Petra University
Faculty of Pharmacy and Medical Technology

BSc. Nutrition

503101 Biology (1) (3-3-0)
Prerequisite:
An introductory course to the science of life. It covers the basic concepts and principles of general biology, in particular, the general characteristics of life, the cell structure and function, cell membranes, photosynthesis, cellular respiration, cell division, tissues, biotechnology, and laws of genetics.

503101 L Biology Laboratory (1) (1-0-1)
Prerequisite: 503101 (or Concurrently).
This course complements Biology (1), and it involves a set of 12 experiments and practices on the basic concepts of introductory biology; such as the microscope, the cell, the plasma membrane, solutions and tonicity, enzymes, cellular respiration, fermentation, tissues, cell division, and genetics.

503102 Biology (2) (3-3-0)
Prerequisite: 503101
This is a general course that complements the previous introductory course in biology, (Biology 101). It concentrates on the study of human systems and their disorders. It is designed to cover the study of structure and function of various levels of organization in plant, animal, and human systems.

503102 L Biology Laboratory (2) (1-0-1)
Prerequisite: 503101L and (105102 or Concurrently).
This course complements Biology (2), and it involves a set of 12 experiments and practices on the basic concepts of biology; such as classifications, dissection of the rabbit, and the developmental stages in some representative organisms. It also covers the plant structures.

503103 L Biology Laboratory (3) (1-0-1)
Prerequisite: 503102 (or concurrently).
This course complements Biology (1) and (2) . It involves a set of 12 experiments on the basic concepts of introductory biology such as the microscope, the cell, enzyme action, tissues, cell division, genetics, and dissection of the rabbit.

503211 Principles of Food and Nutrition (3-3-0)
Prerequisite: 503102
Definition of Nutrition , study of the basic concepts in nutrition, its role in human life and health. Study of nutrients , their sources and their digestion , absorption and metabolism in the human body. The functions , deficiency symptoms , and the daily requirements of the nutrients . Also study of general concepts of food science. Methods of food classifications, food groups, and food processing. This subject also include, the food composition and its effect on methods of processing, preservation, and quality of food.

503212 Nutrition (1) (3-3-0)
Prerequisite: 503211
Study of the nutrients and their metabolism in the human body , mechanism of nutrients in protection of human body against different diseases. Also include , their effects on malnutrition problems and their effects on metabolism. Study of food groups and dietary guides and their use in dietary planning .

503213 Physiology (3-2-1)
Prerequisite: 503102
Provides students with an understanding of the structure and function of the human body, with emphasis on the underlying physiological and biochemical concepts. It includes an overview of the basic cells and tissues components and functions and their role in regulation of body homeostasis. Also, control of hormonal secretion, absorption and metabolism of food, fluid electrolytes, and acid-base balance are covered. The laboratory includes examining human body models, physiology exercises and experiments, and examination of microscopic slides of relevance, such as the blood and certain other tissues.

503305 Nutrition and Physical Fitness (3-3-0)
Prerequisite: 503314
This course provides a unique opportunity for students to pursue combined educational interests in fitness, diet/nutrition, health , and athletic performance.

503311 Food Chemistry (3-3-0)
Prerequisite: 502211
The course involves the study of fundamental laws and theories of chemistry applied to foods : the chemical , physical and sensory characteristics of food and their relation to the chemical composition . It also involves various effects of environmental and processing factors on food composition. It also covers food additives , enzymes , contaminants , flavors and their composition.

503312 Food Analysis (3-2-1)
Prerequisite: 101241
Laboratory standard methods for chemical analysis of nutrients and chemicals in foods and food products. The instruments are used in food analysis, sampling of food, data reporting, experimental errors and interpretation of the results. The factors that affect the results of analysis . The laboratory includes sampling techniques, food analysis, determination of food components such as moisture, protein, fat, vitamins and minerals. Various instruments, such as Kjeldahl, soxhlet, spectrophotometer, HPLC, atomic absorption spectroscopy and flame photometer to be utilized for various analyses.

503313 Food Preparation (3-2-1)
Prerequisite : 503211
Methods of food preparation and their properties. Study of the physical , chemical and nutritive value of different foods. The influence of different factors to which foods are subjected during the various preparation processes and storage on the nutritive value. Using the best methods of food preparation and planning to fit local markets and local establishments such as hotels, hospitals and food centers in order to preserve the nutritive value, and to ensure the safety and quality of food and food products.

503314 Nutrition (2) (3-3-0)

Prerequisite: 503212

To interpret and communicate the science of nutrition to enhance the quality life of groups and individuals in health and disease, by using principles from the health social sciences, as well as, nutrient requirements and deficiencies at different stages in the life span. It involves the applied concepts of human nutrition and the elements of nutritional care process, concepts of dietary standards and methods of determination in different physiological stages . Malnutrition and its evaluation principles, and management. Main diseases resulting from nutrients deficiency. Methods of prevention and treatment of such diseases. The role of nutrients in treatments of diseases. Interactions between drugs and nutrients.

503315 Virology & Immunology

Prerequisite: 502221

This course includes the study of the fundamentals of virology, and the nature of viruses, their replications, classifications, and genetics. It also provides an overview of human viral diseases, vaccination, and the role of viruses in cancer development. The course, also, covers the basics of immunity, autoimmune diseases and allergic reactions. The course will also emphasize the effect of nutrition on prevention of some viral diseases, and on the immune system.

503316 Food Microbiology (3-2-1)

Prerequisite: 502221

This course introduces the student to a survey of microorganisms and their role in food deterioration, food poisoning and their beneficial utilization in food applications. The role of microorganisms in food production, food spoilage and food borne diseases. The factors influence microbial growth in foods, the procedures and techniques used for the isolations and enumeration of microorganisms in foods, and techniques used in controlling microbial contamination of food. Studying microorganisms which are important in food industry and dairy products, the procedures used for reducing health hazards to prevent food borne diseases and for extending the shelf-life of food and dairy products. The laboratory introduces students to : Procedures and technique used for the isolation, identification and enumeration of microorganisms in food and milk / diary products, microbial contamination in raw and processed foods. The methods used for isolation and diagnosis of food and dairy borne disease microorganisms, and microbiological techniques for quality control tests.

503318 Food Preservation (3-2-1)

Prerequisite: 503311 + 502221

The course includes the study of procedures that extend the shelf life of food and food products. Food preservation methods for plant and animals products to prevent food spoilage, includes high temperature, cooking , freezing , drying, concentration, fermentation , food additives , smoking, and radiation. Also it includes the study of agents that cause food deterioration.

503321 Therapeutic Nutrition (1) (3-2-1)
Prerequisite: 503314 (or Concurrently).
Process of assessing nutritional status, and nutritional care in various diseases, so it involves the study of clinical nutrition assessment. Selections of food and food modifications for the following pathological conditions; obesity, hypertension, diabetes, cancer, osteoporosis and ostea malacia, anorexia nervosa and bulimia. Applications of nutritional and dietetic principles and nutritional addiction, utilizing food change list, and evaluation of the nutritive values of meals. The practical part includes selected case studies for diseases given in the theoretical part, and the dietetic applications .

503322 Therapeutic Nutrition (2) (3-2-1)
Prerequisite: 503421
The course involves utilization of clinical nutrition in the following diseases and disorders; gastrointestinal and liver diseases, Biliary and pancreas disorders, burns , surgery, heart failure, pulmonary disease, renal disease, and metabolic disorders. It provides introduction to enteral / parenteral feedings. The practical part includes selected case studies for diseases given in the theoretical part, and the dietetic applications .

503325 Selected Topics in Nutrition and Dietetics (3-3-0)
Prerequisite: Third year
This course includes selected topics in nutrition science such as nutrition in exercise and energy metabolism, vitamin metabolism and bioavailability, gastroenterology and nutrition, nutritional epidemeology etc.

503329 Food Biotechnology (3-3-0)
Prerequisite: 502221
This course introduces the concept of food biotechnology and its development . principles of genetic engineering , fermentation, clonning and other modern technique of biotechnology.
Using of biotechnology techniques in processing of different products such as enzymes , proteins, vitamins . flavor compounds and others. Treatment of food plant wastes .

503331 Nutrition Counseling (3-3-0)
Prerequisite: 503212
This course is intended to provide a strong background in food science and related basic sciences; such as the study of food habits and food consumption patterns, and the factors affecting them, socioeconomic, political, psychological, environmental, religious and cultural factors. Also, the nutritional education and its definition, role, and means. Various aids to prevent malnutrition diseases in order to build healthy community, without nutritional problems .

503390 Internship (6-0-6)
Prerequisite: Third year
Training course in dietary departments of medical centers, hospitals, and other facilities. Practical preparation in the field of clinical dietetics. Clinical experience provided with the cooperation of medical centers, hospitals, and other facilities.

503423 Nutrition During Human's Life Cycle (3-3-0)
Prerequisite: 503212
This course is a study of nutritional strategies during stages of human development, starting from the zygote to old age . Emphasis to be on normal growth and development without any nutritional problems. The stages include pregnancy, infancy, adolescence , adulthood , middle age , and elderly. The treatment of various nutrition related diseases of such stages. Study of certain problems and/or health concerns of each stage . Emphasizing the study of nutrition for exercise and sports performance.

503424 Nutrition Information Systems (3-2-1)
Prerequisite: 601101
This course deals with designing and managing food service systems in hospitals, specialized centers, community nutrition programs, .. etc utilizing computer skills. Emphasis on procurement, delivery systems, layout and design quality control, financial management, and marketing food service.

503425 Seminar (1-0-1)
Prerequisite: Fourth year
Projects are chosen from different topics related to nutrition problems in the local society in comparison with other societies. Also, future vision of nutrition in the world such as concentration on malnutrition, and some other food related problems and diseases to be considered.

503427 Management of Nutrition Systems (3-3-0)
Prerequisite: 5036212
This course introduces basic principles of the administration of nutritional services system, methods of food selection, preservation, preparation, servicing and the factors affecting them. Also, servicing the foods in hotels and restaurants. Principle of choosing food menu, financial planning and supervision of food staff.

503429 Community Nutrition (3-3-0)
Prerequisite: 503314
This course deals with characteristics of the community nutritional status, and its assessment, food and nutrition policy plans, nutritional habits and their effects on nutritional status, and community group feeding. Nutritional agencies at national, regional, and international levels. Food selection related factors, such as, nutritional education, and its role in community nutrition in public places .

503431 Food Hygiene (3-3-0)
Prerequisite : 503316
This course introduces the concepts of food hygiene and its importance, food borne infections and intoxication. The problem of residues in foods, hygienic requirements in food production and harvesting areas, and in food establishments with emphasis on hygienic food handling, processing, and storage. Personal hygiene and health requirements, cleaning and disinfecting , pest control , and the application of hazard analysis critical control point (HACCP) system in food establishments.

503432 Nutritional Assessment (3-2-1)

Prerequisite: 503314

This course deals with process of assessing nutritional status, and nutritional care in various diseases. It involves the study of the methods and facilities used for evaluation of nutritional status in health and disease, including anthropometric measurements, and statistical data concerning health and nutrition. This is to predict if there is any type of malnutrition, and treatments of any possible nutritional problem. Nutrients interaction, and how they are related to malnutrition status. The laboratory Includes the assessments of selected cases , such as anthropometric measurements, food consumption data , and the nutritional evaluation of these cases .