

Course Syllabus

1	Course title	Food Analysis
2	Course number	(603323)
3	Credit hours (theory, practical)	1 theory and 1 practical
	Contact hours (theory, practical)	1 for theory and 3 for practical
4	Prerequisites/corequisites	Analytical chemistry (303211)
5	Program title	Nutrition and Food Technology
6	Program code	042
7	Awarding institution	The University of Jordan
8	School	Agriculture
9	Department	Nutrition and Food Technology
10	Level of course	Second year
11	Year of study and semester (s)	2019/2020, first semester
12	Final Qualification	Bachelor
13	Other department (s) involved in teaching the course	-
14	Language of Instruction	English
15	Date of production/revision	1/9/2019

16. Course Coordinator:

Office numbers, office hours, phone numbers, and email addresses should be listed.

22411, 12-1 Sunday, Tuesday, 065355000-22411, kh.ismail@ju.edu.jo

17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.

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18. Course Description:

As stated in the approved study plan.

The roles of food analysis, sampling, recording and interpreting of results, experimental errors; Spectroscopy theory, atomic absorption, spectrophotometry and chromatography techniques such as paper, thin layer, GLC and HPLC.

19. Course aims and outcomes:

<p>A- Aims:</p> <ol style="list-style-type: none"> 1- Be able to use the laboratory techniques common to basic and applied food chemistry 2- Understand the principles behind analytical techniques associated with food. 3- To be familiar with the current state of knowledge of food composition <p>B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to</p> <p>Successful completion of the course should lead to the following outcomes:</p> <p>A. Knowledge and Understanding: Student is expected to</p> <p>A1- list the general principles in food analysis</p> <p>A2- Understand the principles behinds the analytical techniques</p> <p>A3- know the way of reporting results</p> <p>B. Intellectual Analytical and Cognitive Skills: Student is expected to</p> <p>B1- Apply statistical principles for data evaluation</p> <p>B2- Identify the various principles used to determines food components such as moisture, ash, protein..etc</p> <p>B3- Identify the reasons of food components analysis</p> <p>C. Subject- Specific Skills: Students is expected to</p> <p>C1- Be able to write concise laboratory report</p> <p>C2- Be able to acquire skills and abilities to conduct proximate and some micronutrients analysis</p> <p>C3- Know methods of selecting the appropriate analytical techniques for a specific food component</p> <p>D. Transferable Key Skills: Students is expected to</p> <p>D1- work in group</p> <p>D2- Be able to use library and internet pertaining to food analysis</p>

20. Topic Outline and Schedule:

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
Food sampling (steps, size, type of samples, techniques)	(1 st , 2 nd wk)	Prof , Khalid al-Ismael	A1, A3, B1, C1, D1, D2		
Moisture and total solid analysis syrups,	(3 rd wk)	Prof , Khalid al-Ismael	A1, A2, A3, B2, B3, B4, C1, C2, D1, D2		
Ash and minerals analysis	(4 th wk)	Prof , Khalid al-Ismael	A1, A2, A3, B2, B3, B4, C1, C2, D1, D2		

Protein analysis	(5 th wk)	Prof , Khalid al-Ismaail	A1, A2, A3, B2, B3, B4, C1, C2, D1, D2		
Lipid analysis and characterization	(6 th & 7 th wk)	Prof , Khalid al-Ismaail	A1, A2, A3, B2, B3, B4, C1, C2, D1, D2		
Carbohydrate analysis	(8 th & 9 th wk)	Prof , Khalid al-Ismaail	A1, A2, A3, B2, B3, B4, C1, C2, D1, D2		
Midterm Exam					
Basic principles of Spectroscopy- U V-Visible, IR, Atomic absorption, emission	(9 th , 10 th , & 11 th wk)	Prof , Khalid al-Ismaail	A1, A2, A3, B2, B3, B4, C1, C2, D1, D2		
Basic principles of chromatography (HPLC, GC, CC, TLC)	(12 th , 13 th & 14 th wk)	Prof , Khalid al-Ismaail	A1, A2, A3, B2, B3, B4, C1, C2, D1, D2		

Practical Part

Week	
1	Preparation of solutions with different expressions (molarity, percentage, normality, ppm) , pH, Titrable acidity
2	Determination of moisture by oven drying and Total ash
3	Protein determination by Kjeldhal method and Formol
4	Determination of water-soluble sugars by Luff —Schoorl method
5	Determination of 5-methylhydroxyfurfural in honey
6	Determination of crude fiber by Weendie method
7	Determination of fat in food by Soxhlet method, peroxide value and free fatty acids content in fat
8	Determination of iodine and Saponification values of fat.
9	Mid-term exam
10	Determination of ascorbic acid and salt
11	Determination of Iodine in Salt
12	Minerals determination using flame photometer
13	Thin layer chromatography of food colors
14	Gas liquid chromatography (GLC) of ethanol in vinegar.
15	High performance liquid chromatography of sugars

21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

<u>Activity</u>	<u>Mark</u>
1-Mid term exam	30
2- Quizzes	10
3-Assinments	5
4-lab reports	5
6-Final exam	50

23. Course Policies:

Students and instructors each have an important role in maintaining a classroom environment optimal for learning, and are expected to treat each other with respect during class, using thoughtful dialogue, and keeping disruptive behaviors to a minimum. Class discussions are interactive and diverse opinions will be shared; please be thoughtful in sharing your perspectives and responses with one another. Other behaviors that can be disruptive are chatting and whispering during class, the use of electronic equipment, preparing to leave before class is over, and consistently arriving late to class. Please keep these disruptions to a minimum. Inappropriate behavior in the classroom may result in a request to leave the class and/or subject to penalty.

24. Required equipment: (Facilities, Tools, Labs, Training,...)

- Digester for protein determination
- Distillation unit for protein determination
- Cooler with pump for water circulation to be used with Soxhlet, protein distillation units and rotary evaporator

25. References:

Required book (s), assigned reading and audio-visuals:

- 1- Nielsen, S. S (editor) 2003. Food Analysis, 31(1 edition, Kiuwer Academic/Plenum Publishers., New York, NY.
- 2-Laboratory Manual, Khalid Al-Ismail

Recommended books, materials, and media:

- 1- Food Analysis: Theory and Practice. Pomeranz and Meloan, 3rd. ed., 1994.
- 2- Official methods of analysis- AOAC (15th ed)

26. Additional information:

Name of Course Coordinator: Prof. Khalid Al-Ismail Signature: ----- Date: 9/12/20019

Head of curriculum committee/Department: ----- Signature: -----

Head of Department: ----- Signature: -----

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: ----- -Signature: -----