Course Specification of Food Analyses

Faculty : Medicine and Health sciences

Department: Health Sciences

Program : Bachelor in Clinical Nutrition and Dietetic

I. General information about the course instructor :

Name	Dr. Sadeq Hasan	Office Hours(3 Hours Weekly)					
Location & phone number	0096774726464	Sat	Sun	Mon	Tue	Wed	Thu
Email	Sadek_975@yahoo.co					✓	

II. General information about the course :

1.	Course Title:	Food Analyses				
2.	Course Code and Number :	BND245				
3.	Credit Hours	Lecture	Seminar/Tutorial	Practical	Training	Total
		2	-	1	-	3
4.	Study Level and Semester:	2nd year / 2nd semester				
5.	Pre-requisites :	BND233				
6.	Co-requisites :	None				
7.	Program in which the course is offered	Bachelor in Clinical Nutrition and Dietetic				
8.	Teaching Language:	English				
9.	Instruction Location	University of Science and Technology, Sana'a, Yemen.				

جامعة العلوم والتكنولوجيا
إدارة ضمان الجودة والاعتماد
APPROVED

III. Course Description :

This course concerned with the principles of laboratory, sampling and sample preparation and also statistical evaluation and reporting of analytical data Scale of analytical measurements. Throughout the course, major emphasis will be placed on understanding the basic principles of ash, moisture, lipid, protein and carbohydrate determination with considering the factors when selecting a method for ash, moisture, lipid, protein and carbohydrate analysis and analytical challenges. The teaching strategies will include lectures, practical sessions, self-learning and assignment. The student will be evaluated through report, written exam and practical exam. Principle of Food Science is a prerequisite course.

عميد الكلية:
د.عبدالله المخلافي

رئيس القسم:
د.عبدالحبيب ردمان

١٤ / ٩

المراجع :
د. فؤاد حسان
د.مجاهد نصار

الموصف :
د.صادق الشراجي

IV. Course aims: This course is aimed to:

1. Learn student to identify reasons for determining composition , characteristics of food and factors to be considered when selecting a method of analysis .
2. Give the student the knowledge about the various methods used to determine moisture, carbohydrate, lipid, proteins, ash, mineral, and vitamin content of a food.
3. Enable the student to understand the principles behind analytical techniques associated with food .
4. Provide students the skills for conducting proximate analyses, work in groups and write concise laboratory reports.

V. Course Intended Learning Outcomes (CILOs) :

1. Recognize the principles behinds the analytical techniques as spectroscopy and Chromatography.
2. Identify the composition of the food .
3. Discus the various methods used to determines moisture and food components.
4. Differentiate methods for analyzing particular component.
5. Categorize experiments before analyzing moisture and food .
6. Practice proximate and some micronutrients analysis.
7. Write concise laboratory report.
8. Demonstrate practical proficiency and teamwork in a food analysis laboratory.

جامعة العلوم والتكنولوجيا
إدارة ضمان الجودة والاعتماد
معتمد
APPROVED

المراجع :
د. فؤاد حسان
د.مجاهد نصار

الموصف :
د.صادق الشراجي

VI. Course Contents

First: Theoretical Aspects

No.	Course Topics/Units	Sub-topics	Week due.	Contact Hours
1	Overview of course content Laboratory overview	-Rationale for food composition knowledge and food analysis -Food standards and food regulations -Sampling and sample preparation	1st,2nd	4
2	Statistical evaluation and reporting of analytical data	-Scale of analytical measurements	3rd	2
3	Moisture determination	-Factors to be considered when selecting a method for moisture analysis -Over- or under-estimation of the moisture content of a food being tested -Moisture determination by evaporative methods, distillation, and chemical reaction -Direct and indirect moisture methods -Conversion of analyze values from one moisture basis to another	4th,5th	4
4	Ash and total mineral analysis	-Ash determination by dry aching and wet digestion -Ash soluble or insoluble in acid or water and alkalinity of ash	6th	2
5	Midterm Exam		7th	2
6	Lipid analysis	-Factors to be considered when selecting a method for lipid analysis -Sample preparation -Solvent selection -Lipid determination using Soxhlet, Goldfish, Babcock and other methods -Supercritical fluid extraction and accelerated solvent extraction techniques	8th,9th	4
7	Protein analysis	-Factors to be considered when selecting a method for protein analysis -Protein content from nitrogen content and conversion factors -Protein determination by Kjeldahl, nitrogen combustion, and colorimetric/spectroscopic methods	10th,11th	4

المراجع :
د. فؤاد حسان
د.مجاهد نصار

الموصف :
د.صادق الشراجي

8	Carbohydrate analysis	-Carbohydrate diversity and analytical challenges -Carbohydrate by difference, total carbohydrate by phenol-sulfuric acid method - Determination of reducing sugars - determination of dietary fibre analysis	12th,13th	4
9	Spectroscopy and Chromatography	-Basic principles of Spectroscopy-U V-Visible, IR, Atomic absorption, emission -Basic principles of chromatography (HPLC, GC, CC, TLC	14th,15th	4
10	Final exam		16th	2
Total number of weeks and hours		**16**		**32**

Second: Practical/Tutorial/Clinical Aspects			
No.	Practical/Tutorial/Clinical topics	No. of Weeks	Contact Hours
1	Assessment of lab accuracy and precision	2nd,3rd	4
3	safety review, chemistry essentials, and lab reporting	4th,5th	4
4	Proximate analysis: moisture determination	6th,7th	4
5	Proximate analysis: protein	8th,9th	4
6	Proximate analysis: crude fat	10th,11th	4
7	Proximate analysis: total carbohydrates	12th,13th	4
8	Practical exam	14th	2
Total number of weeks and hours		13	26

المراجع :
د. فؤاد حسان
د.مجاهد نصار

الموصف :
د.صادق الشراجي