Syllabus*: Functional Foods and Nutraceuticals (1905021474)

Second Semester 2026 /2027

COURSE INFORMATION	
Course Name: Functional Foods and Dietary Supplements **Semester:** second **Department:** Department of clinical nutrition and Diet. **Faculty: Applied Medical Sciences**	**Course Code: 1905021474** **Section:** 1 **Core Curriculum**: Elective
Day(s) and Time(s): Sun, Tue: 9:30-10:30 Thursday (Teams) 9:30-10:30 **Classroom:** A.M.S. 311	**Credit Hours:** 3 **Prerequisites**: 1905021211 (Human Nutrition)

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.

DELIVERY METHODS

The course will be delivered through a combination of active learning strategies. These will include:

- PowerPoint lectures and active classroom based discussion
- Collaborative learning through small groups acting in an interdisciplinary context.
- Relevant films and documentaries
- Video lectures
- E-learning resources: e-reading assignments and practice quizzes through Model and Microsoft Team

FACULTY INFORMATION

Name	**Buthaina Mahmoud Alkhatib**
Academic Title:	**Assistant Prof.**

Office Location:	**Applied Medical Sciences-1129**
Telephone Number:	**Ex. 5540**
Email Address:	**bkhatib@hu.edu.jo**
Office Hours:	**Sunday** 10:30- 11:30, 11:30-12:30 **Tuesday** 11:30-12:30 **Wednesday** 10:30-11:30 *Please send an e-mail (bkhatib@hu.edu.jo) to meet at any other time.*

REFERENCES AND LEARNING RESOURCES

Required books:

Major reference:

- Vattem, D. A., & Maitin, V. (Eds.). (2015). Functional foods, nutraceuticals and natural products: concepts and applications.
- Wildman, R. E., Wildman, R., & Wallace, T. C. (2016). *Handbook of nutraceuticals and functional foods*. CRC press.

1. Dable-Tupas, G., Otero, M.C.B. and Bernolo, L., 2020. Functional foods and nutraceuticals: bioactive components, formulations, and innovations..
2. Watson, D. (2003). Performance Functional Foods. CRC Press, LLC.
3. Shmidl, M.K. and Labuza, T.P. (2000). Essentials of Functional Foods, Kluwer.
4. Zempleni, J. et al. (editors). (2013). Handbook of Vitamins. CRC Press,Taylor and Francis Group, Boca Raton.
5. Johnson, I and Williamson, G. (2008). Phytochemical Functional Foods. CRC Press, Cambridge.
6. WHO, MoH & MoA (2010. Nutrition in Jordan. WHO Office, Amman..
7. Farnworth, E.R. (2003). Handbook of Fermented Functional Foods. CRC Press, London
8. 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/whatiscam
http://www.nal.usda.gov/fnic/foodcomp/Data/SR12/sr12.htm
http://www.cspinet.org/reports/funcfoodcomplaint.htm
http://www.fsis.usda.gov/oa/codex/nfsdu.htm
http://www.fao.org/WAICENT/FAOINFO/AGRICULT/AGP/AGPC/doc/services /pbn.html

ACADEMIC SUPPORT

It is The Hashemite University policy to provide educational opportunities that ensure fair, appropriate and reasonable accommodation to students who have disabilities that may affect their ability to participate in course activities or meet course requirements. Students with disabilities are encouraged to contact their Instructor to ensure that their individual needs are met. The University through its Special Need section will exert all efforts to accommodate for individual's needs.

Special Needs Section:
Tel:
Location:
Email:

STUDENT LEARNING OUTCOMES MATRIX*

Core Curriculum Learning Outcomes	Program Learning Outcomes	Course Objectives	Course Student Learning Outcomes	Assessment Method
To provide students with the optimum educational standard in the field of clinical nutrition and general knowledge in food technology	**KP1:** Demonstrate a depth understanding of the basis of nutritional science and the nutrient composition of food and discover the links between diet and disease and health	Upon completion of this course, the student is expected to: 1. Know the definition, classes, and chemical composition of functional foods. 2. Know the applications and uses of functional foods in the prevention and cure of diseases. 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… 4. Understand the methods of production and preparation of pharmaceuticals and nutraceuticals. 5. Understand how to fight fads related to functional foods and recognize the unscientific claims.	- Understand the definition, criteria and chemical nature of functional foods. - Differentiate between fads and approved claims related to functional foods. - Understand association between functional foods and some diseases. A4- Understand methods of production and industrial applications of functional foods. - Understand the role of dietitians and nutritionists regarding functional foods.	**ASSIGMENT**
To provide optimal educational and training opportunities for students during their professional preparation for careers in nutrition.	**KP2:** demonstrate an understanding of food chemistry, technology, preparation, safety and correlates nutrition with food technology and future challenges**.**			
To participate in community services for health promotion and disease prevention programs	**KP3:** Explain the principles of cellular metabolic processes, the structure and function of the various physiological systems, and the principles of biochemistry			
To encourage creativity and innovation in solving problems of emerging cases in the field of clinical nutrition	**KP4:** Providing students with high levels of educational quality based on training on specific pathological conditions in therapeutic nutrition.			**QUIZ**
	SP1: Evaluate critically scientific research from a variety of sources in relation to nutrition and health through working with others, communication, self-management, and problem-solving and reflect on the various components		- Enlist functional foods and their approved applications in food industry and cure of diseases. - Count the criteria of considering pre-and probiotics. - Differentiate between nutritional and functional properties of certain nutraceuticals and supplements. - Counsel people regarding the fad claims and frauds as well as facts or approved claims of certain functional foods.	**EXAM**
To sustain the concept of collaboration to promote an appropriate diet solution in cases of health and disease	**SP2:** Communicate effectively with groups and individuals to promote the benefits of a balanced diet throughout the lifespan and demonstrate the ability to use scientific laboratory skills.			
	SP3: Assess diet, food and nutrient intake, and the consumption of food constituents in individuals and groups			
	CP1: Demonstrate consistent professional behavior in accordance with the legal and ethical boundaries of the dietetic profession		- Recognize the fads and facts on food labels and counsel his family about them. - Adoption of scientific attitudes regarding claims on functional foods. - Give brochures regarding claims and accuracy of information on functional foods.	**ASSIGMENTS**
	CP2: Critically apply knowledge of diet and health to evaluate and communicate and comment on dietary or health information both from scientific sources.			
	CP3: Utilize the methods of data analysis using computer software and apply these methods to analyze data obtained from a wide variety of sources and situations, and apply critical thinking, testing hypotheses, formulating suggestions in diet and health			

COURSE REGULATIONS

Participation

Class participation and attendance are important elements of every student's learning experience at The Hashemite University, and the student is expected to attend all classes. A student should not miss more than 15% of the classes during a semester. *Those exceeding this limit of 15% will receive a failing grade regardless of their performance*. It is a student's responsibility to monitor the frequency of their own absences. **Attendance record begins on the first day of class irrespective of the period allotted to drop/add and late registration. It is a student's responsibility to sign-in; failure to do so will result in a non-attendance being recorded.**

In exceptional cases, the student, with the instructor's prior permission, could be exempted from attending a class provided that the number of such occasions does not exceed the limit allowed by the University. The instructor will determine the acceptability of an absence for being absent. A student who misses more than 25% of classes and has a valid excuse for being absent will be allowed to withdraw from the course.

Plagiarism

Plagiarism is considered a serious academic offence and can result in your work losing marks or being failed. HU expects its students to adopt and abide by the highest standards of conduct in their interaction with their professors, peers, and the wider University community. As such, a student is expected not to engage in behaviours that compromise his/her own integrity as well as that of the Hashemite University.

Plagiarism includes the following examples and it applies to all student assignments or submitted work:

- **Use of the work, ideas, images or words of someone else without his/her permission or reference to them.**
- **Use of someone else's wording, name, phrase, sentence, paragraph or essay without using quotation marks.**
- **Misrepresentation of the sources that were used.**

The instructor has the right to fail the coursework or deduct marks where plagiarism is detected

Late or Missed Assignments

In all cases of assessment, students who fails to attend an exam, class project or deliver a presentation on the scheduled date without prior permission, and/or are unable to provide a medical note, will automatically receive a fail grade for this part of the assessment.

- Submitting a term paper on time is a key part of the assessment process. Students who fail to submit their work by the deadline specified will automatically receive a 10% penalty.

Assignments handed in more than 24 hours late will receive a further 10% penalty. Each subsequent 24 hours will result in a further 10% penalty.

- In cases where a student misses an assessment on account of a medical reason or with prior permission; in line with University regulations an incomplete grade for the specific assessment will be awarded and an alternative assessment or extension can be arranged.

Student Complaints Policy

Students at The Hashemite University have the right to pursue complaints related to faculty, staff, and other students. The nature of the complaints may be either academic or non-academic. For more information about the policy and processes related to this policy, you may refer to the students' handbook.

COURSE ASSESSMENT

Course Calendar and Assessment

Students will be graded through the following means of assessment and their final grade will be calculated from the forms of assessment as listed below with their grade weighting taken into account. The criteria for grading are listed at the end of the syllabus

Assessment	Grade Weighting	Deadline Assessment
First-hour Exam	25%	***الثلاثاء 2026/11/17***
Second-hour exam	25%	***الاحد 2026/12/27***
Quizzes and assignments	10%	Poster
Final Exam	40%	Week 16

Description of Exams

Test questions will predominately come from material presented in the lectures. Semester exams will be conducted during the regularly scheduled lecture period. Exam will consist of a combination of multiple choice, short answer, match, true and false and/or descriptive questions.
Homework: Will be given for each chapter, while the chapter in progress you are supposed to work on them continuously and submit in next lecture when I finish the chapter.
You are also expected to work on in-chapter examples, self-tests and representative number of end of chapter problems. The answers of self-tests and end of chapter exercises are given at the end of the book.

Quizzes: Unannounced quizzes will be given during or/and at the end of each chapter based upon the previous lectures. It will enforce that you come prepared to the class.

No make-up exams, homework or quizzes will be given. Only documented absences will be considered as per HU guidelines.

Grades are not negotiable and are awarded according to the following criteria*:

Letter Grade	Description	Grade Points
A+	Excellent	4.00
A		3.75
A-		3.50
B+	Very Good	3.25
B		3.00
B-		2.75
C+	Good	2.50
C		2.25
C-		2.00
D+	Pass	1.75
D	Pass	1.50
F	Fail	0.00
I	Incomplete	-

WEEKLY LECTURE SCHEDULE AND CONTENT DISTRIBUTION

Chapter 1	**history, definition and concept**	**Week 1**	**3 lecture hours**
Functional foods concept Classifications and benefits			
Chapter 2	**regulatory aspects**	**Week 2/3**	**4 lecture hours**
-Legislation: EU, FDA, and Jordanian regulations -Food industry and functional foods			
Chapter 3	**prebiotics and probiotics**	**Week 3-4**	**5 lecture hours**
Chapter 4	**functional foods of plant sources**	**Week 5-6**	**4 lectures**
- Carotenoids - Polyphenols - Flavonoids			
Chapter 5	**bioactive carbohydrates and fibers as functional foods**	**Week 7**	**3 lectures**
chapter 6	**food supplements**	**Week 8-9**	**6 lectures**
antioxidants vitamins minerals, ergogenic aids sugar alcohol			
Chapter 7	**fatty and organic acids**	**week 10-11**	**6 lectures**
-Fatty acids and fat spreads -Modified fats and oils			
Chapter 8	**Functional foods uses in community (presentations)**	**week 12-15**	**9 lectures**
Dates, honey, onion, garlic, milk thistle, camel milk, royal jelly, curcumin, fenugreek, cinnamon, ginger, Ashwaganda, ginseng, star anise, green tea, hibiscus, nettle**,** fennel, black seed, stevia, ….			

Assessment Rubrics

Classroom Participation: Assessment Criteria					
Criteria	**Quality**				**Score**
	Excellent (4 points)	**Good (3 points)**	**Satisfactory (2 points)**	**Needs Improvement (1 points)**	
Degree to which student integrates course readings into classroom participation	- often cites from readings; - uses readings to support points; - often articulates "fit" of readings with topic at hand.	-occasionally cites from readings; - sometimes uses readings to support points; -occasionally articulates "fit" of readings with topic at hand **.**	-rarely able to cite from readings; - rarely uses readings to support points; - rarely articulates "fit" of readings with topic at hand	-unable to cite from readings; -cannot use readings to support points; cannot articulates "fit" of readings with topic at hand .	
Interaction/ participation in classroom discussions	-always a willing participant, responds frequently to questions; - routinely volunteers point of view .	-often a willing participant, - responds occasionally to questions; - occasionally volunteers point of view .	-rarely a willing participant, - rarely able to respond to questions; - rarely volunteers point of view .	-never a willing participant., - never able to respond to questions; - never volunteers point of view .	
Interaction/participation in classroom learning activities	-always a willing participant; -acts appropriately during all role plays; - responds frequently to questions; - routinely volunteers point of view.	-often a willing participant; -acts appropriately during role plays; - responds occasionally to questions; -occasionally volunteers point of view.	-rarely a willing participant. -occasionally acts inappropriately during role plays; - rarely able to respond to direct questions; -rarely volunteers point of view .	-never a willing participant - often acts inappropriately during role plays;, - never able to respond to direct questions; - never volunteers point of view.	
Demonstration of professional attitude and demeanor	-always demonstrates commitment through thorough preparation; - always arrives on time; - often solicits instructors' perspective outside class.	- rarely unprepared; rarely arrives late; - occasionally solicits instructors' perspective outside class **.**	-often unprepared; occasionally arrives late; - rarely solicits instructors' perspective outside class .	-rarely prepared; - often arrives late; -never solicits instructors' perspective outside class	