1	**Course title**	Fundamental Nutrition
2	**Course number**	0603231
3	**Credit hours (theory, practical)**	3 hrs
	Contact hours (theory, practical)	3 hrs per class
4	**Prerequisites/corequisites**	General Chemistry (1) and General Biology (2)
5	**Program title**	BSc. in Nutrition and Dietetics
6	**Program code**	043
7	**Awarding institution**	University of Jordan
8	**School**	Agriculture
9	**Department**	Nutrition and Food Technology
10	**Level of course**	2nd year
11	**Year of study and semester (s)**	Fall, 2018 and Spring Semester, 2019
12	**Final Qualification**	BSc
13	**Other department (s) involved in teaching the course**	None
14	**Language of Instruction**	English
15	**Date of production/revision**	2019

16. Course Coordinator:

Office numbers, office hours, phone numbers, and email addresses should be listed.
Dr. Tamara Y. Mousa.
Office no. 64
Office phone no. 22413, cell phone no 0795008407
Email: t.mousa@ju.edu.jo
Office hours: Sun, Mo, Tue, Wed 11-12

17. Other instructors:

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

None

18. Course Description:

As stated in the approved study plan.
Fundamentals related to nutrients and energy with respect to digestion, absorption, metabolism, functions, dietary sources, diseases of malnutrition and requirements throughout the life cycle; assessment of nutritional status, formulation and planning of diets in the management of common diseases of different body systems, nutrition counselling, and use of therapeutic diets and selected chronic diseases of affluence.

19. Course aims and outcomes:

A- Aims: Upon completion of this course, the student will be able to:

1. To have a good command of the basic concepts, function and inter-relationship between nutrients as they are related to human good health and well being, including digestion, absorption, and metabolism and energy release, emphasizing integration between nutrition, physiology, and biochemistry.
2. To understand nutritional balance, emphasizing protein- energy malnutrition and micronutrient deficiencies. To understand the concept of nutrient bioavailability and the factors that affect it.
3. To become knowledgeable of significant food sources of the nutrients.

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- Understand the basic concepts of nutrition.
A2- Understand the 6 nutrient groups.
A3- Understand the importance of nutrition science.

B. Intellectual Analytical and Cognitive Skills: Student is expected to

B1- applied the meaning of nutrient groups on the food intake.
B2- Address the main nutritional needs.
B3- The main nutritional aspects

C. Subject- Specific Skills: Students is expected to

C1- Use the worldwide web to document information when performing assignments.
C2- Manage over and under consumption.

D. Transferable Key Skills: Students is expected to

D1- Discuss the nutritional concepts.
D2- Discuss the characteristics, nutritional needs.

20. Topic Outline and Schedule:

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
1. An overview of nutrition 1.1 Define and/or differentiate between: The science of nutrition, food science and agricultural sciences. Nutrients, foods, functional foods, and phytochemicals. Diets and dietitians. Essential nutrients.	1-2	Tamara Mousa	A1,B1,A2	Exams, and homework	Paul Insel, Don Ross, Kimberly McMahon, Melissa Bernstein; "Discovering Nutrition" 5th edition. Jones & Bartlett learning. William Brottmiller, 2014.

Macronutrients and micronutrients. Energy yielding nutrients, organic and inorganic nutrient. 1.2. Nutrition research. 1.3. Diet and health: Chronic diseases, risk factors for chronic diseases					
2. Digestion, absorption and transport 2.1 Digestion. 2.2 Anatomy of the digestive system: The muscular action of digestion The secretions of digestion 2.3 Absorption: Anatomy of the absorptive system A closer look at the intestinal cells	3-4	Tamara Mousa	A1,B3,A2	Exams and homework	Insel et al., 2014
3. The carbohydrates 3.1. Simple and complex carbohydrates Dietary fibers: Definition, types, sources, action in the body 3.2. Digestion and absorption. 3.3. Metabolism and regulation of blood glucose 3.4. Function with emphasis on essentiality	5-6	Tamara Mousa	A1,A2,C3	Exams and homework	Insel et al., 2014

of glucose. 3.5. Glycemic index of foods (+Handout)					
4. The lipids Important physiological and biochemical 4.1. Chemical structure and classification. 4.2. Fatty acids: Types according to length of carbon chain, degree of unsaturation, geometric isomers: nomenclature (systemic and omega), stability, hydrogenation. 4.3. Phospholipids: structure and roles. Sterols: structure and roles. 4.4. Digestion, absorption and transport, including enterohepatic circulation and lipoproteins (chylomicrons, VLDL, LDL, and HDL) - Roles of triglycerides 4.5. Essential and conditionally essential fatty acids: functions and food sources	7	Tamara Mousa	A1,A2, D2	Exams and homewrok	Insel et al., 2014
5.2. Digestion and absorption	8-9	Tamara Mousa	A2	Exams and homework	Insel et al., 2014

of proteins. The processes of digestion and absorption 5.3. Proteins in the body Protein synthesis Role of proteins 5.4. Proteins in foods Protein quality and complementary effects of proteins Measures of protein quality. 5.5. Protein – energy malnutrition: Marasmus & kwashiorkor						
6. Energy balance Growth and development 6.1. Energy in: The energy the food provides. Food intake: regulation of appetite, satiation and satiety. 6.2. Energy out: The energy the body spends. Basal Metabolic Rate (BMR): Meaning, definition, and estimation in a clinical setting and by calculation. Activity. Thermic effect of food.	10	Tamara Mousa	C2,B3	Exams and homework	Insel et al., 2014	
7.Water soluble vitamins	11	Tamara Mousa	C1,D1	Exams and homework	Insel et al., 2014	

An overview: The role, metabolism and absorption, deficiencies, toxicities and food sources of the B vitamins and vitamin C will be discussed. Thiamin, riboflavin, biotin, pantothenic acid, vitamin B6, folate, vitamin B-12 and non-B vitamins in addition to vitamin C.					
8. Fat- soluble vitamins: A, D, E, and K The role, metabolism and absorption, deficiencies, toxicities and food sources of the fat -soluble vitamins will be discussed. Vitamin A and Beta-Carotene Vitamin D Vitamin E Vitamin K	12	Tamara Mousa	A1,A2	Exams and homework	Insel et al., 2014
9. Water and the major minera elements 9.1. Water and the Balance of Fluids Water Balance and recommended intake. Blood volume and blood pressure. Fluid and electrolyte imbalance.	13	Tamara Mousa	A4,C2	Exams and homework	Insel et al., 2014

Acid-base balance 9.2. Minerals- An overview. The major minerals: Sodium, potassium, chloride, calcium, phosphorus, magnesium, sulfur.						
10. The trace mineral elements Population trends 10.1. The Trace Minerals: An Overview 10.2. The following minerals will be discussed regarding their roles in the body ,absorption and metabolism , deficiency , toxicity , food sources, contamination and supplementation, where applies 10.3. Iron, Zinc, Iodine, Selenium, Copper, Manganese, Fluoride, Chromium, Molybdenum	14	Tamara Mousa	B3,D2	Exams and homework	Insel et al., 2014	

21. Teaching Methods and Assignments:

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

Lectures, group discussion, assignments, and student critical reading. Teaching tools include the use of the board, transparencies, PowerPoint presentation and handouts.

22. Evaluation Methods and Course Requirements:

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

Exams, quizzes, homework, assignments, and class discussions.

23. Course Policies:

A- Attendance policies: after 6 unjustified absences, the student is dismissed from the course.

B- Absences from exams and handing in assignments on time: late assignments are accepted with justified excuse but with losing one point of the total grade of the assignment.
In case of missing an exam, the student can do a make-up exam only if he had a justified excuse.

C- Health and safety procedures: phone, cigarettes and hot drinks are not allowed in the class.

D- Honesty policy regarding cheating, plagiarism, misbehaviour: the student is given a notice about his behaviour, if he did not behave then will have to leave the class and see the head of the department

E- Grading policy: each wrong answer will lose a point

F- Available university services that support achievement in the course: availability of smart boards to display information to the students.

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

This course does not need any extra facilities than what is already present in the classroom.

25. References:

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

Paul Insel, Don Ross, Kimberly McMahon, Melissa Bernstein; "Discovering Nutrition" 5th edition. Jones & Bartlett learning. William Brottmiller, 2014.

Recommended books, materials, and media:

- Williams SR. & Anderson SA. Nutrition and Diet Therapy. Saint Louis: CV.Mosby Co. (Latest edition or reprint), 2004.

- Weigly ES., Mueller DH. & Robinson CH. Robinsons' Basic Nutrition and Diet Therapy. London: Merrill Prentice Hall, 2000.
- Whitney E. & Rolfes SR Understanding Nutrition. USA: Thomson-Wadsworth, 2011.

26. Additional information:

None

Name of Course Coordinator: Dr. Tamara Y. Mousa Signature: ---------- Date: 22/10/2019

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

Head of Department: Dr. Maher Al-Dabbas Signature: ----------

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

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