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	Practical
-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	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 name	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
2	2Theoretical 3Practical	**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

		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

		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			
5	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** Infrared **PRACTICAL** Protein estimation	**THEORETICAL** **PRACTICAL** Explanation and presentation of the model And the lecture	Daily and monthly exams, discussions
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

		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	estimation Carbohydrates	the lecture	
7	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.	**THEORETICAL** atomic absorption **PRACTICAL** A report on estimating the major elements and discussing the mechanisms for estimating them.	**THEORETICAL** **PRACTICAL** Explanation and presentation of the model And the lecture	Daily and monthly exams, discussions

		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	**THEORETICAL** 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

		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			
10	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	**THEORETICAL** Ion Exchange chromatography **PRACTICAL** Estimation of Vitamin C	**THEORETICAL** **PRACTICAL** Explanation and presentation of the model And the lecture	Daily and monthly exams, discussions

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 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** HPLC chromatography **PRACTICAL** Estimation of chemical additives	**THEORETICAL** **PRACTICAL** Explanation and presentation of the model And the lecture	Daily and monthly exams, discussions
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

		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

		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	**PRACTICAL** Thin layer chromatography	the model And the lecture	
15	2Theoretical 3Practical	**THEORETICAL** A4: The student learns about modern techniques in the field of food analysis B5: He possesses the practical and mental knowledge and concepts that help him analyze food using modern methods 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.	**THEORETICAL** Modern methods of analysis and automated separation **PRACTICAL** Gas-liquid chromatography	**THEORETICAL** **PRACTICAL** Explanation and presentation of the model And the lecture	Daily and monthly exams, discussions

		C1: Uses the information the food inspector needs and has available to him to master his work			

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	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	5	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. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Food Analysis - Basil Dalali
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Instructor of theoritical part

Dr. Taha M. Taki Mohammed

Instructor of practical part

Abdullah Anwar Nafie

Chairman of the scientific committee

Prof. Dr. Moafak mahmood ahmed

Head of the department of Food science

Prof. Dr. Sumaya khalaf badawi