

**The Hashemite University**  
**Faculty of Applied Medical Sciences**  
**Department of Clinical Nutrition and Dietetics**

**Food Chemistry and analysis Course Outline (110502336)**

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**Office hours: 10-11 (Sunday, Tuesday and Thursday).**

**Credit Hours: 3 (3 lectures)**

**Course Goals:**

- 1- Achieve theoretical knowledge on the composition of raw and processed foods in physico-chemical terms.
- 2- Gain knowledge and understanding on chemical reactions taking place in foods from harvest to consumption.

**Course Description:**

This course gives the student an understanding of the chemical aspects of food composition. Emphasis is given to the functional properties and chemical reactions of the major components of foods: carbohydrates, lipids, protein and water.

**COURSE ASSESSMENT**

First Mid Exam	25%
Second Mid Exam	25%
Attendance	5%
Quizzes, Participation and personal evaluation	5%
Final Exam	40%
<b>Total</b>	<b>100%</b>

**Course Outline:**

**I. Water**

Water properties and food stability

**II. Carbohydrates**

A. Mono- and disaccharides

*i. Definitions and basic structures*

*ii. Stereochemistry*

B. Attributes in Foods

*i. Pure sugars*

*ii. Sugar mixtures, Splenda*

- C. Reactions
  - i. Redox, acetal formation, etc.*
  - ii. Browning*

### **First Exam**

#### **III. Lipids**

- A. Food lipids
  - i. Definitions and structures*
  - ii. Presence in foods*
- B. Reactions
  - i. Hydrolysis and hydrogenation*
  - ii. Oxidation*
- C. Crystallization

### **Second Exam**

#### **IV. Solutions and Dispersions**

- A. Macromolecular structures
  - i. Proteins*
  - ii. Polysaccharides*
  
- B. Viscous solutions
  - i. Solubility*
  - ii. Viscosity, viscoelasticity*
- C. Gels
- D. Emulsions
  - i. Definitions*
  - ii. Food Emulsions*

### **Final Exam**

#### **Study book**

1. Food Chemistry 3rd edition 1996, Edited by Owen R. Fennema, Marcel Dekker, Inc., New York. USA (ISBN 0-8247-9691-8).

2- Any book of Food Chemistry can cover these topics.

#### **EXAMINATIONS:**

Written examinations will take place on two occasions

**Assignments:** A variety of homework, in-class assignments, short tests, and presentations will be set during the course.

**HINT: No active cellophones or pagers are allowed in the classroom**

**GOOD LUCK**