

University of Ghana
Department of Nutrition & Food Science
Sample Fall Courses

NUTR 301 Nutrients and their Metabolism I

(Prerequisites: BIOL 201-204; CHEM 201, 202, 211, 212, 221,222)

Classification, metabolism and physiological functions, effects of deficiencies and trends in the consumption of carbohydrate, protein, and fat. Food as a source of energy, energy expenditure, measurement and factors influencing energy expenditure. Carbohydrate, protein and fat inter-relationships in meeting energy requirements.

NUTR 303 Nutritional Physiology

(Prerequisites: BIOL 201-204; CHEM 201, 202, 211, 212, 221,222)

The study of body systems associated with the delivery of food to the body. The structure of the digestive system in relation to its functions in digestion and absorption. Blood physiology: blood and other fluid compartments of the body in relation to the transfer of nutrients and metabolites. Excretion.

NUTR 305 Nutritional Physiology laboratory (Co-requisites: NUTR 303)

Laboratory experiments to illustrate the principles and techniques used in nutritional physiology. This course is to accompany lectures in Nutritional Physiology.

NUTR 313 Nutrition, Sustainable Livelihoods and Extension

The broad topic areas that will be covered in the course are: nutrition and livelihoods, malnutrition, food insecurity and livelihoods, role of extension in nutrition, qualitative assessment tools for understanding nutrition and food insecurity Issues within the sustainable livelihoods framework, and improving nutrition through behavior change.

NUTR 401 Applied Nutrition

Applied Nutrition programs, their implementation and evaluation; Effects of socio-economic factors on nutrition. Urbanization and nutrition. Nutrition education and methods of delivery of nutrition information to the public. Role of national and International organizations in combating hunger and malnutrition.

NUTR 403 Assessment of Nutritional status (Prerequisites: NUTR 303, 305, 301-302)

Indices used in assessing nutritional status of individual and groups in health and disease: dietary intakes, anthropometric measurements, biochemical assessment clinical and functional appraisal of nutritional status, vital statistics. Nutritional surveillance and growth monitoring.

NUTR 405 Assessment of Nutritional status of a community I (Field work)

Techniques used in assessing nutritional status using dietary, biochemical, clinical and anthropometric measurements. Field survey of a selected community using various assessment methods; application and dissemination of nutrition knowledge in the community.

NUTR 407 Nutrient Needs (Prerequisite: NUTR 302)

Principles and methods of determination of nutrient needs; Proteins, amino acids, macro-minerals, trace elements, vitamins, fatty acids and fats.

NUTR 409 Methods in Nutrition Research

Survey of physical, biochemical and physiological methods used in nutritional investigation, e.g. fluorometry, amino acid analysis, automated haematology

NUTR 411 Human Growth and Body Composition (Prerequisite: NUTR 403)

Effects of nutrition on growth and development, regulatory growth mechanisms, measurement of growth, reference standards in growth measurement. Influence of nutrition on body composition.

NUTR 413 Nutrient Analysis practical (Prerequisite: NUTR 403, 405)

Laboratory on the techniques of determining nutrient needs and diagnosing nutrient deficiencies. Balance studies.

FDSC 301 :General Microbiology (Prerequisites: BIOL 201-204)

Historical foundations of Microbiology, Scope and relevance of microbiology. Major groups of microorganisms: Prokaryotes and Eukaryotes - Bacteria, Fungi, Viruses, Algae, Protozoa - Morphology, structure, taxonomy and reproduction; Importance of microorganisms; Methods used to study microorganism - Cultivation of microorganisms, Microscopy, Enumeration, Screening, isolation, characterization and identification, Preservation of cultures. Microbial nutrition, metabolism, and genetics. Microbial growth and its control.

FDSC 302: Thermal Processing of Foods

(Prerequisites: PHYS 200, 203, 204, BIOL 201-204, CHEM 201, 202, 211, 231, 232)

Applications of heat transfer processes in canning, pasteurization and aseptic processing. Process calculations to ensure microbiological safety and nutrition. Thermal processing equipment – design operation safety factors. Thermal processes and food preservations.

FDSC 303: General Microbiology Practicals (Prerequisite: FDSC 301)

.Laboratory methods for culturing and examining micro-organisms

FDSC 305 Physical Principles in Food Processing

(Prerequisites: PHYS 200, 203, 204, BIOL 201-204, CHEM 201, 202, 211, 212, 231, 232)

The laws of conservation of mass and energy – application in food processing. Fluid flow theory and applications. Unit operations in food processing such as dehydration, chilling and freezing, extrusion, size reduction, evaporation, mechanical separations and mixing. Traditional and modern applications of unit operations.

FDSC 307 Principles of Food Preservation

Problems of Food Spoilage. Agents and factors of Food Spoilage. Principles of Food preservation with particular reference to chemical preservation. Scientific and technological aspects of food preservation. Food quality and acceptance.

FDSC 309 Biometry (Prerequisites: STAT 212)

Statistical Applications for Nutrition and Food Science data analysis. Students t-test, Chi-square (χ^2), Analysis of variance, regression and correction. Non-parametric statistics. Introduction to the use of computer statistical packages.

FDSC 405 Sensory Analysis of Foods (Prerequisites: FDSC 309 or equivalent)

Food Quality assessment using sensory responses. Aroma, taste and texture of foods. Organisation of sensory evaluation laboratory – methods, data analysis.

FDSC 407 Quality control in food processing (Prerequisites FDSC 309 or equivalent)

Principles of quality control, quality assurance and Total quality management., Organisation of food industry quality assurance programmes, quality characteristics of foods and their measurement including development of specifications and standards of quality, sampling for quality control,. Statistical quality control processes and procedures including recording and reporting of data.

FDSC 411 Beverage and Sugar Technology

Structure, chemical and physical composition of cocoa, coffee and tea. Methods of processing. Sugar crops and sugar processing technology.

FDSC 413 Food laws and Regulations

Standards and legislation; procedures; regulatory agencies; Codex Alimentarius. Legal issues in food science and nutrition

FDSC 415 Food Irradiation

Radionuclides and radiation, radiation detection and measurement, effects of radiation on living organisms, radiation preservation of foods, limitations of food irradiation, regulations and safety. Commercial aspects of food irradiation.

FDSC 417 Food Packaging

Food packaging materials: properties and uses. Aseptic and modified atmosphere packaging. Packaging of major food commodities. Safety issues in packaging.

FDSC 419 Food Analysis II (Prerequisites: NUTR 306)

Food Analysis laboratory practice. Chemical, physical and microscopical techniques for the analysis of food products. chemical analysis of water quality, analysis of selected processed foods.

FDSC 421 Food Processing Plant Operations and Sanitation (Prerequisite: FDSC 305)

Principles and practices. Organisation and management of plant operations. Plant lay-out and flow patterns. Plant and warehouse siting and design. Pilot operations and optimization.

Cleaning operations; use of detergents and sanitizers, water use, waste disposal and pollution control; Public Health Acts and Regulations. Environment issues in food processing. Factory visits.