## **Course Description Form**

1. Course Name:

Food Analysis

2. Course Code:

**FOAN468** 

3. Semester / Year:

First semester (fall) / 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. Taha M. Taki Mohammed and MSc. Abdullah Anwar Nafie

## 8. Course Objectives

**Theoretical** 

- -Enriching the student with knowledge related to the analysis of any food substance and his knowledge in terms of ancient and modern methods of analysis,
- -knowing the percentages of its basic components of moisture, ash, fat, protein and carbohydrates,
- knowing the percentages of the micro components of minerals, enzymes and vitamins

**Practical** 

Enabling the student to analyze foods, how to prepare samples, and methods for estimating their components

## 9. Teaching and Learning Strategies

Theoretical

- -Developing teaching curricula in coordination with higher departments
- -Developing teaching curricula by the department that are similar to the work

Practical:

- -Assigning group work to reveal leadership skills
- -Assigning tasks and reporting for each experiment

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject	Learning method	Evaluation method
1	2Theoretical 3Practical	THEORETICAL A1: Learn about the concept of food analysis and definitions related to	THEORETICAL What is to be analyzed and a	THEORETICAL PRACTICAL Explanation and	Daily and monthly exams,

	samples and their types B1: He possesses the practical and mental knowledge and concepts that help him analyze foods E1: It contributes to enhancing the principle of transparency among members of society and making them aware of the importance of impartiality in collecting representative samples to fight corruption and serve society.  PRACTICAL B1: He possesses the practical and mental knowledge and concepts that help him analyze foods B2: Able to produce safe food for humans and animals, while preserving the environment B3: Able to conduct food analysis, develop plans to detect spoiled food and prevent food fraud. C1: Uses the information the food inspector needs and has available to him to master his work	look at quality terminology PRACTICAL The importance of food analysis	presentation of the model And the lecture	discussions
 Practical	THEORETICAL A2: Learn about the concept of spectroscopy and its related definitions and types B1: He possesses the practical and mental knowledge and concepts that help him analyze foods using spectroscopic methods C2: Successfully balances the investment and use of spectroscopic methods and employs them to suit different analytical processes D1: Acquiring the analytical skills necessary to deal with confidence and certainty at the individual and group levels PRACTICAL B1: He possesses the practical and mental knowledge and concepts that help him analyze foods B2: Able to produce safe food for humans and animals, while preserving	THEORETICAL Spectral analysis PRACTICAL Humidity estimation	THEORETICAL PRACTICAL Explanation and presentation of the model And the lecture	Daily and monthly exams, discussions

	1	10-32			
		the environment B3: Able to conduct food analysis, develop plans to detect spoiled food and prevent food fraud. C1: Uses the information the food inspector needs and has available to him to master his work			
3	2Theoretical 3Practical	THEORETICAL B1: He possesses the practical and mental knowledge and concepts that help him analyze foods using spectroscopic methods C2: Successfully balances the investment and use of spectroscopic methods and employs them to suit different analytical processes D1: Acquiring the analytical skills necessary to deal with confidence and certainty at the individual and group levels PRACTICAL B1: He possesses the practical and mental knowledge and concepts that help him analyze foods B2: Able to produce safe food for humans and animals, while preserving the environment B3: Able to conduct food analysis, develop plans to detect spoiled food and prevent food fraud. C1: Uses the information the food inspector needs and has available to him to master his work	THEORETICAL Analysis in the field of ultraviolet radiation  PRACTICAL Estimation of total ash	THEORETICAL PRACTICAL Explanation and presentation of the model And the lecture	Daily and monthly exams, discussions
4	2Theoretical 3Practical	THEORETICAL B1: He possesses the practical and mental knowledge and concepts that help him analyze foods using spectroscopic methods C2: Successfully balances the investment and use of spectroscopic methods and employs them to suit different analytical processes D1: Acquiring the analytical skills necessary to deal with confidence and	THEORETICAL Visible photometric analysis PRACTICAL Fat estimation	THEORETICAL PRACTICAL Explanation and presentation of the model And the lecture	Daily and monthly exams, discussions

5	2Theoretical 3Practical	certainty at the individual and group levels  PRACTICAL  B1: He possesses the practical and mental knowledge and concepts that help him analyze foods  B2: Able to produce safe food for humans and animals, while preserving the environment  B3: Able to conduct food analysis, develop plans to detect spoiled food and prevent food fraud.  C1: Uses the information the food inspector needs and has available to him to master his work  THEORETICAL  B1: He possesses the practical and mental knowledge and concepts that help him analyze foods using spectroscopic methods  C2: Successfully balances the investment and use of spectroscopic methods and employs them to suit different analytical processes  D1: Acquiring the analytical processes  D1: Acquiring the analytical skills necessary to deal with confidence and certainty at the individual and group levels  PRACTICAL  B1: He possesses the practical and mental knowledge and concepts that help him analyze foods  B2: Able to produce safe food for humans and animals, while preserving the environment	theoretical Infrared  PRACTICAL Protein estimation	THEORETICAL PRACTICAL Explanation and presentation of the model And the lecture	Daily and monthly exams, discussions
		B2: Able to produce safe food for humans and animals, while preserving			
6	2Theoretical 3Practical	THEORETICAL B1: He possesses the practical and mental knowledge and concepts that help him analyze foods using spectroscopic	THEORETICAL Flame analysis PRACTICAL	THEORETICAL PRACTICAL Explanation and presentation of the model And	Daily and monthly exams, discussions

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		methods	estimation	the lecture	
		C2: Successfully balances	Carbohydrates	***************************************	
		the investment and use of	Carbonyuraces		
		spectroscopic methods and			
		employs them to suit			
		different analytical			
		processes			
		D1: Acquiring the			
		analytical skills necessary			
		to deal with confidence and			
		certainty at the individual			
1		and group levels			
		PRACTICAL			
		B1: He possesses the			
		practical and mental			
		knowledge and concepts			
		that help him analyze foods			1
		B2: Able to produce safe			
		food for humans and			
		animals, while preserving			
		the environment			
		B3: Able to conduct food			
		analysis, develop plans to			
		detect spoiled food and			
		prevent food fraud.			
		C1: Uses the information			
		the food inspector needs			
		and has available to him			
		to master his work		1	
7	2Theoretical	THEORETICAL	THEORETICAL	THEORETICAL	Daily and
10	3Practical	B1: He possesses the	atomic	PRACTICAL	monthly
		practical and mental	absorption	AND DESCRIPTION OF THE PROPERTY.	
		knowledge and concepts		Explanation and	exams,
		that help him analyze foods	PRACTICAL	presentation of	discussions
		using spectroscopic	A report on	the model And	
		methods	estimating the	the lecture	
		C2: Successfully balances	major elements		
		the investment and use of	5 cana	AG V	
		spectroscopic methods and	and discussing	1000	
		employs them to suit	the mechanisms	10/1/200	6.
		different analytical	for estimating	4	0/
		processes	them.		40
		D1: Acquiring the		A 1	A STATE OF THE STA
		analytical skills necessary			1
		to deal with confidence and		. 19	
		certainty at the individual		9	
		and group levels			
		PRACTICAL			
		B1: He possesses the			
		practical and mental			
		knowledge and concepts			
		that help him analyze foods			
		B2: Able to produce safe			
		food for humans and			
		animals, while preserving			
		the environment			
		The state of the s			
		B3: Able to conduct food			
		analysis, develop plans to			
		detect spoiled food and			
		prevent food fraud.			
				· · · · · · · · · · · · · · · · · · ·	

		C1: Uses the information the food inspector needs and has available to him to master his work			
8	2Theoretical 3Practical	THEORETICAL B1: He possesses the practical and mental knowledge and concepts that help him analyze foods using spectroscopic methods C2: Successfully balances the investment and use of spectroscopic methods and employs them to suit different analytical processes D1: Acquiring the analytical skills necessary to deal with confidence and certainty at the individual and group levels PRACTICAL B1: He possesses the practical and mental knowledge and concepts that help him analyze foods B2: Able to produce safe food for humans and animals, while preserving the environment B3: Able to conduct food analysis, develop plans to detect spoiled food and prevent food fraud. C1: Uses the information the food inspector needs and has available to him to master his work	THEORETICAL Fluorescence and phosphorylation  PRACTICAL Fiber estimation	THEORETICAL PRACTICAL Explanation and presentation of the model And the lecture	Daily and monthly exams, discussions
9	2Theoretical 3Practical	A3: Learn about the concept of chromatographic analysis and definitions related to separation by this method and the different types of chromatography.  B4: He possesses the practical and mental knowledge and concepts that help him analyze foods using chromatographic analysis methods  C3: The student is able to Determine working conditions using chromatographic methods, interpret separation results, and determine the proportions of separated	THEORETICAL Column chromatography PRACTICAL Estimation of acidity and organic acids	THEORETICAL PRACTICAL Explanation and presentation of the model And the lecture	Daily and monthly exams, discussions

	7/	•	•		
		compounds.			
	1	D1: Acquiring the			
	ļ	analytical skills necessary			ĺ
	!	to deal with confidence and			:
	1	certainty at the individual	1		
	[	and group levels	1		
	1	PRACTICAL			
	[	B1: He possesses the			
		practical and mental			
		knowledge and concepts			
	[	that help him analyze foods B2: Able to produce safe			
		food for humans and		1	1
		animals, while preserving			1
		the environment			ĺ
		B3: Able to conduct food			Í
		analysis, develop plans to			ĺ
		detect spoiled food and			Í
		prevent food fraud.		1	ĺ
		C1: Uses the information		1	
		the food inspector needs			Í
		and has available to him			İ
		to master his work			ľ
10	2Theoretical	THEORETICAL	THEORETICAL	THEORETICAL	Daily and
	3Practical	B4: He possesses the	Ion Exchange	PRACTICAL	monthly
	5	practical and mental	chromatography	Explanation and	exams,
		knowledge and concepts	PRACTICAL	presentation of	discussions
		that help him analyze foods	The Control of the Co	-	aiscussions
		using chromatographic	Estimation of	the model And	
1		analysis methods	Vitamin C	the lecture	ĺ
		C3: The student is able to	1501		ĺ
		determine the working	V		ĺ
		conditions of chromatographic methods,			ĺ
		interpret separation results,		Ser on	ĺ
		and determine the		Sinch	ĺ
		proportions of separated		Saladi de la	LS*
		compounds.		Live	
		D1: Acquiring the		1825	8 1
		analytical skills necessary			
		to deal with confidence and	70.0	- 100	
		certainty at the individual		A. San	
	!	and group levels			
		PRACTICAL			ĺ
		B1: He possesses the			į.
	1	practical and mental			
	1	knowledge and concepts			í
	l J	that help him analyze foods			i
	1	B2: Able to produce safe			ĺ
	1	food for humans and			i
	1	animals, while preserving		1	1
	1	the environment			il 3
	1	B3: Able to conduct food			1
	1	analysis, develop plans to			
	1	detect spoiled food and			ĺ
	1	prevent food fraud.			
		C1: Uses the information			ĺ
		the food inspector needs			ı
		and has available to him to master his work			ı
<u></u>	1	to master his work			

11	2Theoretical 3Practical	THEORETICAL B4: He possesses the practical and mental knowledge and concepts that help him analyze foods using chromatographic analysis methods C3: The student is able to determine the working conditions of chromatographic methods, interpret separation results, and determine the proportions of separated compounds. D1: Acquiring the analytical skills necessary to deal with confidence and certainty at the individual	THEORETICAL HPLC chromatography PRACTICAL Estimation of chemical additives	THEORETICAL PRACTICAL Explanation and presentation of the model And the lecture	Daily and monthly exams, discussions
		PRACTICAL B1: He possesses the practical and mental knowledge and concepts that help him analyze foods B2: Able to produce safe food for humans and animals, while preserving the environment B3: Able to conduct food analysis, develop plans to detect spoiled food and prevent food fraud. C1: Uses the information the food inspector needs and has available to him to master his work		Losti destinasi di	
12	2Theoretical 3Practical	THEORETICAL B4: He possesses the practical and mental knowledge and concepts that help him analyze foods using chromatographic analysis methods C3: The student is able to determine the working conditions of chromatographic methods, interpret separation results, and determine the proportions of separated compounds. D1: Acquiring the analytical skills necessary to deal with confidence and certainty at the individual and group levels PRACTICAL B1: He possesses the	THEORETICAL chromatography  PRACTICAL Requesting and discussing reports on separation methods	THEORETICAL PRACTICAL Explanation and presentation of the model And the lecture	Daily and monthly exams, discussions

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		practical and mental knowledge and concepts that help him analyze foods B2: Able to produce safe food for humans and animals, while preserving the environment B3: Able to conduct food analysis, develop plans to detect spoiled food and prevent food fraud.  C1: Uses the information the food inspector needs and has available to him to master his work			
13	2Theoretical 3Practical	THEORETICAL B4: He possesses the practical and mental knowledge and concepts that help him analyze foods using chromatographic analysis methods C3: The student is able to determine the working conditions of chromatographic methods, interpret separation results, and determine the proportions of separated compounds. D1: Acquiring the analytical skills necessary to deal with confidence and certainty at the individual and group levels PRACTICAL B1: He possesses the practical and mental knowledge and concepts that help him analyze foods B2: Able to produce safe food for humans and animals, while preserving the environment B3: Able to conduct food analysis, develop plans to detect spoiled food and prevent food fraud. C1: Uses the information the food inspector needs and has available to him to master his work D3: The student learns how to work on modern devices such as HPLC	THEORETICAL Gas-liquid chromatography PRACTICAL Working on HPLC	THEORETICAL PRACTICAL Explanation and presentation of the model And the lecture	Daily and monthly exams, discussions
14	2Theoretical 3Practical	THEORETICAL B4: He possesses the practical and mental knowledge and concepts	THEORETICAL Thin layer chromatography	THEORETICAL PRACTICAL Explanation and presentation of	Daily and monthly exams, discussions

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		that help him analyze foods		the model And	
		using chromatographic	PRACTICAL	the lecture	
		analysis methods C3: The student is able to	Thin layer		
		determine the working	chromatography		
		conditions of	chi omacography		
		chromatographic methods,			
		interpret separation results,			
		and determine the			
		proportions of separated			
		compounds.			
		D1: Acquiring the			
		analytical skills necessary			
		to deal with confidence and			
		certainty at the individual			
		and group levels			
		PRACTICAL			
		B1: He possesses the	V An-	p)	
		practical and mental	Pour	EC.	
		knowledge and concepts	PSI	u.	
		that help him analyze foods	1 82	1/26/	
		B2: Able to produce safe food for humans and	1	1 1 1 2 Page 2	
		animals, while preserving	6. 1	2/59/	
		the environment	3.16	(63)	
		B3: Able to conduct food	*1. " A)		
1		analysis, develop plans to	201	Proc.	
		detect spoiled food and		N. V.	
		prevent food fraud.			
		C1: Uses the information			
		the food inspector needs			
		and has available to him	190		
		to master his work			
15	2Theoretical	THEORETICAL	THEORETICAL	THEORETICAL	Daily and
	3Practical	A4: The student learns	Modern	PRACTICAL	monthly
		about modern techniques in	methods of	Explanation and	exams,
		the field of food analysis	analysis and	presentation of	discussions
		B5: He possesses the practical and mental	automated	the model And	
		knowledge and concepts	separation	the lecture	
		that help him analyze food		the recture	
		using modern methods	PRACTICAL		
		D1: Acquiring the	Gas-liquid		
		analytical skills necessary	chromatography		
		to deal with confidence and	5250 381 381		
		certainty at the individual			
		and group levels			
		PRACTICAL			
		B1: He possesses the			
		practical and mental			
		knowledge and concepts			
		that help him analyze foods			
		B2: Able to produce safe			
		food for humans and			
		animals, while preserving			
		the environment			
		B3: Able to conduct food			
				i (1)	
		analysis, develop plans to			
		detect spoiled food and			

	C1: Uses the informat the food inspector ne and has available to h to master his work	eeds		
11	Course Evaluation			
t	Evaluation methods	Evaluation date (one week)	Grade	Relative weight %
1	Report 1	fourth week	2.5	2.5
2	Report 2	The fifth week	2.5	2.5
3	Short test (1) Quiz	the sixth week	2	2
4	Short test (2) Quiz	The fourteenth week	2	2
5	Short test (3) Quiz	The fifteenth week	1	1
6	Semester test (1)	the sixth week	7.5 126/2	7.5
7	Semester test (2)	The eleventh week	7.5	7.5
8	Final theoretical test	Final semester exams	40	40
9	Practical field project	The fifteenth week	55447	5
10	Practical laboratory evaluation	The third and fifth week	2	2
11	Practical short test (1) Quiz	The first week	1	1
12	Short practical test (2) Quiz	fourth week	0.5	0.5
13	Short practical test (3) Quiz	The fourteenth week	1	1
14	Live drawings and homework	Weeks 6, 8, 9, 10, 11, 12 and 13	5.5	5.5
15	Final practical test	Final semester exams	20	20
	TOTAL	100	%100	%100
12	2. Learning and Teaching Resou	urces		
Reg	uired textbooks (curricular books, if an	ny) Food Analysis - E	Basil Dalali	
Mair	n references (sources)			
Rec	commended books and references (	scientific		
jour	nals, reports)			
Elec	ctronic References, Websites			

Instructor of theoritical part

Instructor of practical part

Dr. Taha M. Taki Mohammed

Abdullah Anwar Nafie

Chairman of the scientific committee

Head of the department of Food science

Prof. Dr. Moafak mahmood ahmed

Prof. Dr. Sumaya khalaf badawi