

## Course Syllabus

1	<b>Course title</b>	Functional Foods
2	<b>Course number</b>	603941
3	<b>Credit hours (theory, practical)</b>	(2,0)
	<b>Contact hours (theory, practical)</b>	(2,0)
4	<b>Prerequisites/corequisites</b>	-
5	<b>Program title</b>	PhD in Human Nutrition and Dietetics
6	<b>Program code</b>	031
7	<b>Awarding institution</b>	The University of Jordan
8	<b>School</b>	School of Agriculture
9	<b>Department</b>	Nutrition and Food Technology
10	<b>Level of course</b>	Graduate
11	<b>Year of study and semester (s)</b>	2 <sup>nd</sup> semester
12	<b>Final Qualification</b>	PhD in Human Nutrition and Dietetics
13	<b>Other department (s) involved in teaching the course</b>	-
14	<b>Language of Instruction</b>	English
15	<b>Date of production/revision</b>	Dec. 16 <sup>th</sup> ,2019

### 16. Course Coordinator:

Prof. Hamed R Takruri  
Office number: 166  
office hours: available at the office; changing based on each semester's schedule  
phone number: 22410  
email address: [htakruri@ju.edu.jo](mailto:htakruri@ju.edu.jo)

### 17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.  
Office number: 166  
office hours: available at the office; changing based on each semester's schedule  
phone number: 22410  
email address: [htakruri@ju.edu.jo](mailto:htakruri@ju.edu.jo)

### 18. Course Description:

Definition of functional foods; popularity and uses; chemistry and components which include prebiotics, probiotics, phytochemicals, herbs, some animal and plant products, some active chemicals such as sterols, polyphenols, ergogenic aids and antioxidants; brief description of their production; legislative aspects claims, and health risks related to them. The course includes student participation through data collection on selected functional and health foods, analysis of results obtained and presenting them in a seminar.

## 19. Course aims and outcomes:

<p>A- Aims: Upon completion of this course, the student is expected to:</p> <ol style="list-style-type: none"> <li>1. Know the definition, classes, and chemical composition of functional foods.</li> <li>2. Know the applications and uses of functional foods in the prevention and cure of diseases.</li> <li>3. Comprehend the extent of benefit obtained through the application of functional foods in complicated diseases such as cancer, C.N.S. diseases, obesity, cardiovascular diseases, etc...</li> <li>4. Understand the methods of production and preparation of pharmaceuticals and nutraceuticals.</li> <li>5. Understand how to fight fads related to functional foods and recognize the unscientific claims.</li> </ol>
<p>B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to</p> <p>A. Knowledge and Understanding: The student is expected to:</p> <p>A1- Understand the definition, criteria and chemical nature of functional foods.  A2- Differentiate between fads and approved claims related to functional foods.  A3- Understand association between functional foods and some diseases.  A4- Understand methods of production and industrial applications of functional foods.  A5- Understand the role of dietitians and nutritionists regarding functional foods.</p>
<p>B. Intellectual Analytical and Cognitive Skills: Student is expected to:</p> <p>B1- Enlist functional foods and their approved applications in food industry and cure of diseases.  B2- Count the criteria of considering pre-and probiotics.  B3- Differentiate between nutritional and functional properties of certain nutraceuticals and supplements.  B4- Counsel people regarding the fad claims and frauds as well as facts or approved claims of certain functional foods.</p>
<p>C. Subject- Specific Skills: Students are expected to</p> <p>C1- Recognize the fads and facts on food labels and counsel his family about them.  C2- Adoption of scientific attitudes regarding claims on functional foods.  C3- Avoid buying unscientifically proved functional foods such as unapproved supplements.  C4- Have a trend to do research on functional foods and their applications.</p>
<p>D. Transferable Key Skills: Students are expected to</p> <p>D1- Give brochures regarding claims and accuracy of information on functional foods.  D2- Provide audio aids through the media and communication means on the exaggerated information on functional foods.</p>

## 20. Topic Outline and Schedule:

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
<p><b>Introduction</b>  - <b>Definitions and classifications :</b>  1.Functional plant foods: Herbs, phytosterols, phytochemicals  2.Prebiotics &amp; Probiotics  3.Food Supplements;</p>	1 <sup>st</sup>	Prof. Hamed R Takruri	A1,B1	Exams,Quizzes And evaluation of student participation	Ref.1 (chap.1: pp 9-16)

Antioxidants, vitamins, minerals, sugar alcohols, ergogenics etc. 4. Peptides and Proteins 5. Fatty and organic acids, Hormones 6. Dietary fibers  - <b>Functional foods, nutrition &amp; health</b>					
<b>Regulatory aspects of functional foods:</b> - Legislation : EU, FDA and Jordanian regulations - Food industry and functional foods	2 <sup>nd</sup>	Prof. Hamed R Takruri	A1,C2	Exams, Quizzes And evaluation of student participation	Ref. 8: BJN. pp 134-143
- <b>Functional plant foods:</b> Herbs, phytosterols, phytochemicals - Functional effects deliverable by plants - Plant sources of active compounds - phytosterols & phytoestrogens - Medicinal plants & legislations related to their use.	3 <sup>rd</sup> -5 <sup>th</sup>	Prof. Hamed R Takruri	A2-A5; B1-B4; C1-C3, D1	Exams, Quizzes And evaluation of student participation	Ref. 8: Handout
<b>Prebiotics and probiotics</b> - Prebiotics: inulins & oligosaccharides - Probiotic strains & health claims - Colonic functional foods	5 <sup>th</sup> -7 <sup>th</sup>	Prof. Hamed R Takruri	A1,B2,C1-C3	Exams, Quizzes And evaluation of student participation	Ref. 1 (Chap. 2) : pp 29-30
<b>Fibers as functional foods</b> - dietary fiber functional products	8 <sup>th</sup> &9 <sup>th</sup>	Prof. Hamed R Takruri	A1,A3; B1,B4; C1-C2, D1	Exams, Quizzes And evaluation of student participation	Ref. 3 (Chap. 13): pp 291- 305
<b>MIDTERM EXAM</b>	9 <sup>th</sup>	Prof. Hamed R Takruri			
<b>Food supplements; antioxidants,</b>	10 <sup>th</sup> - 11 <sup>th</sup>	Prof. Hamed R	A1-A5; B1,B3;	Exams, Quizzes And evaluation	Handouts

- vitamins, minerals, sugar alcohols, ergogenics, etc.		Takruri	C1-C3; D1-D2	of student participation	
<b>Peptides and proteins</b>	11 <sup>th</sup>	Prof. Hamed R Takruri	A1-A5; B1,B3; C1-C3; D1-D2	Exams, Quizzes And evaluation of student participation	Ref.1(Chap. 8):pp 183-192 & (Chap 10): pp 241-245
<b>Fatty and organic acids, fat spreads</b> -Fatty acids and fat spreads -Modified fats and oils	12 <sup>th</sup>	Prof. Hamed R Takruri	A1-A5; B1,B3; C1-C3; D1-D2	Exams, Quizzes And evaluation of student participation	Ref. 2 (Chap. 5) : pp 61-68
<b>Applications in different situations of health and disease</b> - Cancer - CHD - GIT - Athletics Performance/ Sport drinks - Infant Formulas/ LCPUFA, nucleotides, etc.	13 <sup>th</sup>	Prof. Hamed R Takruri	A2,A3; B1-B4; C1-C3; D1-D2	Exams, Quizzes And evaluation of student participation	Ref.8 JFDA Publication
<b>Student presentations</b>	14 <sup>th</sup> &15 <sup>th</sup>	Prof. Hamed R Takruri		Evaluation of student participation	
<b>Final exam</b>	15 <sup>th</sup>	Prof. Hamed R Takruri			

## 21. Teaching Methods and Assignments:

Lectures, group discussions and presentations by students for previously assigned topics. Seminars and term papers of assigned topics. Demonstration of minerals and their supplements commonly found in the market. Development of ILOs is promoted through the following teaching and learning methods:

ILO/s	Learning Methods
A. Knowledge and Understanding (A1-A5)	Lectures and discussions.
B. Intellectual, Analytical and Cognitive Skills (B1-B4)	Lectures and discussions.
C. Subject- Specific Skills (C1-C3)	Lectures, Discussions.
D. Transferable Key Skills (D1-D2)	Projects, Presentations and brochure preparation.

Each student is assigned a topic in which he/she explores literature through use of library and internet, then write a report which is presented and discussed in the classroom. For this academic year, assigned topics included the following:

**Course Projects (Spring 2017/2018):**

- Use Recent Advances
- Submit by April, 30,2017

- 1- Moringa oleifera: Fads and facts
- 2- Phytochemicals in tea and wine.
- 3- Olive oil as a functional food.
- 4- Omega 3 fatty acids and health.
- 5- Functionality of royal jelly and use in treatment of disease.
- 6- White beans and weight reduction.
- 7- Lentil and soybean as sources of functional ingredients.
- 8- Date fruit as a source of bioactive compounds.

**22. Evaluation Methods and Course Requirements:**

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

<b>ILO/s</b>	<b>Evaluation Methods</b>
A. Knowledge and Understanding (A1-A5)	Exams and quizzes.
B. Intellectual, Analytical and Cognitive Skills (B1-B4)	Exams and Quizzes.
C. Subject- Specific Skills (C1-C3)	Exams, Quizzes and project presentation
D. Transferable Key Skills (D1-D2)	Project presentation and brochure evaluation.

**23. Course Policies:**

- A- Attendance policies: Students are not to be absent for more than 15% of lectures
- B- Absences from exams and handing in assignments on time: This is required unless there is an excuse
- C- Health and safety procedures:
- D- Honesty policy regarding cheating, plagiarism, misbehaviour: University regulations are to be applied
- E- Grading policy: 30% of the grade for midterm exam, 30% for course project and 40% for a final exam
- F- Available university services that support achievement in the course:

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

Data Shaw, white board, computers etc.

## 25. References:

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

1. Gibson, G.R. and Williams, C.M. (2003). Functional Foods: Concepts to Products. 2<sup>nd</sup> Reprint, CRC Press, LLC.
2. Watson, D. (2003). Performance Functional Foods. CRC Press, LLC.
3. Mahan L.K. and Escottstump, S.. (2017), Food, Nutrition and Diet Therapy, 14<sup>th</sup> edition, W.B., Saunders Co., Philadelphia.
4. Shmidl, M.K. and Labuza, T.P. (2000). Essentials of Functional Foods, Kluwer.
5. Zemleni, J. et al. (editors). (2013). Handbook of Vitamins. CRC Press, Taylor and Francis Group, Boca Raton.
1. Johnson, I and Williamson, G. (2008). Phytochemical Functional Foods. CRC Press, Cambridge.
7. WHO, MoH & MoA (2010). Nutrition in Jordan. WHO Office, Amman..
8. Farnworth, E.R. (2003). Handbook of Fermented Functional Foods. CRC Press, London
9. Recent advances obtained through journal papers and internet.

### Related Websites:

<http://www.cdc.gov>

<http://www.fda.gov>

<http://ods.od.nih.gov>

<http://nccam.nih.gov/health/whatiscaam>

<http://www.nal.usda.gov/fnic/foodcomp/Data/SR12/sr12.htm>

<http://www.cspinet.org/reports/funcfoodcomplaint.htm>

<http://www.washingtonpost.com/wp-srv/health/graphics/dietary061800.htm>

<http://www.fimdefelice.org/>

Functional Foods, HN820 Page 3

<http://www.crnusa.org/>

<http://www.ift.org/>

<http://www.ncahf.org/>

<http://www.uspto.gov/>

<http://www.fimdefelice.org/conf.html>

<http://www.acsh.org>

<http://www.fsis.usda.gov/oa/codex/nfsdu.htm>

<http://www.fao.org/WAICENT/FAOINFO/AGRICULT/AGP/AGPC/doc/services/pbn.html>

Recommended books, materials, and media:

**26. Additional information:**

Evaluation	Point %	Date
Midterm Exam	Theoretical: 30	
Quizzes	10	
Course Project & Student Participation	20	14 <sup>th</sup> and 15 <sup>th</sup> weeks
Final Exam	40	Will be announced by Registrar's Dept.

**Intended Grading Scale (Optional)**

It depends on the student average and standard deviation

**Notes:**

- Concerns or complaints should be expressed in the first instance to the module lecturer; if no resolution is forthcoming, then the issue should be brought to the attention of the module coordinator (for multiple sections) who will take the concerns to the module representative meeting. Thereafter, problems are dealt with by the Department Chair and if still unresolved the Dean and then ultimately the Vice President. For final complaints, there will be a committee to review grading the final exam.
- For more details on University regulations please visit:  
<http://www.ju.edu.jo/rules/index.htm>

Name of Course Coordinator: Prof. Hamed R Tadruri-Signature: ----- Date: -----

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

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

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

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