Human Nutrition and Metabolism (140505312)
Second Semester 2023/2024

COURSE INFORMATION

Course Name: Human Nutrition & Metabolism
Semester: 2nd
Department: Department of Clinical Nutrition and Dietetics
Faculty: Applied Medical Sciences

Course Code: 140502312
Section: 1 & 2
Core Curriculum: Major Requirements

Day(s) and Time(s):

Section 1: Sun, Tues, Thurs: 10:30-11:30

Section 2: Sun, Tues, Thurs: 12:30-13:30

Classroom: Building of Medical Schools 107 (section 1 &2)

Credit Hours: 3
Prerequisites: 1905021212 & 140501231

COURSE DESCRIPTION

This course will focus on nutrition as a science that integrates biochemistry from the cellular level through the integration and regulation of metabolism in the whole organism. Also, it will focus on the understanding of the metabolism of the macronutrients and micronutrients in the body and how it relates to optimal health. This course provides a discussion of disorders of metabolism, either inherited or acquired, in which nutrition plays a major role in the etiology, pathogenesis, or treatment.

DELIVERY METHODS

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

- PowerPoint lectures and active classroom-based discussion
- Supplementary articles
- E-learning resources: e-reading assignments and practice quizzes through Microsoft Team

FACULTY INFORMATION

Name	**Dr. Alaa Ali Qatatsheh**
Academic Title:	**Associate Professor**
Office Location:	Building of Medical Schools / Department of Clinical Nutrition and Dietetics (no. 2176)
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Office Hours:	Sun: 11:30-12:30, 1:30-2:30 Mon.: 11:30-12:30

REFERENCES AND LEARNING RESOURCES

Required Textbook:

1. Medeiros, Denis and Wildman, Robert. Advanced Human Nutrition. 2019. 4th ed. Burlington, MA: Jones & Barlett Learning, USA

Suggested Additional Resources

2. Any Biochemistry Textbook.
3. Assigned papers

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: +962 5 3903333
Location: Building of Medical Schools
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	Develop an understanding of nutrient metabolism and function in humans	Understand basic integrative metabolism and function of nutrients and their cellular and molecular mechanisms**.**	Quizzes and exams
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	Knowledge of the basic principles of metabolic pathways as they influence normal physiology and disease.	Explain the metabolic processes underlying diseases affecting man's nutritional status.	Quizzes and exams
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.			
	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	An understanding of the genetic causes of inborn errors of metabolism Knowledge of the biochemical techniques and tests used for the diagnosis and management of inborn errors of metabolism	Develop practical skills related to the use of dietary standards, allowances, and dietary reference intakes under different physiological conditions.	Quizzes and exams
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.	Develop an understanding of the fundamentals related to thermodynamics and nutritional bioenergetics in particular, as well as fuel/substrate biotransformation in metabolism and its nutritional and physiological regulation	Gain skills related to nutrient metabolism and their fate in the body.	Quizzes and exams
	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			

	CP2: Critically apply knowledge of diet and health to evaluate and communicate and comment on dietary or health information both from scientific sources.	An understanding of nutrient requirements, recommended dietary allowances, and dietary reference intakes under different physiological conditions, and their methods of determination.	Explain critically the metabolic fate of nutrients and their nutritional and physiological significance.	Quizzes and exams
	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		Apply and analyze methods of study of human nutrition and metabolism.	Quizzes and exams

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	Day and Date
First Hour Exam	30%	To be announced
Second Hour Exam	25%	To be announced
Quiz	5%	To be announced
Final	40%	To be announced

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, and/or descriptive questions.

Quizzes: Unannounced quizzes will be given 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

Week	Lectures	Topic	Chapter
1 and 2	4	Introduction to Nutrition and Metabolism Foundations of Human Body	1
2 and 3	5	CHO Metabolism Digestion Absorption Metabolic Pathways of CHO Metabolism	3
4	2	Inborn error of CHO Metabolism	Handouts and articles
4 and 5	4	Disorders of CHO metabolism: Galactosemia Hereditary Fructose Intolerance Other Disorders of CHO Metabolism	
6 and 7	6	Glycogen Storage Diseases	Handouts and articles
First Hour Exam			
8 and 9	4	Protein Metabolism Amino acids Protein digestion and absorption Metabolism of Amino Acids Urea cycle	6
9, 10, and 11	8	Disorders of Protein metabolism: Phenylketonuria Tyrosinemia Alkaptonuria Homocystinuria Maple Syrup Urine Disease Urea cycle disorders	Handouts and articles
Second Hour Exam			
12 and 13	6	Fat Metabolism Fatty Acids Fatty acid synthesis and elongation Fat digestion and absorption Fatty acid oxidation Lipogenesis	5
14 and 15	6	Disorders of Lipid metabolism: Disorders of Fatty Acid Oxidation	Handouts and articles
16	**Revision**		

ASSESSMENT RUBRICS

Classroom Participation: Assessment Criteria					
Criteria	Quality				
	Excellent (4 points)	Good (3 points)	Satisfactory (2 points)	Needs improvement (1 point)	Score
Degree to which 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;	-often a willing participant;	-rarely a willing participant.	-never a willing participant	

	- responds frequently to questions; - routinely volunteers' point of view.	-acts appropriately during role plays; - responds occasionally to questions; -occasionally volunteers' point of view.	-occasionally acts inappropriately during role plays; - rarely able to respond to direct questions; -rarely volunteers point of view.	- 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	