**BIRZEIT UNIVERSITY**

**FACULTY OF PHARMACY, NURSING, AND HEALTH PROFESSIONS**

**DEPARTMENT OF NUTRITION AND DIETETICS**

**NUTD 231: FUNDAMENTALS OF HUMAN NUTRITION**

**COURSE OUTLINE**

**2nd SEMESTER 2017/2018**

**Instructor:** Afaf Jaqaman

**Textbook:**

* Essentials of Human Nutrition, Jim Mann and A. Stewart Truswell, 4th edition, 2012.

**References:**

* Introduction to Human Nutrition, Micheal J. Gibney, Hester H Vorster, Frans J. Kok, 2002.
* Mahan, K. Krause's Food, Nutrition, & Diet Therapy, 12th edition, 2008.
* Understanding Normal and Clinical Nutrition, by Sharon Rady Rolfes, Kathryn Pinna, Ellie Whitney, 8th edition 2009.
* Complete Food and Nutrition Guide, by Roberta Larson Duyff. 3rd edition, 2006.

**Course description**: the course provides an integrated overview of the physiological requirements and functions of macronutrients, micronutrients and their food sources; water and energy requirement and the health consequences of their excess and or deficiency; guidelines for healthy eating and healthy lifestyle.

**Learning outputs**: Upon completion of this course, you will be able to do the following:

* Provide an overview of the major macro and micronutrients relevant to human health.
* Know the dietary sources, intake levels, physiological role, and requirement of major nutrients.
* Explain the rationale for the development of dietary guidelines and nutrition policies.
* Understand the biological determinants of nutrient requirements and the assessment of nutrient status in individuals and populations.
* Identify the role of major nutrients in growth and health.
* Understand the role of diet in the development of chronic diseases.
* Appreciate the role of nutrition in the prevention and management of chronic diseases.
* Discuss the scientific rationale for defining nutritional requirements in healthy individuals and populations.
* Present current evidence for the role of key nutrients in the prevention of chronic diseases.
* Know the major nutrition-related diseases in a global context.
* Know the dietary guidelines for good health.

**Course evaluation**:

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| Hour exam | 18% |
| Midterm exam | 25% |
| Term paper | 12% |
| Class participation | 5% |
| Final exam | 40% |

**Course topics:**

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| **Chapter** | **Topic** |
| **1** | **Introduction**: Orientation to human nutrition, an integrated approach; relationship between nutrition and health; global malnutrition; future challenges for nutrition research and practice |
| **3** | **Carbohydrates**: Carbohydrates in foods; structure and classification; requirements and functions; digestive fate of dietary carbohydrates. |
| **4** | **Lipids**: The history of lipids in human nutrition; terminology of dietary fats; digestion, absorption and transport of dietary fats; circulating lipids; nutritional and metabolic effects of dietary fats. |
| **5** | **Proteins**: Sources, requirements; functions; structure and classification of amino acids; digestion of proteins. |
|  | **Hour exam**  **Thursday 15/3/2018** |
| **6** | **Energy**: Energy sources, intake, expenditure, and requirements; factors that affect energy expenditure; energy balance in various conditions; |
| **7** | **Alcohol**: Energy content; utilization; consequences of excess consumption. |
| **8** | **Water, electrolytes and acid-base balance**: Body fluids; distribution of electrolytes; deficiency and excess; diet in relation to acid-base balance |
| **17** | **Overweight and obesity**: consequences of energy overconsumption; BMI; |
| **19** | **Protein-energy malnutrition**: consequences of deficiency such as kwashiorkor and marasmus. |
|  | **Midterm exam**  **Thursday 19/4/2018** |
| **9** | **Major minerals**: calcium, magnesium, and phosphorous: requirements, functions, sources and deficiency diseases. |
| **10** | **Iron**: Types, requirements, functions, sources and deficiency diseases; factors that influence non-heme iron absorption; prevalence of deficiency. |
| **11** | **Trace elements**: Types, requirements, functions, sources and deficiency diseases. |
| **12** | **Vitamin A and Carotenoids- fat soluble vitamins**: classification, functions, sources and deficiency diseases. |
|  | **Hand-in Term paper**  **Tuesday 22/5/2018** |
| **13** | **The B vitamins- water soluble vitamins**: types, functions, sources and deficiency diseases. |
| **14** | **Vitamin C and E- water and fat soluble vitamins**: types, functions, sources and deficiency diseases. |
| **15** | **Vitamins D and K - fat soluble vitamins**: classification, functions, sources and deficiency diseases |
| **16, 28** | **Other biologically active substances**: phytochemicals; functional foods; dietary guidelines. |
|  | **Final exam** |