

## Course Descriptions

**ENGL 201**            **English Language III (N&DT, PH, PT)**            **3 cr.**  
This course offers practice in different techniques of reading, inferring meanings of new words and word formation, writing short paragraphs and developing essays; it includes short and long reading passages and exercises in comprehension. Prerequisite: ENGL 102

**BIOC 201**            **Biochemistry I (N&DT, PH)**            **3 cr.**  
This course provides knowledge about structures and functions of carbohydrates, lipids, amino acids, proteins, enzymes and nucleic acids, and vitamins sources, in addition to functions and deficiency diseases. Prerequisite: CHEM 102

**HPHY 201**            **Human Physiology I (N&DT, PH)**            **3 cr.**  
This course provides knowledge about cell membrane physiology and body fluids, blood, excitable tissues, cardiovascular system and nervous system. Prerequisite: BIOL 101.

**BIOS 201**            **Biostatistics(N&DT, PH)**            **3 cr.**  
This course introduces basic concepts and principles of statistics and applications to problems relevant to students' fields of study. Prerequisite: MATH 102

**MICB 201**            **Microbiology (N&DT, PH)**            **3 cr.**  
This course covers developments, microbial groups, morphology, physiology, reproduction, nutrition, genetics, distribution and importance. Practical lessons cover isolations, examination and testing physiological, biochemical characteristics and antimicrobial reactions. Prerequisites: BIOL 101 and BIOL 102

**ENGL 202**            **English Language IV (N&DT, PH)**            **3 cr.**  
This course guides to analysis of language, covers grammatical systems, develops skills of reading, writing, speaking and listening in integrative way, and reading passages related to different fields. Prerequisite: ENGL 201

**PARA 202**            **Parasitology (PH)**            **3 cr.**  
This course provides basic knowledge of parasitic agents of local and regional human diseases and epidemiology awareness, for prevention and control at individual and community levels. Prerequisite: BIOL 101

**BIOC 202**                    **Biochemistry II (N&DT, PH)**                    **3 cr.**  
This course illustrates degradation and biosynthesis of biochemical compounds within animal and human tissues, movement of metabolites and calculation of produced and consumed energy through different pathways. Prerequisite: BIOC 201

**HPHY 202**                    **Human Physiology II (N&DT, PH)**                    **2 cr.**  
This course provides knowledge about endocrinology, digestive, respiratory, urinary and reproductive systems. Prerequisite: HPHY 201

**NUTR 202**                    **Introduction to Human Nutrition (N&DT, PH)**                    **2 cr.**  
This course explains relationship of nutrition and human body, includes dietary sources, intake levels, biological determinants of nutrient requirements, energy balance, measurements of body composition, use of food tables, exchange lists and nutrition pyramid in diet planning and evaluation. Co-requisite: BIOC 201

**HUAN 203**                    **Functional Anatomy (N&DT)**                    **3 cr.**  
This course describes fundamentals of human anatomical structure of major body systems, emphasizing form-function relationships; practical lessons involve human skeletal collections, dissection of cadavers and preserved specimens. Prerequisite: BIOL 101.

**NUTR 301**                    **Nutrition Assessment and Surveillance (N&DT)**                    **3 cr.**  
This course introduces techniques and interpretations of nutrition assessment parameters for nutritional status, requirements for interventions/applications in health and disease, theories and practices of surveillance supported by examples from Sudan and the developing world. Prerequisites: NUTR 202 and BIOC 202

**DIET 301**                    **Basic Principles of Dietetics (N&DT)**                    **2 cr.**  
This course presents overview of the profession, career options, developments, professional organizations, code of ethics, standards of practice, values, creativity, and an introduction to legislative processes and issues. Prerequisite: None

**FOOD 301B**                    **Food Science (PH)**                    **2cr.**  
This course explains roles of biology, chemistry and physical sciences for the study of food production, processing, preparation, microbial spoilage, deterioration, preservation, and management. Prerequisite: BIOC 201

**FOOD 301**                    **Food Science (N&DT)**                    **3 cr.**  
It is the discipline in which biology, physical science, and food chemistry are used to study the nature, chemical changes, and the different preservation methods which influence the quality of the food. Prerequisites: NUTR 202 and FOOD 202

**GENE 301**                    **Genetics (N&DT)**                    **2 cr.**  
This course presents principles of heredity at organism, cellular and molecular levels and discusses functions of chromosomes, genes and genetic material with emphasis on eukaryotic gene structure and expression, and some human heritable diseases as examples. Prerequisite: HPHY 202

**RUEX 301 Rural Extension (N&DT, PH, PT) 4 cr.**  
Prerequisite: None

**WOST 301 Women Studies (N&DT, PH, PT) cr.**  
Prerequisite: None

**HEAL 301 Reproductive Health (PH) 2 cr.**  
This course provides basic knowledge on female and male reproductive systems, reproduction, and common abnormalities and diseases, to understand social impact of reproductive health services, programs and policies. Prerequisite: HPHY 202

**COMM 301 Community Development (PH) 2 cr.**  
This course describes theories and approaches in community development and explains indicators of developed and developing countries (North and South). Prerequisite: None

**POPU 301 Population Studies (PH) 2 cr.**  
This course introduces population studies, demography, population dynamics, growth, fertility, mortality, migration, economic development and related topics of urbanization and international migrations. Prerequisite: None

**HEAL 303 Fundamentals of Public Health (PH) 2 cr.**  
This course introduces key terms and concepts of public health science and practices, contrasts individualized and population approaches of health and disease, and evolution of modern approaches to public health. Prerequisite: None

**FOOD 303 Primary Nutritional Disease (N&DT) 2 cr.**  
Basic types of malnutrition, Protein energy malnutrition and starvation, Obesity, Micronutrient deficiencies. Prerequisite: NUTR 202

**NUTR 302 Nutrition during Human Life Cycle (N&DT, PH) 2 cr.**  
This course explores nutrition across lifespan from biological and psychosocial perspectives, impact on preconception, pregnancy, lactation, infancy, childhood, adolescence, adulthood, and ageing, normal growth, recommended dietary allowances, deficiencies and health problems. Seminars presented by students Prerequisite: NUTR 202.

**FOOD 302 Fundamentals of Food Preparation (N&DT) 3 cr.**  
This course covers basic principles of food preparation and latest standards of quality control, involving theoretical and practical sessions. Prerequisite: FOOD 301

**FOOD 304 Food Microbiology (PH) 3 cr.**  
This course provides knowledge about microbial growth requirements, food spoilage, preservation methods, microbial food production, fermentations, food-borne diseases, legislation and strategies for control. Prerequisite: MICB 201

**FOOD 407 Food Safety (N&DT, PH) 3 cr.**  
This course covers aspects of food sanitation and hygiene, including introduction to hygiene, food handling, vending, processing, factory water reuse, food safety - contamination routes and control measures. Prerequisite: MICB 201

**HEAL 302**            **Child Development and Health (PH)**            **2 cr.**  
This course provides knowledge on child development and health from conception to late adolescence with emphasis on illness, immunization, postnatal screening, infant feeding, effects of social environment, accidents, child abuse and disabilities. Prerequisite: HEAL 301

**WOST 302**            **Gender and Development (N&DT, PH, PT)**            **2 cr.**  
Prerequisite: WOST 301

**IMMU 302**            **Immunology (N&DT)**            **2 cr.**  
This course explores fundamental principles of immunity system and clinical applications of immunology. Co-prerequisite: MICB 201& HPHY 202

**WASN 302**            **Water and Sanitation (PH)**            **3 cr.**  
This course highlights health risks due to lack of safe drinking water, disease transmission due to poor sanitation and hygiene practices, emphasizing interventions for improving water, sanitation and hygiene practices to reduce disease transmission. Prerequisite: MICB 201

**HEAL 306**            **Principles of Health Education and Promotion (PH)**            **2 cr.**  
This course covers methods for health promotion, for individual and community by explaining health determinants, ideologies and theories of health promotion, history, politics, ethics, community development, public policy, behavior, change, communication risks, planning and interventions evaluation. Prerequisite: HEAL 303

**ENHL 301**            **Environmental Health (PH)**            **3 cr.**  
It constitutes a set of policy, regulatory, advocacy and market-based mechanisms which transform human behaviour to achieve society's goals for the environment. Prerequisite: ENVI 101

**DIET 401**            **Diet Therapy I (N&DT)**            **3 cr.**  
This course provides knowledge, skills and techniques of planning nutritional care for specific patients with certain health problems, and importance of diet in the treatment focusing on theoretical aspects of nutritional care, aetiology, symptoms and nature of diseases. Prerequisites: NUTR 302, FOOD 302, DIET 202 and NUTR 301.

**PHAR 401**            **Pharmacology (N&DT)**            **2 cr.**  
This course covers roles of nutrition and pharmacology in improvements of patients' treatments, using both approaches. Co-prerequisite: Prerequisite: HPHY 202

**EPID 401**            **Epidemiology (N&DT, PH)**            **3 cr.**  
This course introduces basics of descriptive and analytic epidemiology, key concepts on classification of disease, principles of inference, definitions of incidence and prevalence, use of rates, rate adjustment, outbreak investigation, design, cohort studies, case-control, and experimental, surveillance and screening. Prerequisite: BIOS 201

**MEEN 401**            **Medical Entomology (PH)**            **3 cr.**  
The role of arthropods as vectors of pathogens, or as parasites, causing disease in humans and animals. The principals involved will be illustrated with examples from selected diseases. The interaction of host and parasite and the dynamic nature of the epidemiologic system will be stressed. Prerequisite: PAR A 202

**FOOD 401            Food Service Management I (N&DT)            3 cr.**  
This course introduces principles of effective resources management in design and administration of food service facilities, application of managerial processes of food delivery in a variety of settings, food preparation and high quality customer service. Prerequisite: FOOD 302

**HEAL 305            Primary Health Care (PH)            3 cr.**  
This course provides knowledge about primary health care within primary health program in low income settings, philosophy, history, principles and practice of primary health care in developing countries. Prerequisite: HEAL 303

**CNCD 401            Communicable and Non-Communicable Diseases (PH)            3 cr.**  
This course focuses on common communicable diseases through food and vector-borne diseases, or by direct contact, immunizing, sexually transmitted infections and zoonotic diseases, prevention, and control, also covers non-communicable diseases (NCD): cardiovascular diseases, diabetes, cancer, obesity and nutritional diseases. Prerequisite: HEAL 303 and WASN 302

**HEAL 403            Public Health Ethics, Laws (PH)            2 cr.**  
This course describes coherent, understanding of relationships between public health laws, ethics and human rights as important features , and issues in respective f ields related to theor y and practice of public health. Prerequisite: HEAL 303

**VECO 401            Vector Control (PH)            3 cr.**  
This course describes principles and practices of vector management, emphasizing arthropod pests affecting humans, effective use of today's vector control tools and development of novel methods of targeting vectors. Prerequisite: ENMG 301, MEEN 401

**HEAL 405            Occupational Health (PH)            2 cr.**  
This course highlights history of occupational health, exposure to disease and occupational health hazards, focusing on legal and regulatory issues in provision of occupational health ser vices and work place health improvement. Prerequisite: ENVI 101

**NUTR 407            Management of Nutrition Program (N&DT)            2 cr.**  
This course describes implementation, monitoring and evaluation of nutrition programs in broader contexts, and impact to improve life quality. Co-prerequisite: NUTR 302; NUTR 405

**FOOD 403            Food Analysis (N&DT)            3 cr.**  
This course provides knowledge on scientific procedures and methodologies to quantify major components in food: moisture, fats, proteins, sugars, fibres, total ash and ash values, minor elements, vitamins and minerals, additives, and contaminants, Prerequisite: FOOD 306 and BIOC 202.

**DIET 402            Diet Therapy II (N&DT)            3 cr.**  
This course provides knowledge, skills and techniques of diet therapy where diet plays an important role in treatment, focusing on theoretical aspects of nutritional care, aetiology, symptoms and nature of diseases, training for skills of planning nutritional care for specific patients. Prerequisites: DIET 401, NUTR 302, FOOD 302, DIET 202 and NUTR 301.

**RESM 401                    Research Methods (N&DT, PH, PT)                    3 cr.**  
This course gives aspects of qualitative and quantitative research methods, introducing theoretical research methods: design, data collection, analysis and writing up, and presentation to demonstrate scientific approach. Co-prerequisites: BIOS 201 and EPID 401 (FUBE 301 for PT)

**FOOD 402                    Food Service Management II (N&DT)                    3 cr.**  
This course continues Food Services Management course II, emphasizing food catering, supply marketing and service. Prerequisite: FOOD 401

**DIET 404                    Dietetics Education and Counselling Skills (N&DT)                    2 cr.**  
This course describes application of counselling and learning theories with individuals and groups in clinical and community settings, including discussion, interviewing, counselling, assessment of learning activities, documentation, utilizing behavioural theory and evidence-based strategies to increase effectiveness of diet therapy. Co-prerequisite: DIET 301 and DIET 401

**IBEM 402                    Inborn Errors of Metabolism (N&DT)                    3 cr.**  
This course provides basic information of biochemical pathways, physiology, and factors of inborn errors of metabolic diseases of newly born infants, manifestations, diagnosis and intervention with medical and nutritional therapies. Prerequisite: NUTR 302

**FOOD 404                    Functional Foods (N&DT)                    2 cr.**  
This course covers perspectives of functional food and health promoting food recipes; biochemical aspects and disease prevention, exploring health enhancement with dietary components beyond basic nutrition, or gaining specific non-nutritive benefits to reduce disease risks. Prerequisite: FOOD 301

**HEAL 402                    Communication and Counselling in Health Settings (PH)                    2 cr.**  
This course explains positive response with confidence to situations in a variety of health care settings, and ways of health care in hospital, primary care, or in community settings, affecting counsellor roles and therapeutic processes, considering help of people with special needs. Prerequisites: HEAL 401 and HEAL 403

**HEAL 404                    Sociology of Health and Illness (PH)                    2 cr.**  
This course demonstrates the relationship between social structures, disease incidence and distribution of health care in modern society, and impacts of class, medical profession, gender and ethnicity. Prerequisite: CNCD 401

**HEAL 406                    Health Management Information System (PH)                    3 cr.**  
This course provides an overview of management of information system in health care settings, presenting review of information management value and role of information technology in provision of high quality care and decision making. Prerequisite: HEAL 401

**HEAL 408                    Health Economics and Health Care Finance (PH)                    2 cr.**  
This course introduces models and concepts in health economics with a view to benefit health care cost containment, looking at experiences employed by western countries and socialist regimes in cost-containment of high health care prices, citing Chinese model of low costs effective programs. Prerequisite: HEAL 402

**NUTR 408                      Sociocultural Aspects of Food and Nutrition (N&DT)                      2 cr.**  
This course explains influence of socio-cultural determinants: economic, structure, product value, habits and other factors of individuals' nutrition. Prerequisite: None.

**NUTR 401                      Food Nutrition Policy and Planning                      2 cr. hrs**  
This course applies relevant policy-making theory and practice to the area of food and nutrition. It uses qualitative and quantitative information to assess nutrition problems.

**COMM 401                      Community Nutrition (N&DT)                      3 cr.**  
This course expands on the basics of nutrition courses with special emphasis on community nutrition and the nutrition needs of the population. It explores the role, function, and principles necessary for the professional effectiveness of a community nutritionist; principles of program planning and educational theory. Prerequisites: NUTR 302 and NUTR 406

**NUTR 406                      Nutrition in Emergency (N&DT)                      2 cr.**  
This course describes disasters in the world and Sudan, refugees and displaced in developing world, and public health interventions, emergency food policies, feeding programs, food as a right for refugees and displaced, role of scientists, agencies and governments in food assistance. Prerequisites: NUTR 302 and FOOD 303.

**DIET 503                      Special Topics in Nutrition & Dietetics (N&DT)                      1 cr.**  
This course provides opportunity to integrate knowledge of clinical and community dietetics and management principles through public speaking, writing, organizational and problem-solving skills, to perform, supervise, manage and participate in activities completed by entry-level dietitians. Prerequisite: all subjects from semester 1 to semester 8

**DIET 501                      Internship I and II (N&DT)                      28 cr.**  
**& DIET 502**  
Students practice eight months on food services, in hospitals and community affiliations, an internship of eight contact hrs/day for four days/week (32 hrs/week), a full-time program beginning July, ending in March each academic year. Prerequisite: all subjects from semester 1 to semester 8

**HEAL 501                      Health Policy and Planning (PH)                      2 cr.**  
This course provides an overview about three major issues in health care: first, health policy principles and practices in Sudan, second, planning health care basics, cycles and results, and third, on management of public health practitioners. Co-prerequisites: HEAL 406 and HEAL 408.

**HEAL 503                      Public Health during Emergency (PH)                      2 cr.**  
This course provides an overview of current health-related challenges and policy debates concerning appropriate responses to populations affected by conflicts. Prerequisite: HEAL 401

**NUTR 501                      Nutrition Counselling and Communication Skill (N&DT)                      3 cr.**  
This course focuses on counselling and learning theories with individuals and groups in clinical and community settings, and communication skill needed to convey a counselling session, and training for target groups. Prerequisite: NUTR 402

**FOOD 501                      Food and Nutrition Policy Planning (N&DT)                      2 cr.**

This course of diverse skills for successful impact on food policy and nutrition interventions, providing conceptual and analytical skills required for program managers and policy analysts with statistical and research skills, for technical program planning, implementation and evaluation. Prerequisite: NUTR 405

**HEAL 506                      Special Topics in Global Health and Development (PH)                      1 cr.**

This course provides concepts and aspects of global health, including: burden, distribution of disease and mortality; determinants of global health disparities; planning of global health policies, outcomes of health interventions. Prerequisite: all subjects from semester 1 to semester 8

**HEAL 504                      Attachment (PH)                      4 cr.**

This course offers significant opportunity to apply knowledge and classroom skills for achievement of practical goals and refinement of skills, under the supervision of a preceptor and a faculty advisor. Prerequisite: all subjects from semester 1 to semester 8

**RESP 502                      Research Project (N&DT, PH, PT)                      6 cr.**

This is an assigned research problem in a field of specialization supervised by a staff member, dissertation presented at the end of semester for evaluation by an internal supervisor and/or an external examiner. Prerequisite: RESM 401

**CRGD 502                      Career Guide (N&DT, PH, PT)                      1 cr.**

This course provides 5th year students with basic information of different service systems of future work activities and methods in Sudan, for clear understanding of jobs in relation to labour market for graduates. Prerequisite: None

**BIOC 203                      Biochemistry (PT)                      3 cr.**

This course introduces bio-molecules, importance, sources, sites and structures of compounds, enzymes, vitamins, and deficiency diseases, degradation and biosynthesis of metabolites inside human tissues, their movement, and energy calculation for different biochemical pathways. Prerequisites: CHEM 101 and CHEM 102

**PHYS 201                      Physiology (PT)                      4 cr.**

This course introduces general principles of human physiology, includes neural and hormonal control mechanisms, of musculoskeletal, circulatory, respiratory, digestive, urinary, immune, reproductive, and endocrine systems, and body response to exercise, and integration of organ system functions. Prerequisite: BIOL 101

**ANAT 205                      Anatomy (PT)                      6 cr.**

This course emphasizes anatomical structure of muscles, skeleton, joints, central and peripheral nervous system offering basis for physiotherapist specific subjects. Prerequisite: BIOL 101

**PSYC 201                      Child Development (PT)                      2 cr.**

This course provides information about child physical and motor development. Prerequisite: None





effective clinical reasoning, to integrate, apply and evaluate both specific and generic physiotherapeutic skills of assessment and management. Prerequisite: PHTH 202, Co-prerequisite: HELU 302.

**PHTH 306 Internal Medicine (PT) 2 cr.**

This course provides introduction to assessment and treatment of rheumatologic diseases to develop problem solving and evidenced based approach, giving fundamental knowledge of general and specialist medicine to plan adequately rehabilitative interventions for different diseases. Prerequisite: INHD 202 and PHYS 201.

**PHTH 308 Therapeutic Exercises (PT) 4 cr.**

This course of fers practical courses for dif ferent types of exercises, and experience to train and instruct, choosing beneficial exercise levels for patients, learn changing exercises, evaluate quality of exercise programs and plan for progression. Prerequisite: PHTH 202, ANAT 205 and PHYS 201.

**PHAR 302 Pharmacology (PT) 2 cr.**

This course offers basic knowledge for understanding different drug treatments, related to physiotherapy, providing information about common drugs for rehabilitation, such as pain-killers, anti-inflammatory y and anti-spastic. Prerequisite: BIOC 203 and INHD 202.

**PSYC 302 Abnormal Psychology (PT) 2 cr.**

Explores historical views and current perspectives of abnormal behaviour, emphasizing major diagnostic categories and criteria, individual and social factors of maladaptive behaviour, adjustment, anxiety and personality disorders. Prerequisite: None.

**FAID 401 Fundamental of Nursing Aid (PT) (1-1) 2 cr.**

This course provides the skills necessary to give care in the case of an emergency, to help sustain life and minimize the consequences of injury or sudden illness encountered during a physiotherapy patient session. Co-Prerequisite: PHYS 201.

**PHTH 401 Physiotherapy: Community Based Rehabilitation (PT) 4 cr.**

This course emphasizes principles of Primary Health Care to orientate towards provision of “global” Health Care, promotion, disease prevention, rehabilitation through community action, for people with disabilities and families under CBR, to ensure benefits. Co-Prerequisite: INHD 202.

**PHTH 403 Physiotherapy: Health Promotion and Prevention Work (PT) 6 cr.**

This course covers approaches in health promotion practice, addressing individuals and community, describing structural health determinants and practice settings-based for health promotion, planning and interventions, focusing on physical activity to obtain goal. Co- Prerequisite: PHTH 202.

**PLAC 401 Placement: Physiotherapy in Neurology, Heart and Lung, and Rheumatology (PT) 6 cr.**

This course offers full-time supervised placement at hospitals and rehabilitation units with access to neurology, heart/lung and rheumatologic patients, for practicing assessment, interventions and evaluation of treatments. Prerequisites: NEUR 302, PHTH 302, PHTH 304, PHTH 306 and HELU 302.



**PHTP 501                    Physiotherapy Practice (Comprehensive exam) (PT)                    1 cr.**  
The exam aims to assess and evaluate students' knowledge in basic sciences and physiotherapy skills. Prerequisite: all PHTH courses.

**NDTH 501                    Nutrition and Diet Therapy (PT)                    3 cr.**  
This course introduces certain problems in health and diet role in treatment, focusing on theoretical aspects of nutritional care process, disease, symptoms and nature, and acquaints students with nutritional care needed by patients. Prerequisite: BIOC 203.

**PHTH 501                    Physiotherapy: Geriatrics (PT)                    3 cr.**  
This course presents a comprehensive overview of geriatric exercise principles, including differential diagnosis, practice patterns pertaining geriatric syndromes responding to therapeutic exercise programs by examination and evaluation procedures applicable for treating without referral for each area of physical therapy. Prerequisite: PHTH 202.

**PHTH 503                    Physiotherapy: Sport (PT)                    3 cr.**  
This course introduces a scientifically-based clinical approach to treating athletes, based on the concept that sporting activities require a state of readiness, which requires a basic level of fitness to perform at highest levels of musculoskeletal and neuromuscular activities. Prerequisite: PHTH 202.

**PLAC 502                    Placement: Physiotherapy Practice (PT)                    16 cr.**  
This course upgrades student to independent physiotherapists, using problem-solving in reasoning- implement, evaluate and document intervention/treatment. Prerequisite: PHTP 501

**Elective courses:**

**NUTR 407                    Management of Nutrition Program (N&DT)                    2 cr**  
The implementation, monitoring and evaluation of nutrition program in its broader development context and its impact on the society to raise the quality of well being of individuals and how they are improving the quality of life.

**NUTR 403                    Nutrition for Fitness and Athletes (N&DT)                    2 cr**  
This course is designed to develop an understanding of special nutritional needs for participants in regular physical activity of individual and team sports, focusing on metabolism of exercises and role of diet in athletic performance. Prerequisites: NUTR 301 and NUTR 302

**NUTR 502                    Management and Leadership in Nutrition (N&DT)                    2 cr.**  
This course offers skills, styles and qualities of leadership for successful impact in nutrition field, providing conceptual and analytical skills, for administrative, ethical and professional leadership in nutrition and health care. Prerequisite: NUTR 501.