



Jordan University of Science and Technology
Faculty of Agriculture
Nutrition & Food Technology Department

NF373 Food Chemistry And Analysis

Second Semester 2020-2021

Course Catalog

3 Credit Hours. A study of the chemistry of the major components comprising food systems, such as lipids, proteins, carbohydrates and water. The relationship of these components to food stability is studied in terms of degradative reactions and processing. Also covered will be the principles of chemical and instrumental methods.

Text Book

Title	Fennema's Food Chemistry
Author(s)	Srinivasan Damodaran, Kirk L. Parkin and Owen R. Fennema
Edition	4th Edition
Short Name	Ref. 1
Other Information	2008

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref. 2	Fennema's Food Chemistry	Srinivasan Damodaran, Kirk L. Parkin	5th Edition	2017
Ref. 3	Food Analysis	S. Suzanne Nieleison	4th Edition	2017
Ref. 4	Food Chemistry A Laboratory Manual	Dennis D. Miller	1st Edition	1998. John Wiley & Sons.
Ref. 5	Principles of Food Chemistry	J.M. deMan, Van Nostrand Reinhold	2nd Edition	1990

Instructor

Name	Prof. Muhammad Alu"Datt
Office Location	C

Office Hours	Sun : 09:00 - 12:00 Mon : 13:00 - 14:00 Tue : 09:00 - 12:00 Wed : 13:00 - 14:00
Email	malodat@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Mon, Wed : 11:30 - 12:30 Room: 150 منصة الكترونية

Tentative List of Topics Covered		
Weeks	Topic	References
Weeks 1, 2, 3	Introduction; (1) Water - Properties of water. - Free and bound water, water activity and freezing of water in foods. - Low and intermediate moisture foods. - Chemical and physiochemical aspects of foods solutions. - Theories and applications of different moisture determination methods.	From Ref. 1 , From Ref. 2 , From Ref. 3 , From Ref. 4 , From Ref. 5
Weeks 4, 5, 6, 7, 8	(2) Proteins - Classification and distribution in foods. - Review structure and function. - Reactions of proteins during processing. - Water binding, browning phenomena in protein foods. - Major food proteins, unconventional food proteins. - Functional properties of proteins. - Theories and applications of different protein determination methods.	From Ref. 1 , From Ref. 2 , From Ref. 3 , From Ref. 4 , From Ref. 5
Weeks 9, 10, 11	(3) Carbohydrates - Review structure and reactions. - Chemistry of mono- and oligo saccharides found in foods. - Polysaccharides (starch, cellulose, pectin and gums) and their role in foods. - Enzymes acting on carbohydrates, sweetness of sugars. - Analytical methods for carbohydrate determination.	From Ref. 1 , From Ref. 2 , From Ref. 3 , From Ref. 4 , From Ref. 5

Weeks 12, 13, 14	(4) Lipids - Classification and distribution in foods. - Composition of fats and oils. - Deteriorative reactions of fats and oils (autoxidation, lipolysis, reversion). - Chemistry and technology of processing fats and oils. - Physical properties of fats and oils. - Effects of processing on functional properties and nutritive value. - Analytical methods for determining different physical and chemical characteristics of fat.	From Ref. 1 , From Ref. 2 , From Ref. 3 , From Ref. 4 , From Ref. 5
	(5) Minerals - Ash determination methods. - Principles and applications for elemental analyses.	From Ref. 1 , From Ref. 2 , From Ref. 3 , From Ref. 4 , From Ref. 5
Week 16	(6) Vitamins - Determination methods. - Principles and applications.	From Ref. 1 , From Ref. 2 , From Ref. 3 , From Ref. 4 , From Ref. 5

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
1. Develop and understanding of how individual food components contributes to the overall quality of foods. [1SLO1, 1SLO2, 1SLO3, 1SLO4, 1SLO5]	25%	
2. Achieve an understanding of the chemical changes that take place with food components during processing and storage. [1SLO1, 1SLO2, 1SLO3, 1SLO4, 1SLO5]	25%	
3. Recognize reactions and mechanisms important in food chemistry. [1SLO1, 1SLO2, 1SLO3, 1SLO4, 1SLO5]	20%	
4. Be capable of designing and conducting experiments and interpreting data to understand important food chemistry principles through the food analysis. [1SLO1, 1SLO2, 1SLO3, 1SLO4, 1SLO5]	30%	

Relationship to Program Student Outcomes (Out of 100%)				
SLO1	SLO2	SLO3	SLO4	SLO5
20	20	20	20	20

Evaluation	
Assessment Tool	Weight
Midterm	25%
Lab Report	25%
Final Exam	50%

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