

Course Syllabus

1	Course title	Human Nutrition and Metabolism
2	Course number	0603332
3	Credit hours (theory, practical)	3 theory
	Contact hours (theory, practical)	0 practical
4	Prerequisites/co requisites	0603231
5	Program title	Human Nutrition and Dietetics
6	Program code	043
7	Awarding institution	The University of Jordan
8	School	School of Agriculture
9	Department	Department of Nutrition and Food Technology
10	Level of course	3 rd year level
11	Year of study and semester (s)	Second semester 2019/2020
12	Final Qualification	BSc in Human Nutrition and Dietetics
13	Other department(s) involved in teaching the course	None
14	Language of Instruction	English
15	Date of production/revision	January 2020

16. Course Coordinator:

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

Prof. Mousa Numan Ahmad

mosnuman@ju.edu.jo

Office No. 036

962-6-3550000-22412

Office hours					
Day/Time	Sunday	Monday	Tuesday	Wednesday	Thursday
Day	*	*	*	*	
Time	9-10	9-10	9-10	9-10	

17. Other instructors:

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

18. Course Description:

Applications of human nutrition concepts emphasizing the integration of the effect of nutrient and nutritional status of metabolic and physiological function at cellular, tissue, organ and whole body level in humans as related to health and disease; regulation of metabolic homeostasis; health claims and their nutritional implications; dietary standards and their methods of determination under different physiological conditions; drug- nutrient interactions and nutrition and physical fitness.

19. Course aims and outcomes:

A- Aims:
1. To understand integrative metabolism and function of nutrients in humans and to acquire a fundamental background for cellular and molecular mechanisms related to nutrient metabolism.
2. To 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.
3. To acquire a fundamental background for applying the metabolic concepts of bioenergetics to different clinical conditions of energy imbalance.
4. To acquire knowledge about the metabolic processes underlying diseases affecting man's nutritional status.
5. To understand nutrient requirements, recommended dietary allowances, and dietary reference intakes under different physiological conditions, and their methods of determination.
6. To acquire a fundamental background of nutrient-drug interactions in man and their applications in dietetics, including efficacy and risk/benefits of these interactions.
7. To be able to relate the biochemical and physiological well-being and nutritional status to human physical fitness.
B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to:
A. Knowledge and Understanding: Student is expected to A1- Gain information from electronic sources related to human nutrition and metabolism in terms of concepts, principles, applications and practices. A2- Understand basic integrative metabolism and function of nutrients and their cellular and molecular mechanisms. A3- Understand the fundamentals related to thermodynamics and nutritional bioenergetics. A4- Demonstrate fuel or substrate biotransformation in metabolism and its nutritional and physiological regulation. A5- Apply the metabolic concepts of bioenergetics to different clinical conditions of energy imbalance. A6- Explain the metabolic processes underlying diseases affecting man's nutritional status. A7- Understand nutrient requirements, recommended dietary allowances, and dietary reference intakes under different physiological conditions, and their methods of determination. A8- Gain fundamental background of nutrient-drug interactions in man and their applications in dietetics. A9- Relate the biochemical and physiological well-being and nutritional status to human physical fitness.
B. Intellectual Analytical and Cognitive Skills: Student is expected to B1- Gain skills related to nutrient metabolism and their fate in the body. B2- Gain skills related to metabolic integration of the structural, energetic and regulatory functions of nutrients in man. B3- Develop bioenergetics' skills related to different clinical conditions of energy imbalance, particularly overweight, obesity and underweight. B4- Develop practical skills related to the use of dietary standards, allowances, and dietary reference intakes under different physiological conditions. B5- Gain fundamental skills related to nutrient-drug interactions in man, particularly their applications in dietetics. B6- Gain fundamental skills related to human physical fitness and well-being and their connection to human nutritional, biochemistry and physiology.

- C. Subject- Specific Skills:** Students is expected to
- C1-** Apply and analyze methods of study of human nutrition and metabolism.
- C2-** Explain critically the metabolic fate of nutrients and their nutritional and physiological significance.
- C3-** Evaluate critically nutrient requirements, recommended dietary allowances, and dietary reference intakes under different physiological conditions,
- C4-** Evaluate critically nutrient-drug interactions in man, particularly their applications in dietetics
- C5-** Apply and analyze methods of study of human physical fitness and well-being.
- C6-** Be able to suggest solutions for problems related to human nutrition and metabolism.
- D. Transferable Key Skills:** Students is expected to
- D1-** Gain particular skills related to nutritional utilization and cellular and whole body energetic.
- D2-** Be able to apply nutritional recommendations and allowances to individuals and groups.
- D3-** Be able to apply nutritional energetic to particular physiologic or pathophysiologic conditions.
- D4-** Gain particular skills related to nutrient-drug interactions and applications.
- D5-** Gain particular skills connecting metabolism with of human physical fitness and well-being.

20. Topic Outline and Schedule:

[Note: Topics usually vary depending on instructors, scientific perspectives, and student needs]

Topic	Reference	Week	Achieved ILO/s	Instructor
Introduction to Human Nutrition and Metabolism	1	1 st	A1-2, C1,	Prof. Mousa Ahmad
Dietary Needs, Allowances and Standards	4, 5, 7-9	1 st	A7, B4, C3, D2,	Prof. Mousa Ahmad
Cell Physiology and Biochemistry: An Overview	1-3	2 nd	A1-2, B1-2, C1-2. D1,	Prof. Mousa Ahmad
Dynamic Status in Human Metabolism	1, 2	2 nd	A2 , B2, C2,	Prof. Mousa Ahmad
Experimental Approaches in the Study of Human Metabolism	1, 2, 6	3 th	A2-4, B1-2, C1-2, D1,	Prof. Mousa Ahmad
Partition of Food Energy in the Human Body	1, 2, 6, 7	3 th – 4 th	A3-5, B2-3, D1,	Prof. Mousa Ahmad
Carbohydrate Nutrition and Metabolism	1-3, 6	4 th – 5 th	A2-6, B1-3, C2, D1,3	Prof. Mousa Ahmad
Fat Nutrition and Metabolism	1-3, 6	6 th – 7 th	A2-6, B1-3, C2, D1,3	Prof. Mousa Ahmad
Protein and Amino Acid Nutrition and Metabolism	1-3, 6	7 th – 8 th	A2-6, B1-3, C2, D1,3	Prof. Mousa Ahmad
Substrate and Human Metabolism	1-3, 6	8 th – 9 th	A2-6, B1-3, C2, D1,3	Prof. Mousa Ahmad
Vitamins and Human Metabolism	1-3, 6	9 th	A2-6, B1-3, C2, D1,3	Prof. Mousa Ahmad
Mineral Elements and Human Metabolism	1-3, 6	10 th	A2-6, B1-3, C2, D1,3	Prof. Mousa Ahmad
Whole Body Energy Metabolism	1-3, 6	10 th – 13 th	A2-6, B1-3, C2, D1,3	Prof. Mousa Ahmad
Nutrition and Physical Fitness	1-4, 6	13 th – 14 th	A9, B6, C5-6, D5,	Prof. Mousa Ahmad
Food, Nutrient and Drug Interactions	4	14 th – 15 th	A8, B5, C4, D4,	Prof. Mousa Ahmad

Health Claims and Their Nutritional Implications	4	15 th -16 th	A1-9, B1-6, C1-6, D1-5	Prof. Mousa Ahmad
Overview	-	16 th	A1-9, B1-6, C1-6, D1-5	Prof. Mousa Ahmad

21. Teaching Methods and Assignments:

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

- Assignments:** Each student is given several homework exercises in which he/she explores the literature through use of the library or the internet, and then writes a short report.
- Learning Resources:** Related published literature, articles, reports of related organizations and institutes and use of documentation systems (e.g. use of journal systems of writing and publishing, and instructions to write course report and prepare oral presentation).
- Learning/ Teaching Methods:** Lectures, group discussions and presentations for previously assigned topics, seminars and term papers of assigned topics by individual students (individual skills and self expression development). Teaching tools include: Slides, transparencies, power point, handouts, demonstrations and case study analysis.

22. Evaluation Methods and Course Requirements:

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

ILO/s	Learning Methods	Evaluation Methods
A. Knowledge and Understanding (A1-A9)	Lectures, discussions	Exams, assignments, home works, quizzes,
B. Intellectual Analytical and Cognitive Skills (B1-B6)	Lectures, discussions	Exams, assignments, home works, quizzes
C. Subject Specific Skills (C1-C6)	Lectures, discussions	Exams, assignments, home works, quizzes
D. Transferable Key Skills (D1-D5)	Home works	Home works evaluation .

Evaluation	Point %	Date
Midterm Exam	30	
1 Assigned Quiz	10	
Home works	10	
Final Exam	50	

23. Course Policies:

A- Attendance policies:

Students are expected to attend punctually all lectures and to participate in course assignments and activities as described in the course syllabus. A student's participation in the work of the course is a precondition for receiving credit for the course. However, in the case of absences, the university instructions and regulations will be applied. For only emergency absences accompanied by a written explanation of sickness from a physician (or other pertinent documentation related to the particular situation), a notice should be given to the instructor no later than 48 hours from the absence in order to make reasonable arrangements. A student missing 15% or more of the class meetings will be dropped from the class and will be given a grade of "failure for absences".

B- Absences from exams and handing in assignments on time:

Generally, in the case of absences, the university instructions and regulations will be applied. For only medically explained absences, a notice should be given to the instructor no later than the last class before the anticipated absence in order to make reasonable arrangements. In this case, a make-up assignments or presentation or exam will be arranged according to the university regulations.

C- Health and safety procedures:

The University of Jordan is committed to providing safe, healthy and supportive learning environments for all students which address their educational needs.

D- Honesty policy regarding cheating, plagiarism, misbehaviour:

Students are expected to be honest and forthright in their academic endeavours. To falsify the results of one's work, to steal the words or ideas of another, to cheat on an examination, to allow another person to commit, or assist another in committing an act of academic dishonesty, corrupts the essential process by which knowledge is advanced. In the case of dishonesty, cheating, plagiarism, and misbehaviour, the university of Jordan's instructions and regulations will be strictly applied.

E- Available university services that support achievement in the course:

The University of Jordan Library and Computer and Information Technology Centre.

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

Lecture room, electronic facilities, audiovisual aids, smart boards, and library facilities.

25. References:

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

01. Gropper SS, Smith JL & Groff JL. Advanced Nutrition and Human Metabolism. Wadsworth, Cengage Learning. Belmont, CA, USA, 2016.
02. Mahan LK, Escott-stump S & Raymond JL. Food and the Nutrition Care Process. Philadelphia: W.B. Saunders, 2018.

Recommended books, materials, and media:

03. Whitney E. & Rolfes SR Understanding Nutrition. USA: Thomson-Wadsworth, 2016.
04. Bender DA. Introduction to Nutrition and Metabolism. London: Taylor and Francis, Latest Edition
05. Medeiros DM & Wildman REC. Advanced Human Nutrition. 2nd Edition, Jones & Bartlett
06. Learning, LLC, USA, 2012.
07. Garrow JS, James WPT. & Ralph A. Human Nutrition and Dietetics. London: Churchill Livingstone, Latest Edition.
08. James WPT. and Schofield EC. Human Energy Requirements. Oxford: Oxford University Press, Latest Edition.
09. Food and Nutrition Board. Dietary Reference Intakes: Recommended Intakes for Individuals. USA: National Academy of Sciences, 2002.
10. Food and Nutrition Board. Dietary Reference Intakes for Energy, Carbohydrate, Fibre, Fatty Acids, Cholesterol, Protein, and Amino Acids. USA: National Academy of Sciences, 2002.

11. Selected Internet Sites:

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| 01. www.nutrition.org | 02. www.faseb.org/ascn |
| 03. www.bda.uk.com | 04. www.dietetics.com |
| 05. www.who.int | 06. www.diabetes.org |
| 07. www.americanheart.org | 08. www.fao.org/food |
| 09. www.fda.gov | 10. www.usda.gov |
| 11. www.dietitians.ca | 12. www.webmed.com |

26. Additional information:

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Name of Course Coordinator: Prof. Mousa Numan Ahmad Signature: Date: 2/2/2020

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

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

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

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