RUTGERS
School of Health Professions

Department of Clinical and Preventive Nutrition Sciences
Non-matriculated Course Pre-requisite
NUTR3720 Principles of Human Nutrition and Metabolism

Course Description

This course provides a foundation of macronutrient and micronutrient metabolism to help students understand the nutritional/biochemical processes involved in health and disease. It covers the structure and function of macronutrients (proteins, carbohydrates, and lipids), metabolic bioenergetic pathways, and the role of nucleic acids in genetic information. The course will cover the functions, metabolism, sources, and current recommendations for the use of vitamins and minerals, with an emphasis on their impact on human health and disease.

Credits/Modes of Instruction

4 Credit distance-based course

Prerequisites

Chemistry, Organic Chemistry, Biochemistry

Course Goals and Outcomes:

Goals

The goals for this course are for students to be able to understand the basic concepts and underlying principles of macronutrient and micronutrient metabolism as applicable to the field of dietetics/nutrition. Students will build an understanding of nutritional metabolism which incorporates biochemistry principles and relate the learned concepts and knowledge of metabolism to the practice of dietetics/nutrition. The course also will provide students with an understanding of the sources of vitamins and minerals in the diet; how vitamins and minerals get incorporated into the human body; the function and mechanism of action of select vitamins and minerals in the human body; the metabolism and excretion of vitamins and minerals; interactions of vitamins and minerals with other nutrients and medications; vitamin and mineral roles in metabolism; current recommendations for the use of vitamins and minerals; and vitamin and mineral deficiency and toxicity.

Outcomes

At the end of this course, students will be able to:

1. Define macronutrient metabolism.

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2. Explain the specific of enzymes or biochemical catalysts involved in human metabolism.

3. Explain how the metabolism of glucose leads ultimately to the generation of large quantities of ATP.

4. Describe how fats and amino acids are metabolized, and explain how each can be used for fuel.

5. Summarize what is currently known about the biochemical basis of nutrition.

6. Describe the digestion, absorption, transport and storage of vitamins and minerals.

7. Describe the functions and mechanisms of action of vitamins and minerals.

8. Recognize the interactions of vitamins and minerals with other nutrients.

9. Describe the metabolism and excretion of vitamins and minerals.

10. Recognize the basic roles of vitamins and minerals in macronutrient metabolism.

11. Describe the sources and nutritional significance of vitamins and minerals needed for general health and disease prevention.

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