U29 Bio 204
Nutrition

Description

This course is designed to provide an overview of the processes of digestion, absorption and metabolism of different foods. The chemistry, physiological functions and food sources of each nutrient are the focus. Nutrient requirements throughout the life cycle are described. Consumer issues and legislation in foods and nutrition are explored.

Prerequisites
None

Learning Outcomes/Objectives
• To know the biochemical and physiological mechanisms by which various foods are digested, absorbed and the metabolism of the end products of digestion.
• To understand the chemistry and functions of nutrients and their requirements in the life cycle.
• To know the nutritional composition of different foods.
• To identify and explore different myths and misinformation in nutrition.

Digestion and Absorption: An Overview
The mouth and salivary glands
Gastric secretion
The small intestine and accessory organs and their secretions
The large intestine: the microflora as an ecological system
Absorption/transport mechanisms

Motility

Proteins
Classification of proteins
Chemical reactions of amino acids
Metabolism and functions
Food sources
 Recommended dietary allowances
World supply of proteins
Carbohydrates
Classification of sugars and complex carbohydrates
Absorption and metabolism
Physiological functions
Food sources and nutritional requirements

Lipids
Classification and chemical properties
Chemical reactions of fatty acids
Metabolism and physiological functions
Food sources

Energy
Calorimetry
Human energy needs
Comparative caloric values of different foods
Calculation of energy values of different foods
Energy requirements in the life cycle

Cholesterol
Cholesterol metabolism
Lipoproteins and cholesterol transport
Physiological functions
Food sources

Alcohol
Absorption and metabolism
Energy values of different alcoholic beverages
Effects of alcohol on different organ systems

Vitamins: Water and Fat Soluble Classifications
Chemical properties
Absorption and metabolism
Physiological functions
Deficiency states and hypervitaminosis
Food sources and dietary requirements
Supplements: Indications and hazards
Minerals: Calcium, phosphorus and magnesium
Absorption and metabolism
Physiological functions
Food sources and dietary requirements
Deficiency states

Minerals: Iron, iodine, fluorine and zinc
Metabolism and physiological functions
Food sources and dietary requirements
Deficiency states

Water as a nutrient
Intracellular and extracellular fluid compartments
Functions
Food sources and requirements

Evaluation
Weekly quizzes and three hourly exams are scheduled.

Projects
- Estimation of one day's protein intake
- Estimation of body mass index (BMI)
- Collecting and reporting of current nutrition related articles from the media

Attendance
Class attendance is required. If unexpected or work circumstances occur, please make arrangements for discussion of an absence and for obtaining class notes. Students with four absences are advised to withdraw from the course.