al	know		Direct dialogue		
		equipment		style		
				PRACTICAL		
				Assigning tasks		
				and reports		
7	2Theoret	Theoretical:	Theoretical: Carbohydrate		Shortexams,	
	ical	B2	metabolism and oxidative	audio methods,	assignments,	
	3Practic	The student		,	~	
	al	er er c	Kidney functions	Direct dialogue	aiscussiolis	
	""	oxidative	Talley Tulletions			
		phosphorylati		Style		
		on is.		PRACTICAL Assigning tooks		
		Practical:		Assigning tasks		
		A11		and reports		
1		The student				
		learns about				
		methods for				
		estimating				
		kidney				
	0.771	functions				
8	2Theoret	Theoretical:	Theoretical: Carbohydrate	THEORETICAL		
	ical	B3	metabolism and oxidative		assignments,	
	3Practic	The student			discussions	
	al		Kidney functions	Direct dialogue		
		oxidative		style		
		phosphorylati		PRACTICAL		
		on is.		Assigning tasks		
		Practical:		and reports		
		A12				
		The student				
		learns about				
		methods for				
		estimating				
		kidney				
		functions				
9	2Theoret		Theoretical: Carbohydrate	THEORETICAL	Shortexams,	
	ical	Theoretical:	metabolism, glycogen	audio methods,	assignments,	
	3Practic	A6	catabolism. Practical: Urea	Writing on the box	•	
	al	The student	Catalonisiii. I factical. Ofca	•	uiscussions	
		understands		Direct dialogue		
				style		
		the path of		PRACTICAL		
		glycogen		Assigning tasks		
		catabolism.		and reports		
		Practical:				
		B10				
		The student		,		
		measures				
		urea				
						l .

10	2Theoret			THEODERA	Γ
1	ical	Theoretical	Theoretical: Carlada	THEORETICAL	
	3Practic	B4	Theoretical: Carbohydrate	,	assignments,
	al	: The process	metabolism, glycogen synthesis pathway. Practical: Creatine		discussions
		of building	1	Direct dialogue	All San
		glycogen.		style	Co She
		Practical:		PRACTICAL	106/00061
		B11		Assigning tasks	3 2-1
		Estimating		and reports	
		creatine			(11 55)
11	2Theoret		Theoretical: fat metabolism,	THEORETICAL	Chartavama
	ical	Theoretical	and the first the state of the	audio methods,	Shortexams, assignments,
	3Practic	:	Practical:uric acid	Writing on the box	•
	al	A7		Direct dialogue	uiscussions
		Theoretical:		style	
		Introducing		PRACTICAL	
		the student to		Assigning tasks	
		the path of		and reports	
		fat		dia reports	
		catabolism.			
		Practical:			
		B12			
		The student			
		understands			
		what uric			
		acid is			
12	2Theoret	Theoretical:	Theoretical: fat metabolism	THEORETICAL	Shortexams,
	ical	B5			assignments,
	3Practic	Fat anabolic	Practical: Kidney functions	Writing on the box	
	al	path		Direct dialogue	aiscussions
		Practical:		style	
				PRACTICAL	
		B13		Assigning tasks	
		The student		and reports	
		experiments		•	
		with methods			
		for			
		estimating			
		kidney			
		functions and			
		writes a			
		report about			
		them			
13	2Theoret	A9	Scientific visit		Shortexams,
	ical	The student			assignments,
	3Practic	was able to			discussions
	al	know the			
		equipments			
14	2Theoret	Theoretical:	Theoretical: Ketone bodies.		Shortexams,
	ical	B6	Practical: Iro	TOTAL PART IN	assignments,
	3Practic	The		Writing on the boa	•
	al	biological		Direct dialogue	
1 1		structure of		style	
		ketone		PRACTICAL	
	1	bodies.		Assigning tasks	
			1		1
		Practical:		and reports	
		Practical: B14		and reports	
		Practical: B14 The student		and reports	
		Practical: B14 The student understands		and reports	
		Practical: B14 The student		and reports	

15	2Theoret ical 3Practic al		student ble to the	Gener	ral review	THEORETICAL audio methods, Writing on the boad Direct dialogue style PRACTICAL Assigning tasks and reports	assignments,
11.	Course Eva	aluation	1				
t	Evaluation methods	L	Evaluati	ion da	ate (one week)	Grade	Relative weight %
1	Final theoretical Theoretical report + Practical 1-1 theoretical practical reports					7theoretical + 6 practical	13%
2	Short test	l Quiz	3 weeks	3		4theoretical + 2practical	6%
3	Midterm exam 9 weeks (theoretical and practical)			3		10theoretical + 5 practical	15%
4	Short test 2 Quiz 12 weeks			S		4 theoretical + 2 practical	6%
5	Final practical practical exa		l exan	ns week	20	20%	
6	Final theoretical theoretical exam		cal exa	ams week	40	40%	
						100	100
12	.Learnin	g and '	Teachi	ng R	lesources		
	uired		extboo		no		
(curricular books, if any)							
Main references (sources))	Biochemistry		
					Dr. Tariq younis		
Rec	Recommended books and			nd			
references (scientific				fic	Nature journal		
journals, reports)							
Electronic References, Websites				es,	htttps://www.scientificamerican.c om/chemistry/		

Colleged deck 200

Instructor of theoritical part

Instructor of practical part

Dr. Hala abdalhadi salih

Chairman of the scientific committee

Prof. Dr. Moafak mahmood ahmed

Head of the department of Food science

Prof. Dr. Sumaya khalaf badawi